

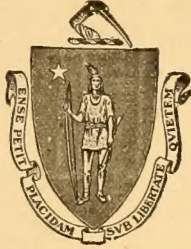
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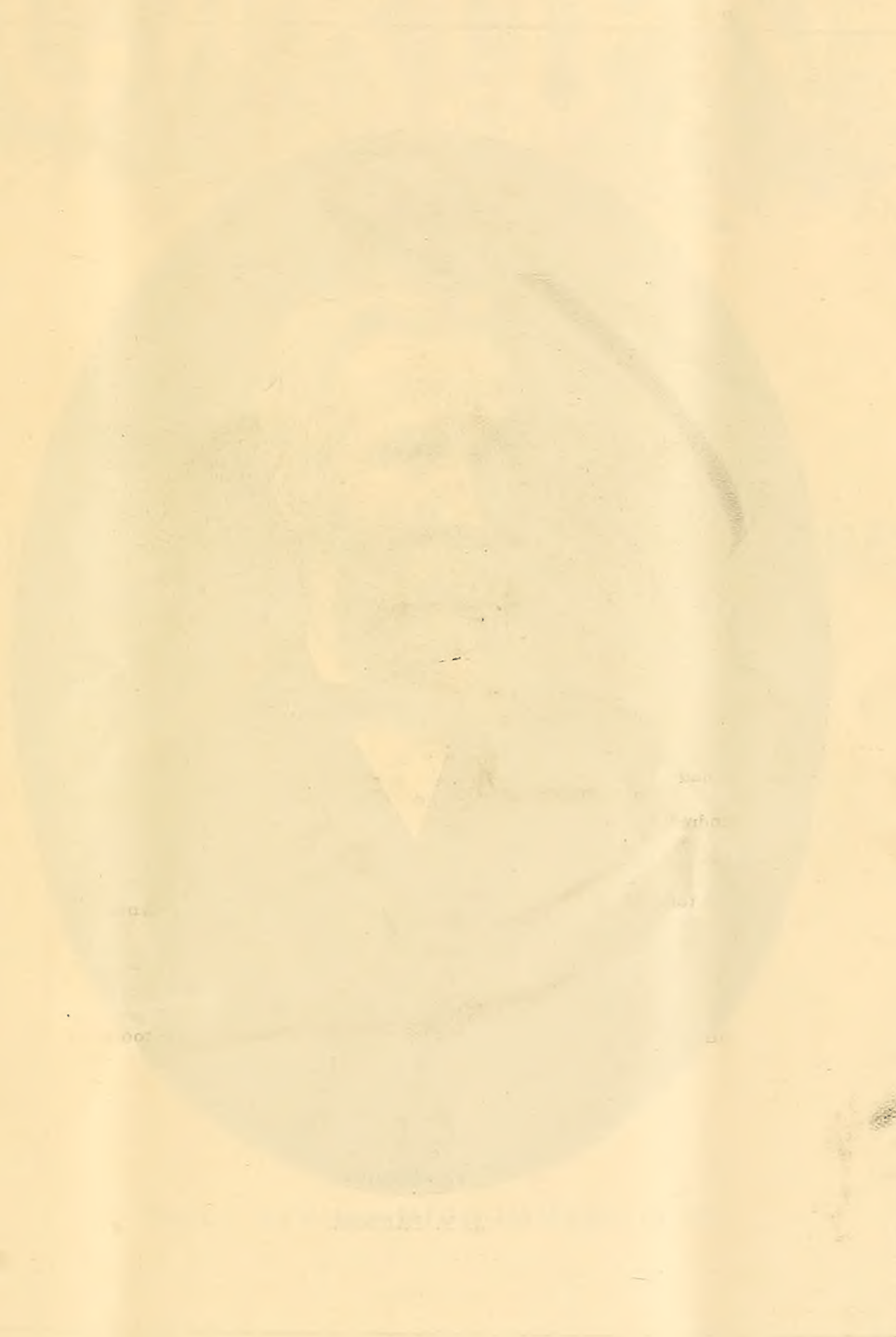
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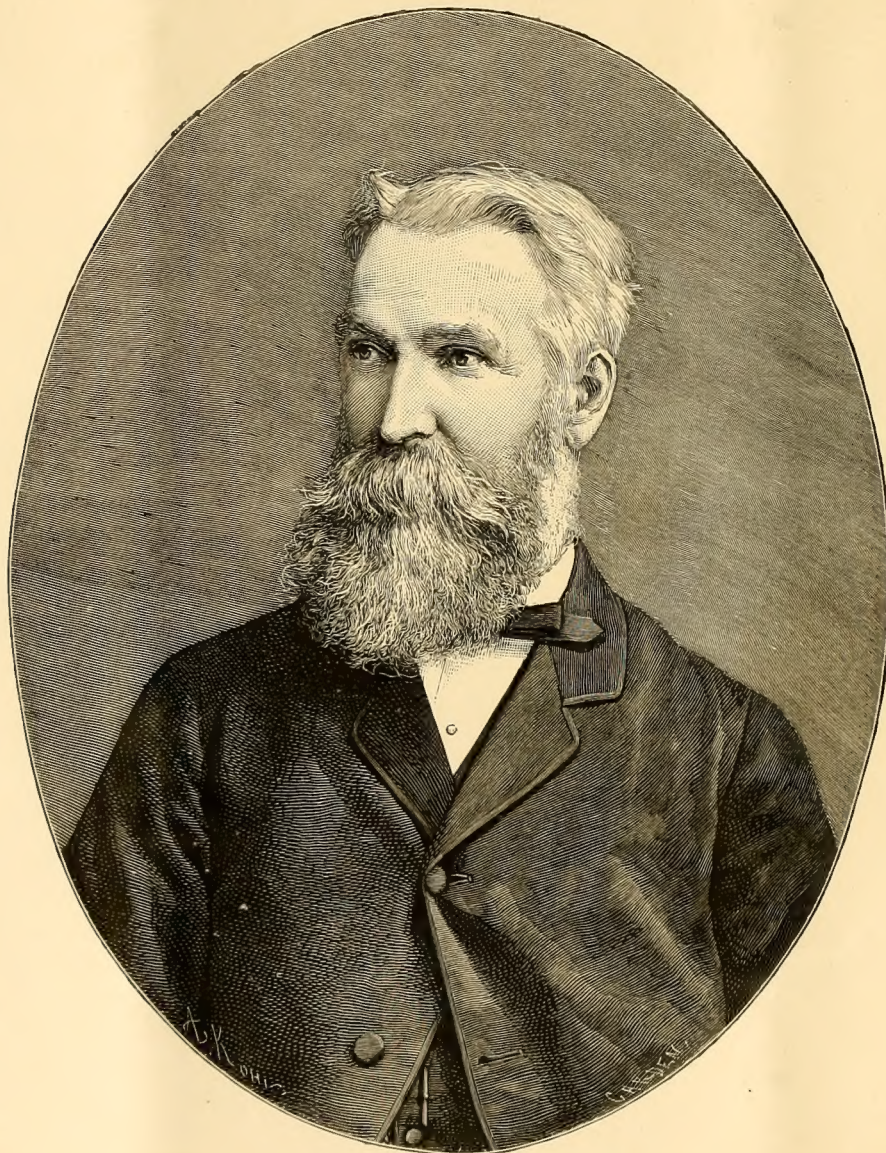
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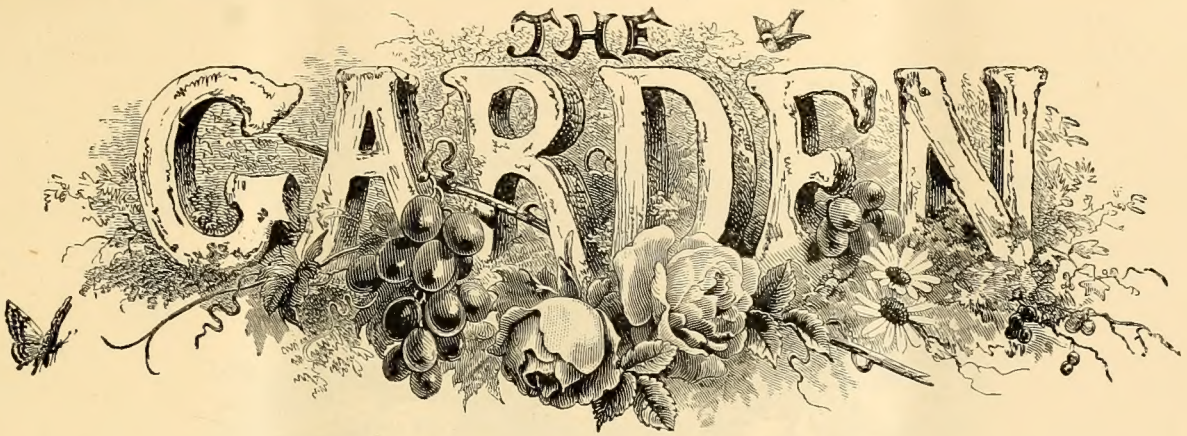
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A. F. BARRON.



AN

ILLUSTRATED WEEKLY JOURNAL

OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, Author of "The Wild Garden," "English Flower Garden," &c.

"You see, sweet maid, we marry
A gentler scion to the wildest stock;
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature,—change it rather: but
The art itself is nature."

Shakespeare.

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THE THIRTY-THIRD VOLUME OF "THE GARDEN"

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INDEX TO VOLUME XXXIII.

(Illustrations in Italics.)

A.

- Abelia, 272; *rupestris*, flowering branch of, 272; *uniflora*, flowering branch of, 272
 Abies Albertiana, 44; *amabilis*, 472; *brachyphylla*, 106, 229
 Abutilon vitifolium, 496; in Shropshire, 500
 Abutilons in bloom, 31; seedling, 57
 Acacia or Locust tree, 64, 107; golden-leaved, the, 576; *lineata*, 148; *longiflora mucronata*, 118; *pubescens*, 231; Rose, on walls, 105
 Acacias, propagating, 537; two Primrose-flowered, 186
 Academy, landscape at the, 523, 585
 Accident, a beautiful, 452
 Acer creticum, 4; *saccharinum*, 229
 Acers, Japanese, stock for, 200, 229
 Achillea rupestris, 556
 Ac inidia, 273; *Kolomikta*, flowering branch of, 273; *Kolomikta*, fruit of, 273; *colubilis*, flowering branch and detached flower of, 273
 Ada aurantiaca, 175
 Adam's Needle, 333
 Adelaide, a note from, 363; Botanic Garden, group of plants in, 261
 Adiantum assimile cristatum, 38; *curvatum*, 225; *decorum*, 137; *farleyense*, 292; *monochlamys*, 37; *setulosum*, 225; *trapeziforme*, 188
 Adonia Marie Begonia, 382, 409
 Aerials Emotici, 456; *expansum* Leonie, 593; *Fieldingi*, 103; *Fieldingi alba*, 496; *Houlletianum*, 307; *rubrum*, 326, 351; *vanderum*, 180, 224; *Warneri*, 456; white, a new, 495
 E. chymanthus, the, 219
 Esculus glabra wood of, 400; *rubicunda*, 40; *rubicunda*, flowers, flowering and fruiting branches, 40
 Agapanthus umbellatus candidus, 88, 122; white, 555
 Agave utahensis, 310
 Ajuga reptans rubra, 530
 Akebia, 500; *Chinese*, flowering branch of, 300; *quinata*, 300; *quinata*, 539
 Alder, the, 44, 68
 Allium Ostrowskianum, 530, 601; *paradoxicum*, 432
 Alliums, 549
 Allspice, Californian, the, 392; *Carolina*, the, 392; *Carolina*, fruit of, 392; Japanese, 128; Tree, 392
 Almond, 300, 441; *dwarf*, flowering branch of, 300
 Alouca Sanderiana, 193
 Alouca bed in Botanic Garden, Adelaide, 261
 Alonsoa incisifolia, 325
 Aloyia, 300; *citrosora*, propagating, 264
 Alpine flowers, where to find, 212
 Alpine garden on level ground with the plants in natural groups, 115
 Alpine house, the, at Kew, 384
 Alpine plants in natural masses, 115; popularity of, 555; on rockeries, 54
 Alpine, what is an? 405, 433
 Alseine verna fl. plenissimo, 496
 Alyssum pyrenaicum, 480; *saxatile*, 530; *saxatile compactum*, 529
 Amaranthus splendens, 90
 Amayllids at Chelsea, 361; at Veitch's, 325; seedling, 505
 Amayllis, a white, 410; *Belladonna*, 268; *Belladonna* in Yorkshire, 333; *Conqueror*, 330; *Emperor Frederick*, 330; *Finette*, 349; *Miss Ainslie*, 397; *Miss Roberts*, 350; new types of, 361; *Rodney*, 350; the, 346
 Amazon Lily, the, 381
 Amelanchier, 300; *botryapium*, 539; *florida*, 164
 American Florist, the, 19
 American notes, 90, 288, 311, 493, 607, 616
 Amorphia, 300
 Amorphophallus Titanum, 79
 Ampelopsis Veitchi, propagating, 489
 Amygdalus, 300; *nana*, flowering branch of, 300
 Anactochilus, 593
 Andromeda floribunda, 83, 129; *japonica* variegata, 294
 Androsace Chamæjasme, 528; *Laggeri*, 506
 Anemone apennina, 404; *apennina alba*, 446; *baldensis*, 572; *blanda*, 113, 402, 449; *Fannini*, 402; *fulgens*, 271, 380; *fulgens* and the frost, 290; leaves diseased, 521; *narcissiflora*, 528; *nemorosa bracteata*, 432; *palmata*, 428; *scarlet*, Greek form of the, 284; *sulphurea*, 572; *sylvestris*, 477; wood, double, 556
 Angraecum arcuatum, 397, 536; *caudatum*, 61; *citratum*, 186; *eburneum*, 132; *hyaloides*, 186; *Leoni*, 332; *Sanderianum*, 278, 332, 351, 373; *sesquipedale*, 43; *sesquipedale*, 433
 Angraecums at Burford Lodge, 223; at Clapton, 235; raising from seed, 266
 Angulosa intermedia, 496, 593
 Annuals, choice, 239; *hardy*, 333; in the shrubbery, 442; under glass, raising, 336
 Anoplopus glandulosa, 193
 Ansellia africana, 102
 Anthurium Andreanum, 526; *de Smetianum*, 553; *Leodiense*, 251; *Scherzerianum*, 89, 553, 583
 Anthuriums, propagating, 415
 Aphelandra aurantiaca, 294
 Apple Besspool in Kildare, 172; *Blenheim Orange*, 15, 50, 35, 47; *Blenheim Orange*, history of, 111; bloom, 474; *Bramley's*, 247; *Claygate Pearmain* in Scotland, 35; *coral-flowered*, 539; *Cornish Gilliflower*, 20, 34; *D'Arcy Spice*, the, 86; *Flanders Pippin*, 318, 344; *French Crab* in May, 477; *Green Costard*, 478; *Melon*, 72; *Northern Greening*, 354; *Reinette du Canada*, 211; *Reinette Grise*, 171, 211; *Ribston Pippin*, 390; *Ribston Pippin* from New Zealand, 438; *Ryder and Lane's Prince Albert*, 342, 355; *Russian Crab*, 477; *Seedling Waltham Abbey*, 510, 546, 589; *Wealthy*, hardness of the, 16; *Wellington* and the frost, 72; *Winter Peach*, 475
 Apple Trees, blue, the, 309
 Apple trees in gardens, small, 35; old, grafting, 420, 461; old, renovating, 519, 545; scale on, 172
 Apples, Australian, 517, 579; bright-coloured, 14; *cider*, 463; fewer kinds of, 15; for beauty of flower, 422; for cooking, 171; for profit, 99; for Scotland, 15; growing our own sugar in our, 85; late, the best in France, 190; market, 16; no division needed, 46; packing, for exportation, 172; the, to plant, 145
 Aquatics, cultivation of, 181
 Aquilegia Stuarti, 501
 Aquilegias, 523; as pot plants, 553; from Manchester, 601
 Aralias, choice, 505; propagating, 263
 Araucarias, propagating, 379
 Arbutus, 320; *Craonnet*, 320; *uncdo*, 320
 Ardisia mamillata, 180
 Arenaria balearica, 450, 526
 Aristolochia rotunda, 214
 Arnebia cornuta, 333; *echinoides*, 496
 Arpophyllum giganteum, 386
 Arpophyllum at Burford Lodge, 206
 Arrangements, simple, some, 54
 Arum Lilies, 584
 Arundina bambusaefolia, 331
 Arundo donax variegata, 541
 Asimina, 320; *triloba*, flowers of the, 321
 Asparagus, Barr's, 338; *blan hing*, 455, 485; cultivation in America, 435; cutting, 484; *decumbens*, 148; for forcing, 226; for market, 268; German, 526; *plumosus nanus*, 541; propagating, 162; *tenuissimus*, propagating, 604
 Aubrietia violacea, 526, 531
 Auricula, alpine, 450; alpine, Harry Turner, 446; alpine, Hetty Dean, 446; alpine, Mrs. Harry Turner, 446; *Parkinson's Tannetta*, 478; the, 238; work on the, 260
 Auriculas, alpine, 428, 530; notes on, 480; yellow, 402
 Austrian Pine, black, 544
 Avena, alpine, 481
 Avenue in bad condition, 22
 Azalea amena, 118; *coccinea major*, 564; *D.utsche Perle*, 12, 20, 411; *Indian*, the white, 161; *lediotia*, 321; *mollis*, 179; *mollis*, 324; *mollis* in pots, 540; old white, for cutting from, 13; *rhombicum*, 493; *roseiflora*, 362; *Vervaeckiana*, 446; white, a naturally grown, 542; *white Indian*, in a wood at Colchester, Sussex, 139
 Azaleas, 321; Ghent, 348; hybrid, 409; *Indian*, hardness of, 607; *Indian*, in Wales, 138; propagating, 185; white flowered, 460
 Balfour, Prof. L. Baillie, 206
 Ballot, judging by, 67
 Balsams, 443
 Bambusa Veitchi, 179; *viridi-glaucescens*, 107
 Banana trade of Demersara, 48
 Barberries, Ash, 198
 Barberry Ash, N. Gaul, 198; Chinese, 369; Coral, 348; *Cord. fl. rosea* of, 348; Nepal, 15, 155; Ralsin, 179; Thunberg's, 155
 Barberry hedges, 590
 Bauera rubioides, 192, 326
 Bayberry, Californian, 2
 Beans, Broad, 40
 Beaumontia grandiflora, 294
 Bedding, summer, 334
 Beech, copper, or coloured trees, 369; purple, a new, 526; the, as undergrowth, 448
 Beetle, Pine, the, 470
 Beetles destroying Cabbages, 521
 Befaria glauca, 380
 Begonia Baroness Rothschild, 496; *Camellia*, 568; *Comte de Limminghe*, 458; *glaucophylla*, 409; *Gloire de Sceaux*, 250; *H. Adcock*, 568; *manicata*, 66; *Mrs. W. B. Miller*, 568; *odorata*, 250, 277; *Princess Maud*, 496
 Begonias, propagating, 379; *tuberosa*, 161; *tuberosa*, dividing, 480; *tuberosa*, for the flower garden, 276; two, 146; winter-flowering, 161, 186
 Benthamia fragifera, 4, 43, 106, 200
 Berberidopsis corallina, 348, 607
 Berberis, 368; *luxifolia*, flowering branch and detached flower, 368; *corallina*, 348; *Darwinii*, 564; *Darwinii*, flowering branch of, 368; *glauca*, flowering branch and detached flower, 368; *neralensis*, 65, 106, 200; *sinensis*, 369; *stamphylla*, habit or flower-spike, 368; *vulgaris*, flowering branch of, 369
 Berchemia volubilis, 348
 Bertolonias, propagating, 604
 Betula lenta, 110
 Bignonia, 348; *capitata*, 348; *grandiflora*, flowers of, 348; *radicans*, 348; *Tweediana*, 349
 Billardiera longiflora, 369
 Birch, Cherry, the, 110
 Birds at d buds, 251
 Bitter Vetch, spring, 572
 Bladder-nut, Colchic, the, 179
 Bletia, 296; *hyacinthina*, 456, 567
 Blood-flower, the, 116
 Bloodroot, the, 433
 Bog ground, planting, 207
 Bolbophyllum barbigerum, 176
 Books:—
 "Art of Preparing Vegetables for the Table," 469
 "Chrysanthemum Annual," 255
 "Cultivation of the Pansy," 558
 "Hazel-nut Culture," 19
 "Manual of Orchidaceous Plants," 563
 "Roses and Rose Culture," 430
 "The Farmer's Friends and Foes," 149
 "The Orchid Album," 230, 373, 456, 593
 Border, hardy perennial, 214
 Borders, wall, concreting the bottoms of, 73
 Boronia heterophylla, 277, 284, 362; *megastigma*, 219, 275, 326, 410; *Violet-scented*, 326
 Botanic Gardens, Adelaide, *Alouca bed* in, 261
 Botrychiums, 340
 Bougainvillea speciosa, 86
 Bouquet, a large table, 285; ugly pincushion, 85
 Bouquets, 329; modern, 305
 Bouvardia, brightest, the, 323; *President Cleveland*, 66
 Bouvardias, bright-coloured, 410

Boxes, wood, & flower-pots, 294
 Bramble, Rocky Mountain, 549; Rose-leaved, 4
 Brassavola Digbyana, 593
 Brassia Lawrenceana, 225
 Briers, nut-brown, for budding, 95
 Brittle snake, the, in the Orchid house, 78
 Broccoli, Cornish, 105; for succession, 524; late flowering, 609; Veitch's Autumn Giant, 40
 Bromeliaceous plants, 30
 Broom, 490; Spanish white, 490; Teneriffe, 284; white-flowered, a, 443
 Broughtonia sanguinea, 62, 103, 308
 Browallia elata, 218
 Brownea Ariz. 583; grandiceps, 160, 186; macrophylla, 230
 Brownea, 363
 Brunonia australis 550
 Brush Bush, the, 615
 Brussels Sprouts, 227, 299
 Bryanthus erectus, 572
 Buck Bean, the, 529, 600
 Buddleia crispa, 662; *globosa*, 369
 Buds and plants, sleep of, 523, 598
 Bugle, purple creeping, 550
 Bulbous plants in Holland, show of, 327
 Bulbs and the dry summer, 450; hardy, rows & groups, 289; spring, for a small greenhouse, 274
 Bullacea, 173, 210, 318
 Bullchilla capensis, 326
 Burnt earth for gardens, 358

C.

Cacti, 346; propagating, 574
 Cacti Ipicia japonica, 619
 Caladium Comte de Germiny, 496; minus rubescens, 393
 Caladiums, 12; at Forest Hill, 443; at Maids Vale, 583; propagating, 114; wintering, 12
 Calanthe oculata vestita gigantea, 236; Regneri, 236; Veitchi, 266; vestita oculata gigantea, 331, 332
 Calceolaria Souvenir, 488; violacea, 253
 Calceolaria, herbaceous, 58
 Callas, 86
 Calliandra Tweedii, 160
 Callistemon viridiflorus, 466
 Calochortus ceruleus, 553; *venustus citrinus*, 619
 Calophaca vulgaris, 392
 Caltha palustris fl.-pl., 509
 Calycanthus, 392; *floridus*, 392; *floridus*, fruit of, 392; *occidentalis*, 392
 Camassia Cusicki, 601
 Camellia buds falling, 80, 117, 192, 219
 Camellia house, the, 363
 Camellia reticulata, 383; single white, 363; variegated, a, 355
 Camellias for cutting, 251, 346, 373; in Cornwall, 133; notes on, 344; out of doors, 322, 393; planting out, 362; young, 56
 Campanula abietina, 573; glomerata dahurica, 601; perisicifolia, varieties of, 601; pulla, 601; pyramidalis at Miramar, 601
 Campion, double white, 572
 Candollea Standishii, 186
 Candytuft, alpine, dwarf, 507
 Cannas, a note on, 551; flowering, 219
 Canterbury Bells in pots, 573
 Cape Pondweed in Kent, 428
 Caragana, 392
 Cardiandra alternifolia, 392
 Cardoens, 407
 Carnation Apricot, 244; Clarisse, 204; Comtesse de Paris, 111; Miss Jolliffe, 541; Mrs. W. H. Grefell, 349, 388; old Clove, 477; Purple King, 319; S. B. Robert Houlgrave, 8; Souvenir de la Malmison, 294, 477, 575; Wm. Swayne and American Florist, 509
 Carnations, 25, 141; and Picotees, 508; at Gundersbury Park, 20; border, 122; diseased, 569; from cuttings, 165; from Villa Monteboron, 356; seedling, 452; self, 104; Tree or perpetual blooming, 80; Tree, propagating, 114; winter-flowering, 66; yellow, 440
 Carex indivisa, 84
 Carpentaria californica, 501
 Carpentaria and Cholsay in Shropshire, 526
 Cassandra caliculata, 392
 Cassiope tetragona, 443
 Catalpa, 392; *bignonioides*, 393; *bignonioides*, foliage of, 393
 Catasetum Bungei, 388
 Catasetum, 31
 Catchfly, Pyrenean, the, 290
 Cattleya Aclandii, 593; amethystoglossa, 245; blue-flowered, a, 593; Bluntii, 593; Buchani, 616; citrina, 332, 372, 456; citrina, 535; dolosa, 593; Eldorado splendens, 132; Gardneriana, 575; guttata Prinzi, 456; Lawrenceana, 331, 434; Lawrenceana delicata, 456; Leidezi, 284; maxima decora, 104; Mendelii, 512; Mendelii, varieties of, 473

Cattleya Morganii, 494, 616; nobilior, 593; Sanderiana, 615; Schilleriana, 593; Schroederia, 512; shoots, grubs destroying, 24, 78; Skinneri, 307, 386; speciosissima Ernesti, 151; Trianae, 308, 331; Trianae alba, 132; Trianae Osmani, 152; Wagneri, 511; Wagneri superba, 568; *Wagneri*, 18
 Cattleyas at Downside, Leatherhead, 177
 Cauldflower, culture of the, 81; crops, the, of Leon (Finisterre), 586
 Cauliflowers, 10
 Cedar in its native home, the, 105; Lebanon, the, 272; white, the, 68, 84
 Celastrus scandens, 393
 Celery, planting, on the surface, 244
 Celsia cretica, 404
 Centaurea cyanus, 402; montana, 508; montana alba, 530
 Cephalaria follicularia, 576
 Cerasus, 416; *scandens*, 228; *serrulata*, 417; *Watereri*, 420
 Cercis, 416; *siliquastrum*, 466, 491; *siliquastrum*, flowering and fruiting branches of, 416; *siliquastrum*, foliage of, 416
 Chamisso's Fortuni at Heckfield Place, 551; humilis, 516
 Cheilanthes, 242
 Cheiranthus alpinus, 477
 Cherries and bees, 354
 Cherry, All Saints', the, 228; Chinese, double white, 417; double-flowered, *Watereri*, 420; double-flowering, the, 539; double white, 466
 Chestnut, Horse, scarlet, the, 40; flowering and fruiting branches of, 40
 Chilian shrubs, hardiness of, 229
 Chimonanthus fragrans, 128, 393
 Chionanthus, 416; retusus, 549; virginicus, 199
 Chionodoxa cretensis albiflora, 395; Luciliae, 333
 Choisyana ternata, 229, 410, 501; ternata, propagating, 360
 Chorozema cordatum splendens, 324
 Chorozemas, the, 43
 Chrysanthemum, a new, 288; Beaute de Jardins, 466; culture, 8, 58, 167, 222; cuttings, 88; cuttings, management of, 23; cuttings, striking, in heat, 24; Golden Gem, 66; Governor of Guernsey, 66; hematoma, 576; in Japanese art, 384; Maid of Kent, 88; Mignon, 112; Miss Maréchal, 112; Mrs. C. Carey, sporting, 88; Pelican, 167; pest, a new, 566; St. Michael, 222; show schedules, 52, 112
 Chrysanthemums, 332; blue, 88; Celery fly on, 502; culture in boxes, 243; dwarf, 222, 426; early-flowering, 466, 566; frimbriated, 288, 332, 384; final potting of, 502; fragrant, 332, 384; from seed, 184, 332; from suckers, 9; grafting, 223; growing, in boxes, 184; hints for the coming season, 51; in summer, 565; in the West, 88; Japanese, classified, 502; late, 112, 184; management of young plants, 87; May-struck plants, 288; notes on, 384, 576, 604; on walls, 287, 332, 384; preparing for potting, 223; preparation of stimulants for, 603; reflexed Japanese, 406, 426; scented, 9, 24, 52, 87, 112; seasonable notes, 166, 188, 288, 467, 486, 565; second potting of, 242; selection of buds, 112; single, 852, 405; soil for final potting, 485; standards, 315; varieties of, 9; weak-growing, 222, 243, 332
 Chysis at Studley House, 174
 Cineraria Advance, 397; Aspasia, 397; Beatrice Kelway, 397; cruenta, 87, 279, 363; Faust, 397; Marie, 349; Queen Victoria, 397; the, 59, 408
 Cinerarias, 160, 293, 326, 459; at Farnham Royal, 363; double, 380, 383, 542; fixed strains of, 504
 Cissus discolor, 505
 Cistus, 490; Clusi, 356, 564; creticus, 490; Gum, Cretan, the, 490; Gum, Ladanum, the, 490; ladaniferus maculatus, 490
 Cladrastis, 440; *amurensis*, 444
 Clematis cirrhosa, 165; evergreen, 206; indivisa, 86, 192; indivisa, propagating, 162; Miss Bateman, 163; Miss Bateman over porch, 163; montana, 556; New Zealand, the, 251; propagating the, 574
 Clematises dying off, 94
 Clerodendron, 417; fragrans, 384, 410; nutans, 412
 Clerodendrons, propagating, 826
 Clethra, 440
 Climber, annual, a good, 54
 Climbers, New Holland, 231
 Climbing plants failing, 541
 Clivia v. Imantophyllum, 325
 Clontarf, St. Anne's, good things at, 380
 Cobaea scandens, variegated, propagating, 427
 Coburgias, treatment of, 58
 Cocculus carolinus, 440
 Cologyne asperata, 132; cristata, 113, 176; cristata, 265; cristata alba, 230; cristata Lemoniana, 138; cristata var., 231; elegans, 373; graminifolia, 177; sparsa, 176; speciosa, 264; tomentosa, 373
 Cologyne, evergreen, 264; from Chatsworth, 284

Coffee tree, Kentucky, the, 229, 253, 349
 Colletia, 440; bictonensis, 130, 228; spinosa, 440
 Collinsia verna, 555
 Columbine, white, the, 500
 Columbines, 509; seedling, 549
 Colutea, 441
 Combination, pretty, a, 254
 Combretum purpureum, propagating, 537
 Comptonia asplenifolia, 441
 Cones, collecting, 255
 Conifer for chalky soils, 105; seedlings, propagating, 510
 Conifer, a, winter tint of, 155
 Coniferous trees, pruning, 498
 Conifers, banished, 301
 Cooperia pedunculata, 550
 Corbularia monophylla in the open air, 335
 Cordylina australis variegata, 350
 Coropis lanceolata, 7
 Corners, odd, 261
 Cornflower, blue, 402; mountain varieties of the, 500
 Cornus, 441; florida, 441
 Corokia Cotoneaster, 500
 Coronilla emerus, 490, 580; glauca, 444, 492, 538
 Correa cardinalis, 12
 Correa, propagating, 360
 Corydalis bracteata, 572; Ledebouriana, 214
 Corylopsis, 441; *spicata*, 441
 Cotoneaster, 490
 Cottage garden, a, 25
 Covent Garden, floral fête in, 543
 Covert, planting a, 304, 400; plant, a, 84
 Coverts, underwood for, 424
 Crab, Siberian, the, 539
 Crabs, hybrid, 353
 Cranberry, the, 317
 Crassulaceae, 33
 Crataegus, 465; *Crus-galli ovalifolia*, 468, glandulosa, 464; Lelandi, 129; *Orycantha*, 465; *Orycantha semperflorans*, 465; *Pyra-cantha*, 464; *tanacetifolia* Leana, 468
 Creepers, summer, 573
 Crinum amabile, 356; latifolium, 66, 279
 Crocus biflorus striatus, 113; Chilian, 188
 Imperati, 113; yellow, 212
 Crocuses, 335; autumn-blooming, 75; early, 240; in the house, 290; Indian, 413; on Grass, 395, 401, 451; spring-flowering, 573; winter-flowering, 214
 Croton leaves, 59
 Crotons, propagating, 162
 Crowfoot, snowy, the, 508
 Crowfoots, alpine, 404
 Crown Imperials, 402
 Cucumber failures, 386; Lockie's Perfection, 568; Tree, variegated, 178
 Cupressus Lawsoniana, 417; Lawsoniana, varieties of, 128, 178, 273; macrocarpa, growth of, 200; stricta, 3; thuyoides, 68, 84
 Currant, Flowering, the, 466; golden-leaved, 564
 Cut flowers, arrangement of, 878
 Cuttings, selecting, 574
 Cyclamen coum, 86; seed, sowing, 225
 Cyclamens, hardy, 180, 326; hardy, notes on, 121; Persian, 277; seedling, planting out, 241
 Cyclobotrys pulchella, 487
 Cydonia, 490; Maulei, 181; *Maulei*, fruit of, 490; *vulgaris*, 491
 Cymbidium eburneum, 138, 307; elegans, 19; *laniatum*, 296; *Lowianum*, 308; *pendulum*, 386
 Cymbidiums at Streatham, 296
 Cyperus alternifolius, propagating, 415
 Cyphomandra betacea, 500, 552
 Cypress, deciduous, the, 110; Patagonian, the, 178; upright, 3; *upright*, the, at Broadlands, Romsey, Hants, 3
 Cypripedium bellatulum, 496, 536; bellatulum roseum, 568; Fostermani, 66; Godefroya, 297, 535; grande, 176; Harrisianum, vivicans, 78; Hyeum, 495; Lawrenceanum, 278, 433; leucorrhodum, 152; Lindleyanum, 66; Marshallianum, 132; Morganiae, 86; nitens, 133; occidentale, 567; Parishii, 593; Rothschildianum, 255; Salieri, 434; selligerum majus, 598; spectabile, 120, 536
 Cypripediums, seedling, 495
 Cyrtanthus magnifica, 90; Liboniana, 90
 Cyrtanthus lutescens, 86; McKeni, 79; obliquus, 549
 Cyrtoceras reflexum, 540
 Cyrtopodiums, 455
 Cyrtus albus, 490; filipes, 284, 443; praecox, 516; propagating, 489; racemosus as a standard, 884; stenopetalus, 478

D.

Daffodil, common white form of, 380; bulbs, ripened, 8; flowers becoming double, 401; Hoop-petticoat, white, 138; Hoop-petticoat, a fine, 395; major superbus, 483; old double, 481, 673; Tenby, the, 66, 811, 402; trunk, fringed, a, 90

Daffodils, albino, 401; choice, a few, 433; double, from seed, 449, 508; double, old, from Ireland, 529; from Cork, 180, 351; from Normandy, 350; Gaelic name of, 425, grown in water, 289; Hoop petticoat, 432; in pots, 59; single-flowering, becoming double, 356; useful, 509; white, the, 432
 Dahlias, cuttings of, 140; plants, old, of, 528; Pompon, 365; Tree, the, in Villa Valletta, Cannes, 527
 Daisies, Paris, in the flower garden, 528
 Daisy, curious, a, 432
 Damsons, 173, 190, 210
 Daphne, 514; Fligayana, 284, 380, 452; Cneorum, 442, 501; Cneorum, 514; indica, 13, 118, 148; Laureola, 322, 498; Mezereum, 2, 65; *Mezereum*, 514; pontica, 580
 Daphniphyllum glaucescens, 619
 Date Plum, Chile, a, 86
 Davallia filifolia, 38; *filifolia*, 396; *filifolia*, plumosa, 38; feniulacea, 101
 Davallias, select, 65
 Decorations, personal, 430
 Delphinium Bassano, 619; Belladonna, 601; Figaro, 619; grandiflorum Breckii, 271; trollifolium, 530; Zali, 332, 367
 Dendrobium bigibbum, 62; Brymerianum, 206, 254; chrysium, 123; crassinoda Brymerianum, 152; Cambridgeanum, 3-6; chrysotoxum, 536; densiflorum Fieldeni, 327; Dominianum, 133; Draconis, 297; endocharis, 24; eusomum leucopetrum, 102; Falcensis, 567; Falconeri and albo-sanguineum, 459; fimbriatum oculatum, 386; *fimbriatum oculatum*, 511; Findleyanum, 279; Fytchianum, 43; Fytchianum roseum, 83; Harveyanum, 386; Hilli, 77; Jamesianum, 331; nobile, 180; nobile album, 102; Parishii, 386; superbiens, 132; thyriflorum, 373, 404, 526
 Dendrobiums at Downside, 414; at Dunedin, Brixton, 297; at Kew, 456; at Messrs. Veitch's, 331; and Ferns, 236; choice, for basket culture, 77; golden yellow, 511; home-raised, a decade of, 307; in baskets, 132
 Dennstaedtia davallioides Youngi, 396
 Dennstaedtia, 316
 Desfontaineri spinosa, 514
 Desmodium penduliflorum, 514
 Deutzia, 514; *crenata* Pride of Rochester, 514; double, the, 488; gracilis in pots, 282; scabra, 442
 Dianthus sylvestris, 601; tricuspidatus, 204
 Dianthus, 312
 Dickson, Professor Alexander, 133
 Dickson's, of Chester, 477
 Diets Huttoni, 255
 Dionaea muscipula, 116
 Diospyros Kaki, 86
 Dioplas glutinosus, 458
 Dipladenias, propagating, 324, 360
 Diplaziums, bold-growing, 101
 Diplopappus chrysophyllus, propagating, 379
 Disa racemosa, 496, 536
 Dodecatheon splendens, 509
 Dogwood, 441; Florida, the, 441
 Dombeya Mastersii, 66
 Dondia Epipactis, 432
 Doronicum Columnae, 214; Harpur Crewe, 278
 Draba aizoides, 396; basotica, 180; brunatolia, 506; Maweyana, 214; saxicolor, 404
 Drabas, 366, 404
 Dracena Cantleyi, 180; flowers, preserving, 327; hardy, in Guernsey, 130
 Dracenas, propagating, 164
 Drimys Winteri, 515
 Drosera lunata, propagating, 360
 Drought, preparing for, 63, 196

E.

Eastertide decorations and difficulties, 329
 Eastnor Castle, 357; view in the grounds at, 357
 Echeveria retusa, 147
 Echium arboreum, 428
 Edwardsia grandiflora from Cork, 452; tetraptera, 515; tetraptera grandiflora, 518
 Eleagnus, 2
 Elliottia racemosa, 322
 Elm seeds, an unusual crop of, 622; winged, the, 182
 Embothrium coccineum, 492, 515
 Enkianthus japonicus, 230
 Eomecon chionantha, 480
 Epacris Lady Penmore, 383
 Epidendrum atropurpureum Randi, 619; bicornutum, 386, 456; Endresi, 177; James O'Brien, 496; paytense, 593; rhizophorum, 331, 434; Schomburgkii, 224; Stamfordianum, 414; vitellinum majus, 434, 536
 Epigaea repens, 531; repens, 507
 Epimedium pinnatum, 529
 Epiphyllums, propagating, 415
 Eranthemum cinnabarinum, 556, 478; pulchellum, 116

Eremurus, 394
 Erica carnea, 294; melanthera, 31, 118; profusa, 443
 Ericas, 31
 Eriobotrya japonica, 515
 Eriostemon densiflorum, 250
 Erythronium giganteum, 452; grandiflorum albidiflorum, 397
 Escallonia, 515; *Philippiana*, 515
 Estates, timber conversion on, 304
 Eucalyptus globulus, 334
 Eucharis amazonica, 147; blooms in mid-winter, 43, 58; bulbs diseased, 551; *house at Gunton Park*, 381; specimen, 254
 Eucryphia pinnatifolia, 515
 Eulalia japonica variegata, 8; japonica gracilima, 619
 Euonymus, green, the, 106; in the conservatory, 30; radicans variegatus, 273, 564; variegatus, 273
 Eupatorium atrorubens, 254; odoratum, 12; panamense, 279
 Euphorbia jacquiniiflora, 13, 486; jacquiniiflora, striking cuttings of, 542
 Eurya latifolia variegata, 605
 Euryales australasica, 410
 Evergreen climbers, flowering, 465
 Evergreen underwood, 472
 Evergreens, hardiest, which are the, 539
 Exacum macranthum, 478
 Exochorda grandiflora, 516, 590

F.

Fabiana imbricata, 562; imbricata, 575, 595
 Fagus Cunninghamii, 466
 Fences, wire v. hedges and walls, 328
 Fern Bush, Sweet, 441; fronds for cutting, 38, 102; Royal, the, 38; Royal, as a covert plant, 84
 Ferns, beetles destroying, 375; and Dendrobiums, 236; British, at Kew, 37; Carboneil collection of, 66, 359; choice, 396; Filmy, Cooper Forster, the, 113; grubs destroying, 137; hardy foreign, 136; in cases, 78; Maiden-hair, choice, 402; Maiden-hair, hardy, 137; native, our, 292; of St. Helena, the, 6; Prickly shield, 292; propagating, 184; terra-cotta, baskets for, 501; three most useful, 501
 Fertilising Moss delusion, the, 170
 Ficus, propagating, 510
 Figs on open walls, 473, 517
 Filberts, 422
 Fir, Douglas, the, as a timber tree, 84; for covert, 400; Prince Albert's, 44; Scotch, golden, 3; Silver, beauty and use of the, 207; Silver, durability of, 134; trees, pruning, 208
 Fire Bush, 515
 Fish manure for Orchids, 102
 Fitzroya patagonica, 178
 Flag, *Caucasian*, the, 269
 Flags, Brazilian, 56; German, 32
 Flamingo Plant, the, 89
 Flax, New Zealand, the, 509
 Flaxes, beautiful, two, 555
 Floral arrangements, 111
 Florists' flowers, hardy, in April, 311
 Flower garden, English, form in, 292; notes, 26, 55, 75, 93, 122, 203, 216, 240, 271, 291, 312, 335, 367, 395, 402, 432, 451, 481, 509, 531, 557; useful plants for, 555
 Flower gardens, railway, 569
 Flower growing in the United States, 352
 Flower seeds for early sowing, 165
 Flowers and frost, 221; as Nature made and as art spoils them, 135; coloured at funerals, 133; cut, 135; cut, arrangement of, 305; cut, boldly used, 167; cut, for winter, 20; for personal adornment, 285; hardy, from Devonshire, 330; in East London, 543; in simple bunches, 554; Zephyr, 10
 Fly-trap, Venus's, 116
 Foam Flower, the, 501
 Forest, New, Mr. Auberger Herbert on, 424; fires, 400; trees, deciduous, growing from seeds, 328; trees, pruning, 232, 325, 352, 570, 622; trees, self-pruned, 256
 Forestry, 21, 84, 256, 352, 424; British decline of, 21; Indian and Australian, books on, 328
 Forget-me-not, alpine, 93; creeping, the, 479; Rock, the, 480
 Forget-me-nots, perennial, 214
 Forsythia, 562; suspensa, 41, 563; *viridissima*, 563
 Fothergilla alnifolia, 562
 France, south of, gardens in the, 360
 Francisceas, 323; in bloom, 410
 Freesia culture, 27; scented white, the, 59
 Freesias, 161; in flower, 91; white, 83
 Fremontia californica, 562, 566, 597
 Fringe Tree, the, 516

Fritillaria imperialis var. cashmeriana, 393; latifolia, 425; Mozgridgei, 433
 Fritillary, golden, the, 433
 Fruit bloom on May day, 438; blossom, thinning, 612; borders, top-dressing, 188; buds, thinning, 257; buds, sparrows destroying, 211; bushes, digging amongst, 98; crops and the caterpillar, 605; crops, the, 421; culture, profitable, 16; fertilisation of, 281; grower's difficulty, a, 183, 260; hardy, "our own selection," 35; houses, night ventilation of, 71; notes on, 15; orchard, planting a, 418; overproduction of, 344; packing tender, 473; prospects, 123, 190, 246, 389, 519, 549, 573; prospects, hardy, influence of locality on, 613; rooms, our, 257; tree borders, concrete for, 425; varieties of, for small gardens, 419; wall at Broadlands, Romsey, 258
 Fruit trees, blight and scale on, 127; dis-budding, 341; hardness of newly-planted, 258; manure for, 248; modern planted and training of, 209; mulching newly-planted, 171; on walls, treatment of, 317; planting, 210; re-grafting, 45; roadside plantations of, 580; stone, gumming in, 474; summer pruning of, 612; v. rainfall, 245; water for, 46
 Fruit walls, parti-coloured, a good wash for, 284
 Fruits, choice, preserving, 260, 422; copy-right of, 146, 209, 260, 305, 351, 422; hardy, 17, 125, 259, 476; long names of, 126; under glass, 36, 47, 72, 99, 145, 173, 211, 283, 318, 343, 354, 420, 439, 463, 517, 533, 579, 613
 Fuchsia Dominicana, 541; splendens, 161
 Fuchsias, useful, 323
 Funerals, coloured flowers at, 183
 Furze, double-flowered, 492, 539; hardness of the, 591; Spanish, the, 564

G.

Galantha corcyrensis, 43; Elwes major, 165, 214; Sharlocki, 180
 Galeandra dives, 332
 Garden, a cottage, 25; *cottage at Mr. Hammond Jones's*, 25
 Gardener, glasshouse, the, 133
 Gardeners and their ailments, 447
 Gardeners' Garters, 481
 Gardeners' Royal Benevolent Institution, 284
 Gardening, aspects of, 414; wild, 450
 Gardens and Pleasure Grounds Fund, 66
 Garland Flower, the, 442, 501, 514
 Garnishing, a useful plant for, 140
 Garrya elliptica, 155, 562
 Genista, 563; praecox, 477; tinctoria fl.-pl., 590
 Gentiana ornata, 572; verna, 53, 279, 556
 Gentianella, the, at Oakwood, 404
 Gesnera longifolia, 340; macrantha, 160
 Geum minimum, 500; montanum, 481
 Ghent Exhibition, 302, 351, 373
 Gladioli, corns, hardness of, 8, 54; culture, 139; lifting, 7, 76, 140; planting, 215
 Gladiolus byzanthinus, 601; Colvillei The Bride, 193; in 1887, 26; in South Australia, 394; Lemoinei, 617; the, 203
 Glasnevin, flowers from, 138
 Globe Flowers, 528
 Glory Tree, drooping, the, 412; of China, 410
 Gloxinias, 88; at Maida Vale, 551; in the Chelsea Nursery, 583; propagating, 363
 Goethea Makoyana, 138
 Gooseberries, 14, 475; in market gardens, 72
 Gooseberry, a, wanted, 171
 Gordonia, 564
 Grabowskia boerhaaviiifolia, 564
 Grape arbour, novel, a, 318; Duke of Buccleuch, 526; Gros Colman, 190; Gros Colman failing, 517; Oregon, the, 199; Vines, summer-pruning of the, 547; White Gros Colman, 46
 Grapes, cause of shanking in, 34; stoneless, 578; two, 180
 Grass for gravelly rides, 443
 Greenhouse fires not drawing, 407
 Greenhouse flowering plants, 193; a few choice, 457; at Forest Hill, 443
 Grevillea, 564; Preissi, 117
 Grevilleas, propagating, 415
 Greyshoke Castle, Cumberland, 503
 Gromwell, Rosemary-leaved, 20
 Groundsel, Mexican, the, 59
 Guava, white winter, 390
 Gum Tree, rapid growth of, 179
 Gymnocladus canadensis, 229, 253, 349
 Gymnogramma Pearcei, 516; schizophylla gloriosa, 292
 Gypsophila cerastioides, 556

H.

Habenaria chlorantha, 526
 Haberlea rhodopensis, 496
 Haemanthus natalensis, 116
 Halesia tetraptera, 588; tetraptera, 607
 Halimodendron argenteum, 588
 Hamamelis, 588; virginica, 539
 Hants, notes from, 87
 Hardenbergia Linaleya, 276
 Hardy flower border, 529
 Hardy flowers, 356; at exhibitions, 469; at Tottenham, 83; from Holland, 478, 537; in masses, 506; lifting and manuring, 450
 Hardy and semi-hardy flowers, a plea for the higher culture of, 271
 Hardy foliaged plants, 215
 Hardy fruits, 390; "our own selection, 35
 Hardy plant, a variegated, 180
 Hardy plants, notes on, 53, 506; at Manchester, 543; transplanting, 213
 Hawthorn, the, 134; Chinese, 465; common, the, 465
 Hazel catkins, 208; Witch, 589; *Witch, Virginian*, 589
 Heath, golden, the, 322; propagating, 379; Sicilian, the, 478; winter, 294
 Heaths, 275; hard-wooded, in London, 616; propagating, 561
 Hebelclium atrorubens, 251
 Hebeche argentea, 160
 Hedera conglomerata, 432
 Hedges, railway, plants for, 448
 Heimia salicifolia, 588
 Helianthemums, 590
 Heliotrope, old, an, 293
 Hellebores, 311; Austrian, 162; seedling, 113
 Helleborus graveolens, 231; niger, 92
 Hemerocallis Dumortieri, 576
 Hemp, African, 346
 Hepatica angulosa, 120; double blue, 402, 528
 Hepaticas, 216, 310; from Gloucestershire, 233
 Herb beds, dressing, 244
 Herbaceous plants, 334, 367; and alpine, 599
 Hesperochiron pumilus, 507
 Heuchera sanguinea, 279, 574
 Hibbertia dentata, 13, 186
 Hibiscus rosa-sinensis fulgens, 96; syriacus, 588; syriacus, 589
 Hieracium villosum, 601
 Highbury Fields, 83
 Himantophyllum in flower, 71; in the house, 409
 Holboellia latifolia, 589
 Hole, Dean, address to, 284; testimonial to, 602
 Holland, bulb trade in, 327
 Holly, water, the, 492
 Hollyhook seedlings v. named varieties, 76; under cool treatment, the, 506
 Hollyhocks, 556; single, 269, 310; in cottage garden, 237
 Holwood Park, notes from, 591
 Honesty, 507
 Honeysuckles, early, 253, 550
 Hop, Japanese, the, 94
 Horticultural Benefit and Provident Society, United, 351
 Horticultural journals, American, 83
 Horticultural Society, Royal, and fruit growers, 375
 Hot-water pipes, preserving, 487
 Houseleek, Cobweb, 449
 Houstonia cærulea alba, 432
 Howth, notes from, 180
 Hoya carnosus, 458; *Cumingiana*, 408; *imperialis*, 409; Shepherdii, 617
 Hoyas, 403
 Hyacinth for pot culture, 616; Grape, white, 291
 Hyacinthus, Cape, the, 249, 277; Grape, 450
 Hyacinthus azureus, 113
 Hydrangea, 589; *hortensis* as a lawn plant, 592; paniculata, 583; rosea, 369
 Hydrangeas, distinct, 12
 Hymenocallis humilis, 508; undulata, 602
 Hypoxis stellata elegans, 326

I.

Iberis corifolia, 536; petraea, 557; semper-virens, double white, the, 531; Tenoreana, 573
 Ilex crenata, 272, 360; latifolium, 492
 Illicium floridanum, 606
 Impatiens at Croydon Lodge, 409; capensis, 576; Hawkeri, 161; Sultan, 410
 Indigo, wild, 300
 Indigofera Gerardiana, 606
 Insects and other pests, 112; in the fruit garden, 520; garden, 460; on Lettuces, 595

Ipomæa Horsfalliae, propagating, 415
 Ireland, south of, flowers from, 180
 Iris alata, 54, 83; Algerian, white, 113; as a rabbit-proof flower, 279; *caucasica*, 269; February, 114; fimbriata, 86, 234; garden, 554; German, the, 600; Korolkowi, 249; neglecta Cordelia, 601; pallida, 575; paradoxa, 529; Pavia, 575; reticulata, 120, 327; reticulata in pots, 25; reticulata Mrs. M. Foster, 368; Rosenbachiana, 180; ruthenica, 26, 67, 600; Scorpion, the, 54; sibirica, 601; stylosa, 138; stylosa alba, 113, 349, 450, 507; tingitana, 66, 119
 Irises at Chiswick, 452; bulbous, 558; Spanish and English, 602
 Isoloma hirsuta, 293
 Itsea virginica, 606
 Ivies in pots, 178
 Ivy, Cape, 87; dying, 67
 Ixia viridiflora, 550
 Ixias for the greenhouse, 542

J.

Jamesia americana, 590; americana, 606
 Jamesonia, 501
 Jasmine, 606; Rock, 523; Spanish, 118; white, the, 606; winter, golden, 606
 Jasmynes, propagating, 489
 Jasminum grandiflorum, 118; hirsutum, 30; nudiflorum, 606; officinale, 606; sambac fl.-pl., 119, 193
 Jersey, New, notes from, 455
 Judas Tree, the, 456, 491; flowering and fruiting branches of, 416; foliage of, 416
 June Berry, 300
 Juniperus rigida, 65
 Justicia speciosa, 89

K.

Kæmpferia rotunda, 327
 Kale, heating, 105
 Kalmia, 607; angustifolia, 576; latifolia, 607; myrtifolia, 603
 Kensington Gardens, 83
 Kerria japonica, 564, 589; white, the, 4
 Kildare, weather in, 181
 Kitchen garden, cropping a, 298; notes, 10, 39, 55, 81, 104, 131, 152, 169, 197, 227, 243, 267, 299, 314, 339, 371, 388, 407, 436, 467, 484, 513, 524, 560, 586, 609
 Kniphofia sarmentosa, 326

L.

Laburnum, New Zealand, 515, 518
 Lace-leaf Plant, the, 138
 Lacharme, M., the late, 67; memorial to, 83
 Lachenalia aurea reflexa, 113; pallida, 284; pendula, 249; rubida, 363
 Lachenalias, 275, 293, 327, 382; best, the, 192; in baskets, 66
 Lady's Slippers, twin-flowered, 103
 Lælia, a new, 19; albida bella, 19; anceps, 43, 102; anceps, white, 133; elegans, 152; elegans Schrederiana, 138; flammea, 494; flammula, 297; flava, 331, 378; Gouldiana, 19; harpophylla, 176, 433; majalis, 535; pedunculata, 19; prestans, 61; purpurata, 593; Schilleriana, 434; superbiens, 132, 180
 Landscape at the Academy, 523, 585
 Lapageria, white, 192, 347
 Larch disease, the, 590; heart rot or dry rot in, 208; on thin soils, 352; transplanting, 182; wood of the, 376
 Lastrea prolifica, 38; sancta, 101
 Lastreas, 78
 Lathyrus Drummondii, 531
 Laurel, Alexandrian lesser, 329; hardiest, the, 4, 65; Mountain, the, 607; Portugal
 Myrtle-leaved, 129; Tasmanian, the, 193
 Laurels, hardy, 106; in bloom, 491
 Laurus nobilis salicifolia, 492
 Laurustinus, forced, 323, 382
 Lavenders, Sea, 186
 Law:—
 Dunsdon v. Moss, 67
 Mrs. Reynolds v. Wrench and Sons, 108
 Validity of non-guarantee clauses, 369, 621

Lawns, top-dressing, 200, 229, 316
 Laxenburg, a note from, 526
 Lead-wort, Cape, 542
 Lead-worts, blue and white, 364
 Leaf-soil, pond, 28, 101
 Leather-leaf, 392
 Leaves as a protection, 163
 Ledum latifolium globosum, 539
 Lepoties bicolor, 536; serrulata, 414
 Leschenaultia biloba major, 505, 602
 Lethorion, 351
 Lettuce, braised, 525, 609; Cos, Hick's hardy
 White, 609
 Lettuces, early, 196; forcing, 226
 Leucojum vernum, 186
 Lewisia rediviva, 573
 Libonia floribunda, 118
 Lidac Charles X., 553; Marie Leguay, 526
 Lilies, white, 477, 526
 Lilies, Arum, 284; and Daffodils, 240; day-
 forced, 500; early-flowered, 582, 601; of the
 Valley, 43; notes on, 381; propagating, 70;
 selection of, 572; white, a jar of, 217
 Lilium Grayi, 290; Hansonii, 334; Harrisii,
 276, 477; longiflorum Wilsoni, 75; mono-
 delphum Szovitzianum, 601; odorum, 576;
 Parryi, 142; speciosum Kratzeri, 189
 Lily, African, white, 86, 122; Belladonna,
 533; Bermuda, 276; Brisbane, 410; of the
 Valley, diseased, 595; Victoria, in Adelaide,
 501; Wreath, the, 91
 Lily of the Valley Tree, 83
 Lime, small-leaved, 229; trees dying, 3
 Limes, pruning, time for, 65
 Lisoschilus, two, 567
 Lithospermum prostratum, 556; rosmarinifolium,
 20
 Lobelia cardinalis, 53, 94; Miss Hope, 583;
 scarlet, the, 53
 Locust or Acacia tree, 62, 107
 Lomaria gibba, 137
 Longford Castle, Salisbury, west view of, 453
 Lonicera fragrantissima and Standishi, 253
 Loquat, 615; flowering in Worcestershire,
 the, 86
 Lotus Jacobæus, 458; peliorhynchus, 351
 Luculia gratissima, 218
 Lunaria biennis, 507
 Luzula nivea, 575
 Lycate Depei, 456; Measuresiana, 297;
 Skinneri, 255, 331; Skinneri, the white, 103

M.

Madresfield Court, east of flower garden at,
 49
 Magnolia acuminata, 178; conspicua, 428,
 504; fuscata, 504; grandiflora, 538; Halleana,
 277; macrophylla, 128, 539; obovata, 564;
 umbellata (triflora), 539; umbrellata, 602
 Magnolias, the, 538; under glass, 322
 Mahonia ederaata or glabra, 20
 Mahonia Aquilefolia, 143; fascicularis, 159;
 Holly-leaved, the, 155; nepalensis, 492,
 522; nepalensis, Sharon habit of growth in a
 conservatory, 198; reclusa, 199; repens, 199
 Mahonias, the, 198
 Maida Vale, recreation ground at, 423
 Mallow, Jew's, 564, 589; Musk, white, 530;
 scarlet, the, 163; Saracen, the, 589
 Malta, a note from, 452
 Mandevilla suaveolens, propagating, 489
 Manettia bicolor, 552
 Manue, liquid for fruit trees in bloom, 534
 Manuring from the surface, 512
 Maple, Cretan, 4; Sugar, the, 229
 Maples, beautiful, 591
 Maranta fasciata, 345; roseo-picta, 345; the,
 new one plant, 345; Warscewiczii, 275
 Marantaceæ, 345; propagating, 114
 Marigold, Marsh, double, 530
 Marigolds, Marsh, 433
 Market gardening, past and present, 537
 Market garden notes, 2, 74, 191, 179, 255, 301,
 378, 418, 455, 587
 Market gardens, water supply in, 412
 Marsh, trees for, 18, 232
 Masdevallia amabilis lineata, 103; Chimera,
 265; cuneolata, 151; Harrisonii, 385; Harry-
 ana Halcina, 567; ignea, 454; ignea, 151;
 Indica, 567; racemosa Crossi, 86, 133;
 Shuttleworthii acanthocorys, 332; Velez,
 285
 Masdevallias, an effective group of, 61; at
 Burford Lodge, 224; at Downside, 175; in
 flower at Leatherhead, 385
 Maxillaria lepidota, 177; Sanderiana, 332,
 336, 593
 Mayflower, Mexican, the, 585; the, 597, 531
 Meadows, water, planting for profit, 322
 Medinilla magnifica, 135
 Medlar preserve, 71, 124, 144, 173
 Megases, 93; for winter bloom, 572
 Melon Apple, 144
 Melon growing, 145
 Melons, culture of, 572

Menyanthes trifoliata, 600
 Menziesia empetriformis, 479
 Mesembryanthemum, 11
 Mesospidium with rose-coloured flowers,
 414
 Mespilus, snowy, the, 539
 Meum atbamanticum, 572
 Mezereum, the, shaded or exposed, 178
 Mezerium, the, 2, 129
 Microtophylla bifurcata (fertile and infertile
 fronds), 6
 Microstylis, 24
 Mid-winter, flowers for, 90
 Mignonette, 147; and Snowflakes, 113
 Mildew, old, but excellent recipe for, an,
 284
 Miles, Frank, Mr., 254
 Miltonia cuneata, 176, 225; Roezli, 373;
 Warscewiczii, 332
 Mimulus Cloth of Gold, 530; giant Hose-in-
 hose, 501; Hose-in-hose, 526; radicans, 601;
 shrubby, the, 458; the, 121, 164, 240
 Mimuluses, garden, 215, 527
 Minnehaha, Falls of the, 396
 Mitrisia coccinea, 491
 Monochetum sericeum grandiflorum, 193
 Moonworts, the, 340
 Moth, the leaf roller, 605
 Mountain, trees for, 68, 232
 Mulberry tree, the, in Mesopotamia, 475
 Mulch, best, the, 246
 Mullein, Crete, the, 404
 Murren, alpine plants at, 571
 Mushroom growing in America, 338
 Mushroom houses, modern, 103
 Mushrooms, 313, 371; on spent Melon bed,
 298
 "My Garden," a ramble in, 571; Orchids in
 flower in, 592; stove climbers in, 616
 Myosotis rupicola, 93
 Myriopteris, 225; elegans, 225
 Myrsiphyllum asparagoides, 91
 Myrtle, Tasmanian, the, 466; the, 492

N.

Nanodes Medusæ, 495, 573
 Narcissi, 452; at Chiswick, 401; at Twicken-
 ham, 451; grown in water, 289, 335;
 hybrid, 449; Morocco, 610; notes on, 394,
 431, 479
 Narcissus, bunch, the, 330; calathinus, 278;
 curious, a, 450; cyclamineus, 86, 180;
 committee, 278, 327, 351, 447; Gloria
 Mundi, 446; Horsfieldi, 402; incompara-
 bilis, a pure white, 482; Johnstoni, 311;
 minor citrinus, 351; minor true, 284; Mrs.
 J. B. Camm, 446; obvallaris, 66; pallidus
 præcox, 8, 326; poeticus grandiflorus, 402;
 Poet's, 368; Poet's, a large, 452, 509; Poet's,
 double-flowered, 500; S. A. de Grassi, 480;
 seedling, 452; Sir Watkin, 350; triandrus
 albus, 356
 Nepenthes, 79, 116, 250; bicolorata, 29; pro-
 pagating, 360
 Nephrodium Rodigasianum, 618
 Nephrodium, ornamental, 618
 Nevisia alabamensis, 562
 Newry, notes from, 270, 557
 Nicotiana affinis, 323, 575
 Nidularium striatum, 325
 Nursery, Cycas, a, 117; home, the, 169
 Nymphaea Marliacea, 292, 489

O.

Oak, Albion, leaf of the, 64; Black Jack, leaf
 of, 127; Bog, 400; Daimo, leaf of the, 64;
 Evergreen, Ford's, 129, 200; Evergreen, at
 Wilton, 200; galls, 570; Hungarian, leaf of
 the, 64; leaf, a noble, 179; live, the, 304;
 peculiarities of the, 522; Pance-leaved, leaf
 of, 127; scarlet, leaf of, 127; Turner's, 41
 Oaks, American, best, 127; Evergreen, 179;
 Evergreen, avenue of, 607; three hand-
 some, 64
 Oakwood, notes from, 138
 OBITUARY:—
 Betteridge, J., 231
 Boswell, J. T., 168
 Cripps, T., 399
 Day, J., 83
 Gray, A., 108
 Hollingworth, J., 351
 Jackson, T., 569
 Leach, V., 471
 Mies, J., 231
 Ratch, F., 471, 497
 Smith, J., 157, 399, 471
 Stacy, W., 375
 Walsh, J. H., 157
 Woodbridge, J., 375

Ochna multiflora, 250
 Odontoglossum, a new, 20; aspersum, 434;
 aspersum violaceum, 19; baphicanthum,
 386; blandum, 77, 132; cirrhosum, 62;
 citrosum, 455; citrosum punctatissim-
 um, 512; cordatum sulphureum, 297;
 crispum, Charlesworth's variety, 397;
 Edithæ, 230; Edwardi, 231, 332, 386; grande,
 386; Halli, 456, 615; Halli magnificum,
 568; Harryanum, 76, 308, 434, 526; Hume-
 anum, 20, 152, 397; hystrix, 177, 276; Lee-
 anum, 176; Lindeni, 434; luteo-purpureum,
 456; madrense, 372; nebulosum excellens,
 568; odoratum, 332, 373, 414; Pescatorei
 Lecanum, 386; Pescatorei (Poë's variety),
 446; Pescatorei, yellow-flowered forms of,
 433; ramosissimum, 181; Rossi, 236;
 Rossi F. L. Ames, 397; Schillerianum,
 512; triumphans, 456, 500; vexillarium,
 511; vexillarium leucoglossum, 434; Wal-
 list and Sanderianum, 331; Warscewiczii,
 235
 Odontoglossums, 332; at Chelsea, 331; at
 Wilton House, 615; cool treatment of, 297;
 hybrid, at Mr. Bull's, 308; three lovely,
 495
 Odontosoria tenuifolia, 38
 Oeanders, 241
 Olea fragrans, 504, 553; propagating, 427
 Oleanders, propagating, 510
 Olearia Gunni, 590; Traversi, 500
 Oleasters, evergreen, the, 2
 Omphalodes verna, 479, 480
 Oncidium concolor, 373, 495; insculptum,
 386; leucocylum, 414; Lietzei, 413; Mar-
 shallianum, 331; obryzatum, 434; orni-
 thorhynchum albiflorum, 19; sessile, 495;
 splendens, 414; undulatum, 236
 Oncidiums, small-lipped, 102
 Ononis, large, 170; transplanting, 168
 Onosma taurica, 550
 Ophrys scolopax, 368
 Orange Ball Tree, the, 369
 Orange, culture of, in Engl.-nd, 18
 Orange Flower, Mexican, the, 229, 360, 410,
 501
 Orange Tree, the, as a screen, 418
 Oranges, propagating, 264
 Orchard grafting, 342
 Orchard house, lean-to, section of, 191; span-
 roof, section of, 190; the, 190, 247
 Orchid, Butterfly, 526; Butterfly, a new, 43;
 exhibition at Holloway, 536; exhibition at
 Mr. Bull's, 503; flowers, 63; leaves un-
 healthy, 385; Moth, Schiller's, 615; names,
 18; notes, 256; notes from America, 176
 Orchids at Bushey Down, Tooting, 297; at
 Cheltenham, 205; at Cheshunt, 103; at
 Croydon Lodge, 414; at Dulwich, 372; at
 Forest Hill, 176; at Mr. Buchan's, 204;
 at Rosehill, Sevenoaks, 614; fish manure
 for, 175; flowering at Burford Lodge, 150;
 from Ardarauch, 535; from Perth, 138,
 279; hardy, 456, 495; Moth, at (Heaton
 House, Cheshunt, 62; rare, at Kew, 132;
 rare, two, 206; reasonable notes on, 591;
 The Woodlands, 494
 Orchis foliosa, 601; mascula, white-flowered,
 500, 567; Moio, 478; pauciflora, 368
 Oreopanax dactylifolia, 617
 Ornithogalum arabicum, 575, 601
 Orphan Fund, the Gardeners', 138, 278, 327,
 423, 428, 477, 497, 521, 595, 620
 Osmanthus liciifolius, propagating, 427
 Osmunda regalis, 38
 Ostrowkia magnifica, 238, 279
 Oviurandra fenestralis, 138
 Oxalis brisiliensis, 553
 Oxera pulchella, 43, 83, 250, 510, 553
 Oxlip Prince of Orange, 477
 Oxlips, 433
 Ozothamnus rosmarinifolius, 575

P.

Pachystoma Thomsonianum, 175
 Packing plants for postal transit, 445
 Paeonia anemoniflora, 526, 573; lobata, 526
 Paeonies, 601; Chinese, 119; Chinese or her-
 baceous, at Tooting, 602; Chinese, in a bowl,
 119; single, 599; Tree, 13, 382, 443, 478
 Paeony Agnes Mary, 619; Cyclop, 619;
 Lady Carrington, 619; Marie Kelway, 619;
 Miss Birce, 619; Miss Salway, 619; Mou-
 tan, 120; Prince Albert, 496; Tree, Com-
 tesse d'Endort, 397
 Palm, Chusan, the, at Heckfield Place, 551;
 Date, Canary Island, the, 492; European,
 the, 516
 Palms from seed, 574; propagating, 521
 Pancratiums, 58
 Pandanus, propagating, 604
 Pansies, drawings of, 521; French, 404;
 good varieties of, 239; self, 529; sweet-
 scented, 560; tufted, 181, 186, 255, 601

Pansy Archie Grant, 601; Ardwell Gem, 549;
 and Mons. Benary, 83; Countess of Pem-
 broke, 508; King of Yellows, 138; Sky-
 lark, 549
 Papaver nudicaule, 54
 Papaw, Virginian, 320; flowers of the, 321
 Paphia cristata, 19
 Parasol de St. Julien, 2
 Passiflora kermesina, 458, 553
 Passifloras, 194
 Passion Flower, common, the, 385
 Paulinia thalictrifolia, 583
 Paulownia, the wood of, 400
 Pavia macrostachya, 607
 Pavonia Makoyana, 30
 Peach, blossoms dropping, 125; culture in
 cold greenhouse, 553; Grossi, Mignonne,
 247; house, best form of, 355; leaves,
 weevils on, 301; trees, bluster on, 534;
 trees, setting the flowers of, 458
 Peaches, early, 351; failing in cold house,
 474; failing to set, 546; stall trellises for,
 532; too many varieties of, 159
 Pearl Bush, the, 516
 Pea, Portyfold, 168; marvellous, a, 196
 Pear tree, Siberian, 392
 Pear, Beurré, brown, golden, or grey, the,
 189; Beurré d'Arenberg, 189; Beurré Diel,
 246; Beurré Rance, 172; Beurré Superfin,
 172; Bonne de Malines, 318; Californian
 Easter Beurré, 354; Comte de Lamy, 378,
 422; Comte de Paris, 318; Conseiller de la
 Cour, 282; Easter Beurré, 34, 124, 172, 259,
 282, 342, 422, 438; Emile d'Heyst, 259;
 Glou Morceau, 189, 233, 344; grafting,
 579; Jargonelle, 85, 143, 144, 172, 189,
 246, 463; Jargonelle as a market fruit,
 189; Jargonelle in Essex, 123; Jar-
 gonelle in Scotland, 99; Jargonelle, the
 double grafting, 172; Jargonelle, 143; Jer-
 sey Gratioli, 69, 124, 172; l'Inconnue Van
 Mons, 259; Marie Benoist, 259; Marie
 Louise, 171, 189; Nouveau Poiteau, 259;
 Olivier de Serres, 35, 180; Thompson's,
 234, 260, 343; Winter Nelis, 20, 48, 72, 124,
 211; Winter Nelis in Scotland, 34
 Pears, 71, 124, 142, 282; best six, 35, 69, 133;
 Californian, 124; Christinas, 16; double,
 grafted, 172; early maturity of, 46; fewer
 kinds of, 15; for Scotland, 15; for West
 Riding of Yorkshire, 143; good, 71; in
 season, 282; in Somersetshire, 97; Janu-
 ary, 282; in Covent Garden, 99; in
 Kent, notes on, 34, 46, 99, 282, 342, 353;
 October, 282; orchard, grafted, 142; soil
 for, 353; soils and situations for, 462;
 standard, in Austria, 439; standard, for
 Britain, 85, 123, 159, 189, 211, 233, 306, 377;
 the best, 14; the season of, 313; too many,
 46, 69, 85; vintage, 422; winter, 123
 Peas, 258; best, the, 244; deep sowing for,
 82; main crop, 513; notes on, 244; Sweet,
 483; thinning, 468
 Pelargonium Ambassadors, 619; Apple
 Blossom, 583; Duchess of Teck, 601;
 Edward Perkins, 443; leaves, spot on,
 294; Mme. Crousse, 477; Spotted Beauty,
 619; vitality of the, 57
 Pelargoniums, forcing, white-flowered, 458;
 Ivy-leaved, 540, 583; Ivy-leaved, double-
 flowered, 541; propagating, 459; Regal,
 564; Regal, show, and fancy, 443; scented-
 leaved, 504; spot on, 117, 161, 193, 219;
 three good, 325
 Pendell Court, flowers at, 86
 Pentstemon Scouleri, 509
 Pentstemons, 121; from seed, 600
 Pergola, Italian, an, or creepers-clad covered
 way in the old Capuchin convent at Amath,
 Southern Italy, 405
 Peristeria clata, 88
 Pernettias, 106
 Pescatorea Lehmanni, 224
 Petrea volubilis, 444
 Potunias, 368
 Phajus grandifolius, 255; Humboldtii, 102;
 tuberculatus, 593
 Phalaenopsis, 105; at Clepton, 235; at
 Heaton House, Cheshunt, 62
 Phalaenopsis gloriosa, 507, 568; Schilleriana,
 615; Schilleriana, white, 43; speciosa, 593;
 tetraspis, 495
 Phalaris arundinacea variegata, 481
 Philadelphus Lemoinei, 322
 Phillyrea decora Vilmoriniana, 446; Rose-
 mary leaved, the, 322; Vilmoriniana, 52
 Philodendron Andraeanum, 31
 Phlox, hardy, an early, 452; Mrs. Watt, 601;
 rivalis, 477
 Phloxes, herbaceous, 270
 Phloxia serrulata, 465
 Phrynum variegatum, 81
 Phyllocactus crenatus, 575
 Picea Finsapo on the chalk, 155
 Picotee, yellow, the, 291
 Pilewort, the, 380
 Pilumna fragrans, 236; nobilis, 152
 Pine, Nut, the, 472; Umbrella, the, 158;
 white, the, 498, 522; woods, 622
 Pines for a bleak place in Lancashire, 570;
 St. Michael's, 186; Screw, 159
 Pink, Fire, 500
 Pinks, laced, 237; Rock, hybrid, 575

Pinus contorta, 158; *insignis*, 200; *parviflora*, 134; *ponderosa*, 21; *pyrenaica*, 498; *Strobilus*, 522

Pitcairnia corallina, 113; *Maroni and Darblayana*, 356

Pitcher Plants round London, 29

Piptosporum Tobira, 155

Plant, a new, 43; houses, work in, 13, 82, 60, 80, 91, 118, 161, 194, 220, 251, 276, 295, 324, 347, 364, 383, 411, 445, 459, 488, 505, 541, 552, 583, 617

Flintain Lilies in the wild garden, 556

Plantations, new, forming, 208; nurses for, 280

Planting, 358; deep, evils of, 60; on the notch system, 208, 280; thick, evils of, 352; thin *r.* thick, 376

Plants at rest, 155; for dinner-table, 365; in flower, 501; new, certifying, 327; new, of 1887, 4

Platyteca galioides, 284

Pleasure ground, winter work in the, 200

Plocostemma lasianthum, 411

Flowers and gulls in gardens, 537

Plum blossom, the, 461; Cherry or Myrobalan, 252; Chinese, 428; Goose, wild, the, 475; *Myrobalan*, 252; *Myrobalan*, branch, fruit and flowers of, 252

Plumbago capensis, 192; *capensis* and *P. c. alba*, 364; *rosa*, 31, 322, 409

Plums for profit, 97; *p.* perforated, 547

Pococarpus andina, 590

Poinsettia pulcherrima, 275

Poinsettias at Berkeley, 240; dwarf, 32; for table decoration, 241; propagating, 489

Polemonium confertum, 446, 506; *himalaium*, 500

Polyanthus John Woodbridge, 446; *Narcissus*, growing in water, 360

Polyanthuses, 404; and *Primroses*, 423; gold-faced, 481

Polypodium cultrosum, 577

Polypodiums, small-growing, 577

Polystachya pubescens, 297

Polystichums, the, 292

Pomological progress, 45

Pomological Society, American, 534

Pond leaf-soil, 28

Poplar, *Abele*, 253; for timber, 134; *Parasol* de St. Julien, 65

Poppies, Iceland, 54; and *Pyrethrums* from Wantage, 601; as cut flowers, 610; in a vase, engraved on wood from a photograph, 611; in a vase, reproduced by a process from a photograph, 610; variations of, from seed, 400

Poppy, Corn, common, the, 231; Iceland, white, Mrs. Davidson, 575; Oriental, the, 529; the, 555

Posies and fan bouquets, 233

Potassium sulphide of, 206, 230, 301

Potato crop, the, in West Cornwall, 586; *Magnus Bonum*, 337; *Thorburn*, 525; trade, American, 105; *Tre*, 186

Potatoes, 153, 484; and Broccoli, 169; early planting of, 268, 315; notes on, 244; sensational crops of, 152, 297; trenching the soil for, 10; two good, 314

Primrose, Chinese, the, 23; double velvet, 452; flowers, 86; green-flowered, a, 500; Japan, white-flowered, the, 501; snowy, the, 291, 395; Tooth-leaved, 324; twin-flowered, 452; wild, a curious form of, 452

Primroses, 396; alpine, 290; coloured, 290; double, 402; from Wantage, 350; hardy, 8; hardy, doubling of, 394; in Devonshire, 138; notes on, 366; Oxlips and Cowslips from Cork, 428; two beautiful, 275; wild, doubling of, 451

Prunella Allioni, 53; *bellidifolia*, 506; Chinese, the double white, 250; *Chusiana*, 528; double Chinese, Marchioness of Exeter, 53; *floribunda*, 250; *pubescens alba*, 395; *Reidi*, 572; *rosa*, large varieties of, 452; *Sieboldi*, 444, 478; *Sieboldi*, propagating, 61; *sikkimensis*, 572; *verticillata*, 346

Primulas, Chinese, as basket plants, 79; double, propagating, 325; of the Maritime Alps, 53

Privet, barren, variegated, the, 199; variegated, a, 607

Prostanthera lasianthos, 496

Prune, German, the, 546

Pruning, 182, 448, 472, 522; and training waste of force in, 577; in frosty weather, 14

Prunus cerasifera, 252; *Myrobalana*, 252; *sinensis flore-pleno*, 179

Pteris Mayi, 501

Pterocarya caucasicus, 82; *caucasicus*, branch and leafless twig of, 82; *caucasicus*, young leaf of, 82

Puschkinias, 432

Pyrethrum Beatrice Kelway, 568; *Meteor*, 568; *Wega*, 568

Pyrethrums from Langport, 575; single, from seed, 500

Pyrus, Japan, 478; *Maulei*, propagating, 221; *Sorbus* vars. *maliformis* and *pyriformis*, 154

Q.

Quercus bicolor pannosa, 127; *coccinea macrophylla*, 127; *conferta*, leaf of, 64; *dentata*, leaf of, 64; *Mirbeckii*, leaf of, 64; *nigra*, 127; *Turneri*, 41

Quince, 490; common, fruit of, 491; Japanese and its varieties, 321; *Japanese*, fruit of, 491

R.

Rabbits and trees, 182

Radish, *Rettke* of Sweden, 56

Radishes, early, 153

Railway station flower gardening, 499

Rainfall of 1887, 108, 114, 150; *r.* fruit trees, 245

Ranondia pyrenaica, 575; *pyrenaica alba*, 452, 568

Ranunculus Lyallii, 500; the, 141

Ravenscourt Park, opening of, 477

R. dross Garden, 526

Redwood, the, for underwood, 448

Restrepia antennifera, 332; *ophiocephala purpurea*, 86

Retinospora ericoides, 229, 325, 417

Rheum, 572; noble, flowering of, in Edinburgh, 549

Rhododendron argenteum, 186; *argenteum roseum*, 356; *balsaminiflorum album*, 363; Countess of Haddington, 295; Countess of Sefton, 219; Early Gem, 255; Hooker's, 284; *Hippolyta*, 619; *javanicum*, 503; Lord Wolseley, 325; *multiflorum*, 279; *Pixie Queen*, 279; *præcox* under glass, 58; Princess Alexandra, 90; *Veitchianum*, 250

Rhododendrons at Kew, 453; for covert, 280, 376; for pot culture, 458; greenhouse, 276, 553; greenhouse, a new race of, 86; hardy, forced, 295; Himalayan, propagating, 574; hybrid, 526; propagating, 221; standard, 564; two, for forcing, 12

Rhodotypos kerrioides, 4

Rhus Cotinus, 129

Richardias, 584

Robinia, the, 64

Robinias, 3

Rochester, the Dean of, 303, 351; address to, 404

Rockwood Lily, the, in Ireland, 526

Rockwork, new, at the Manchester Botanic Gardens, 567

Rodriguezia recurva, 372

Root trade, the, 447

Rosa alpina, 524; *berberidifolia Hardyi*, 310, 404; *coruscans*, 550; *indica*, 550; *lutea* var. *pubesca*, 525; *microphylla variegata*, 582; *minutifolia*, 454; *multiflora*, seedling plants of, 403, 582; *polyantha grandiflora*, 349; *polyantha minutifolia alba*, 350; *punicea*, 582; *rugosa*, 478; *sericea*, 500; *sinica*, 582; *spinossissima Hoggii*, 530

Rose Amazon, 582; *Anna Olivier*, buds of, 479; Austrian scarlet, 526; Banksian yellow, 326; buds, do they sleep in winter? 429; buds in winter, 523; Catherine Mermet, 500; Chateau des Bergeries, 575; Cleopatra, 549; Climbing Devonensis, 582, 597; Climbing Niphetos, 397; Cloth of Gold, 336, 430; Conte d'Eprennes, 559; Copper Austrian Brier, 575; *Edith Gifford*, 309; *Edith Gifford*, 316; *Etoile de Lyon*, 28, 51; fairy, a, 310; *Eugenie Verdier*, 581; Fortune's Yellow, 262, 524, 550, 575, 598; *Gloire de Dijon*, 198; *Gloire de Margottin*, 310; Grace Darling, 550; General Jacqueminot, 500; Harrisoni, 598; Her Majesty, 454; Japanese, 478; *Jean Ducher*, 429; Kronprinzessin Victoria, 550; La France, 500; Lady Alice, 262; Lamarque, 500; Laurette Messimy, 582; Mabel Morrison, 51; Mme. Chedane Guinoisseau, 582; Mme. Gabriel Luizet, 28; Mme. Georges Bruant, 70; Mme. Hoste, 446; Mme. Lamhard, 550; Madame de Watteville, 220, 598; Mme. Etienne, 582; Marschal Niel, 550, 582; early, 235, 403, 478, 499, 524; Marschal Niel for the greenhouse, 455; Marie Van Houtte, 524; Max Singer, 582; May Rivers, 350, 397; Niphetos, 500; Niphetos at Ascot, 377; notes, 550; Persian Yellow, 582; pests, 550; *Polyantha*, a, 380; Princess Beatrice, 582; prospects after the snow, 263; Puritan, 336; Red Pet, 262; Sappho, 496; shoots, insects destroying, 301; shoots, unhealthy, 524; Socrata, 582; stocks, 69, 177; Striped Brier, 619; Suzanne Marie Rodocanachi, 310; The Bride, 336; thornless, the, 524; Ulrich Brunner, 598; Victor Verdier, 454; W. A. Richardson, 278; W. A. Richardson, a stripped shoots of, 478; white, Paul's single, 326; Yellow Banksian, 598

Rose Society, Gloucestershire, the, 279

Roses and the frost, 404; and the rain, 581; after the winter, 310; at a railway station, 582; at Manchester, 499; China for, autumn blooming, 28, 51, 95; climbing, standard, 337; decorative, 262; forcing, 177; fragrant, 234, 285; from cuttings, 50, 95; from Ireland, 575; from Nice, 477; garden, three good, 598; guano water for, 303; Guelder, 564; Lenten, 201; manuring, 136; miniature, 94; new, 70; new, at Cheshunt, 309; notes on, 377, 454, 598; odours of, 136; our, in April, 336; own-root, 50; pruning, 235, 261, 286; rose-coloured, 403; Scotch Brier, 575; Scotch, from Waltham Cross, 582; seedling, 70; seedling, raising, 27; single, 336, 403; single for exhibition, 309; some new, 523; standard, 50, 135, 234, 287, 377; standard, return of the, 195; summer, pruning, 355; Sun, 590; Tea, hardy, 598; Tea, two good, for winter, 195; yellowest of all, 582

Roses, Christmas, 20, 54, 74, 92, 120, 202, 215, 270; and *Convalaria polygamum*, 556; characters of, 163; dividing, 121; in tubs, 213; Mmc. Fourcade, 202; plum-coloured, the, 180; popularity of, 66; *Riverton carolina* in a tub, 213; St. Brigid, 181, 204; seedling, 121; transplanting, 104, 204

Rubus deliciosus, 549; *roseifolius*, 4

Rudbeckia macrophylla, 382

Ruellia rosea, 410

Ruscus racemosus, 329

Rush, wood, the white, 575

Russia, Frost Plant of, the, 94

Rustic work, wood for, 522

S.

Saccolabium tellinum, 133, 236; *giganteum album*, 176; *illustris*, 151

Saga, blue, the, 275; scarlet-flowered, 283

St. Helena, Ferns of, 6

St. James's Flower, 458

Salix pyrenaica, 507

Salpiglossis, 335; in pots, 533

Salvia, Pine apple, 43; Pitcher, 275; *rutilans*, 43; *splendens*, 383

Salvias, 58

Sandwort, Balearic, 526

Sanguinaria canadensis, 433

Saponaria ocymoides, 199

Sarcantha usneoides, 307

Sarracenia Williamsi, 508

Sarracenia, 160; in flower, 481

Sassafras tree, the, 200

Satin Flower, spring, 214

Saxifraga aromatica, 507; *Boydii*, 310; *Boydii alba*, 310; *Burseriana*, 141, 290; *Burseriana major*, 66, 120; *granulata*, 478; *granulata*, fl.-pl., 529; *Macnabiana*, 500; *mutata*, 53; *pelata*, 480; *Rocheliana* var. *coriophylli*, 450; *rotundifolia glandulosa*, 576; *squarrosa*, 506; *Stracheyi*, 165; *Wallacei*, 509

Saxifrage, a beautiful, 66; an early, 180; Meadow, the, 478; large-leaved, 480; mountain, white-flowered, 240; Saffron-flowered, the, 53; strap-shaped, in pots, 294; white-flowered, 335

Saxifrages, broad-leaved, 93; early, 394

Scabious in pots, 32

Scarb-rough, notes fr. m., 135, 257, 478

Schizaeas, 493

Schizanthus retusus, 553

Schœnia (*asiniana*), 576

Scilla bifolia, a large, 335; *b. folia alba*, 311; blue, and *Chionodoxa*, 395; *natalensis*, 553; nutans and *S. campanulata*, 501; *peruviana*, 601; *sibirica*, 113

Scillas in bloom, 30

Scilly, flower trade of, 138

Scotiopus Bigelowi, 290

Scorpion Senna, 490

Seakale 131

Seed lists, too lengthy, 168, 226, 340

Seed-sowing, 203

Seeds, germination of, 166, 197, 264; novel way of sowing, 78; tardy germination of, 27, 96; the time to sow, 168; waste of, 267

Selaginella cuspidata crispa, 350; *grecina* in the form, 187

Selaginellas, specimen, 187

Sempervivum arachnideum, 449

Seneccio Ghiesbreghtii, 59

Senna, Bladder, 441

Sequoia sempervirens, 252, 301, 349, 369

Sericographis Ghiesbreghtiana, 441

Sheds, tiffany, 584

Shelter, planting for, 158

Shirehampton, notes from, 26, 425

Shrub, a beautiful, 41; notes from Fota Island, Cork, 491

Shrubs, Chilean, hardness of, 274; rabbit-proof, 304; flowering, 348, 516; for the sea-side, 417; in English gardens, 349; in Southwark Park, 229; mutilation of, 4; notes on, 107; propagating, 537; pruning, 40; top-dressing, 229

Silene pendula compacta, 530; *virginica*, 500, 550

Sisyrinchium grandiflorum, 214

Slipper, Lady's, showy, 120

Slipper Orchids at Holloway, choice, 266

Sloa, the common, 607

Snapdragons, a note on, 528

Snowball Bush, Japanese, 301

Snowberry, the, 304

Snowdrop, *Elwes*, 214; flowers, 113; *Tree*, the, 588

Snowdrops, 514, 238, 254; abnormal lateness of, 311; and the season, 257; from Weedon, 270

Snowflake, Spring, 186; Vernal, and Squill, 279

SOCIETIES—

Alexandra Palace, 620

Croydon Horticultural, 569

Crystal Palace, 469; spring show, 302

Horticultural Benefit and Provident, 181

Linnean, Centenary of, 423

Manchester exhibition, 497

National Auricula, 356

National Auricula and Primula, 398

National Chrysanthemum, 42, 133, 157, 231

Royal Botanic, 277, 374, 470, 594, 620

Royal Horticultural, 41, 67, 156, 181, 201, 253, 284, 302, 306, 349, 350, 380, 397, 423, 428, 446, 471, 477, 496, 521, 568, 619; annual meeting of, 157; reconstruction of, 427

Soft-wooded plants, propagating, 107

Solanum crispum, 186

Soldanella minima, 366

Soldanellas, 238, 395

Soot and Phylloxera, 422

Sophronitis violacea, 132

Sparmannia africana, 255

Sparrows as bud-destroyers, 605; destroying the, 569; destroying fruit buds, 191

St. athoglotis pubescens, 176

Spatum, 573

Spiguel, 572

Spinach, field, 314

Spiraea Bumalda, 253; *confusa*, 369; *palmata*, 458; *prunifolia*, double, 492; *Reevesiana*, 369

Spring, a late, 447; premature, in the south of Ireland, 54

Spring flowers, 356, 365; at Broxbourne, 113; hardy, 482

Spruce, Albert's, and Cryptomeria, 253; Pine, the, in Norway, 158; Fir timber, 400

Spurge, the, for coverts, 498; the scarlet, 13; 486; the, or Wood Laurel, 322

Squill, Siberian, the, 113; white, the, 311

Squills, blue, the, 383, 368; early, from Weedon, 396

Stanhopea eburnea, 66; *platyceras*, 138, 534

Star Flower, spring, the, 401

Statice profusa, 457

Steam heating, 363, 553; and overhead radiation, 411

Stenorrhynchus maculatus, 177; *speciosus*, 132

Stevensonia grandifolia, 11

Stigmaphyllon ciliatum, 170; propagating, 264

Stock, Brompton, double white, 574; *v.* scion, 33, 95

Stocks, East Lothian, 141; winter, 119

Stove flowering plants, six best, 347

Stove, plants suitable for, 275

Strawberries, alpine, planting, 342; barren, 473; early, 351; forced, mildew on, 545; forcing, 422; La Grosse Sucrée and Vicomtesse Hericart de Thury, 438; market, 549; pot, lazy, 516; pot, mildew on, 463, 533; sensational, 475

Strawberry Auguste Nicaise, 517; Coddington Pine, 318; culture, 462; forcing, hints on, 437; house, wireworm in the, 230; La Grosse Sucrée, 356; Noble, 602; plantations, making new, 612; Vicomtesse Hericart de Thury, 517

Strawberry Tree, 320; flowering branch of the, 320; *red-backed*, the, 320

Streams, wooded, 110

Strelitzia angusta, 279

Syrax japonica, 549; *japonica*, propagating, 459; *obassia*, 549

Suffolk, notes from, 431, 479

Sulphuric acid, 497

Sumach, Venetian, 129

Sniflowers, annual, 121

Sutton and Sons, Messrs., 601

Sweet Bay, Willow-leaved, the, 492

Symphoricarpos racemosus, 361

T.

Table bouquet, large, 330

Tacsonia, a seedling, 575

Tacsonias, propagating, 427

Tahiti, notes from, 1
Taxodium distichum, 110
Tecoma radicans, propagating, 537
Tecophylea cyanocroceus, 138
 Telegraph poles, wood for, 448
 Temple Hill, Cork, notes from, 140
Tetradlea hirsuta, 458
 Thinning, 544
 Thorns, 465
Thuinbergia fragrans, 326; *Harrii*, 161, 186; *myosotis*, 549; *Vogeliana*, 351
 Thunder storm, the great, 619
Thunia alba and *Marshalliana*, 453; *Bon-soriae*, 593
 Thyme, golden, 529
Thyracanthus rutilans, 118
Tiarelia cordifolia, 501
Tickseed, the Lance-leaved, 7
Tilia parviflora, 229
Tillandsia, blue, the, 113; *Lindeni Regeliana*, 113
 Timber felling, time for, 376; Silver Fir, durability of, 304; standing, selling, 207
 Tobacco, Night-scented, 323; sweet-scented, 575
 Tomato, Tree, the, 500, 552; *Trophy*, 483; what constitutes a good, 559
 Tomatoes, 111, 560; comparative merits of, 483; in the open air, 313, 525; late grown, 56; ripe, in winter, 387; ripening, 595; where they succeed, 38
 Tower Gardens, opening of, 423
Toxicophyleas, 57
 Tree guards, 522
 Tree, Lily of the Valley, 129; plant'ng and protecting, absurd, 178; Silver Wattle of Tasmania, 20; Snowdrop, the, 607; Strawberry, the, 4, 43; stumps, destroying, 21; Wig, the, 129
 Trees, age in, rings as evidence of, 400; and shrubs, flowering, 300, 320, 440, 465; and shrubs for Berwickshire, 369; and shrubs for wet ground, 158; deciduous, pruning, 129; flowering, 348; for marsh and mountain, 68, 109; in English gardens, 349; in Ireland, 256; influence of soil on, 208; newly planted, mulching, 320; notes on, 106; pollarding and disfiguring, 498; rabbits destroying, 84, 153; spring-flowering, 590; staking newly planted, 498, 544
Tremandra verticillata, 444
Trichomanes pluma, 78

Trichopilia lepida, 495; *suavis alba*, 297
Trillium erythrocarrum, 456
Triteleia uniflora, 401
 Tritomas in flower, 600
 Trollius, 528
Tropæolum azureum, 380; blue, the, 380; *polyphyllum*, 602; *rhomboideum*, 404
Trumpet Flower, the, 348
 Tulip for pot culture, 616; Mexican, the, 296, 332, 372, 535; *Ophir d'Or*, 290; Persian, 509; Star, golden, 487
 Tulip Tree, a fire, 526; Chinese, 564; the, 68
Tulipa elegans, 470; *Gesneriana*, 477, 526; *Greigi*, 529; *Kolpakowskiana*, 404; *lanata*, 404; *macrosepala*, 530
 Tulips at Haarlem, 501; at Kew, 428; at Manchester, 621; in the parks, 452, 507
 Turner Memorial prizes for 1888, 83
 Turnips, early, 196
Tweedia cerulea, 550
 Twin-leaf, 428
 Tydasas in flower, 218

U.

Ulmus alata, 182
 Umbrella tree, the, 602
Urceolina pendula, 436
 Urn Flower, drooping, the, 436
 Utah, a letter from, 111
Utricularia Goweri, 230; *montana*, 458; *nolumbifolia*, 78

V.

Vaccinium serpens, 478
Vanda Amesiana, 536; *Calherti*, 224; *Cathcarti*, 174, 266; *Denisoniana*, 616; *gigantea*, 307; *Goweri*, 231, 266, 308; *Parishi Marriottiana*, 206; roots dying, 612; *teres*, 24; *teres candida*, 616; *tricolor*, 19, 386; *tricolor planilabris*, 615

Vandas at Holloway, 223; at Leatherhead, 414; from Camberwell, 456
 Vegetable garden, amateur's, the, 387
 Vegetables, early thinning out of, 406; fresh, 585; green, scarcity of, 468; hampers of, 608; notes on, 337, 372; supply of, in Dublin, 406; too many varieties of, 130; winter, scarcity of, 370, 435
 Veitch Memorial prizes for 1888, 138
 Venidium, 575
Verbera, sweet scented, 300
Veronica Lyalli, 573; *prostrata*, 601; *repens*, 573; *Traversi*, 41
 Vetch, Pyrenean, 530
Viburnum plicatum, 41, 301, 428, 601
Vicia pyrenaica, 530
 Vine borders in autumn, 35; management of, 474
 Vine, Golden, the, 170; Golden, propagating, 264; *staff on lawn*, 393
 Vines, barren, 258, 318, 354; diseased, 521; Lady Downe's, unsatisfactory, 546
 Vinceries, 419
 Vinery, the, for the Vine, 389
Viola lutea, 549
 Violet, Dog's-tooth, white, 368; Neapolitan, runnerless, a, 508, 573; *Victoria*, 395
 Violets from Ireland, 428; from Mayo, 86; in pots, 450; and Lilies of the Valley, 86; Marie Louise, in pots, 116; Parma, 366, 401, 451; Parma and Neapolitan, 281
Vitis heterophylla variegata, 540
Vriesia brachystachys, 276
Vriesias, 148

W.

Wahlenbergia graminifolia, 556
 Wallflower, alpine, 477; Bedford Yellow, 530; double yellow, old, 368
 Wallflowers at Brighton, 529; dwarf, 573
 Walnut, Caucasian, the, 82; *branch and leafless twig of*, 82; *young leaf of*, 82; cut-leaved, the, 228
 Wasps, 543, 595
 Water Lily, canary-coloured, 408, 428
 Wax Flowers, the, 408

Weather, an acceptable change in the, 138
 Weed, a noxious, 63
 Weeds, 434
 Weevil, brown, the, 521
 Weigela Abel Carriere, 601
 Wellingtonia gigantea, 607
 Wild flowers in Devonshire, 425; in Kent, 571
 Wild garden, beautiful, a, 255
 Windflower, alpine, sulphur-coloured, the, 271, 500; Apennine, 404; Apennine, in the house, 366; blue winter 402; carlet, the, 326, 380; Snowdrop, 477; Wood, varieties of the, 452
Winter Flower, the, 393
 Winter flowers, 26
 Wintersweet, 284
 Wireworm in the compost-yard, 595; in the Strawberry house, 595
 Wireworms, destroying, 163
Wistaria sinensis, 540; *sinensis alba*, 607; white-flowered, 590
 Wistarias, propagating, 510
 Witch Hazel, Japanese, 83
Witsenia corymbosa, 510
 Wood, preserving, 84
 Wormia Burbidgei, 505

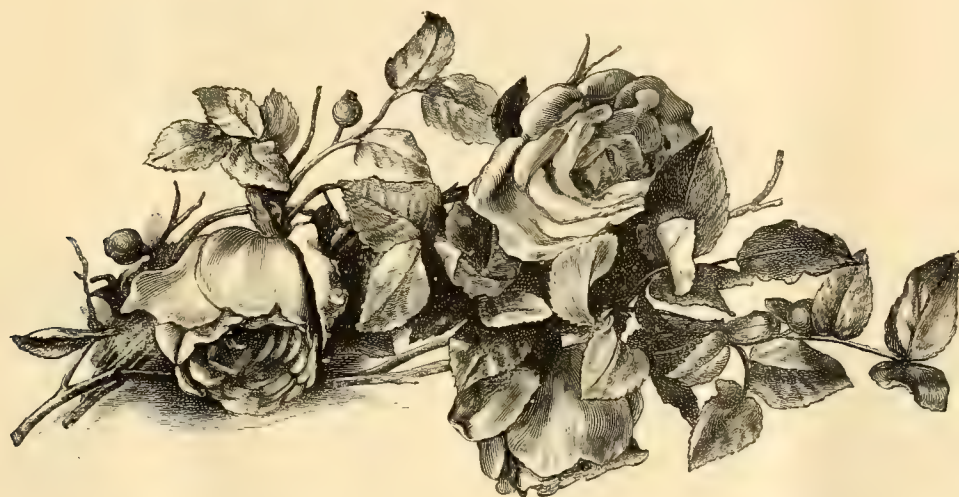
Y.

Yellow Wood, Amoor Valley, the, 444
 Yew, Chilian, the, 171
Yucca, a, in bloom, 202; *filamentosa*, 333
 Yuccas, 487

Z.

Zephyr Flower, double, the, 201
 Zephyr Flowers, 10
Zephyranthes carinata, 90; *Treatise*, 11
 white, a, 404
Zygopetalum Mackayi, 83; *rostratum*, 206
Zygopetalums, 307





COLOURED PLATES.

	PAGE		PAGE
AMARYLLIS BELLADONNA...	268	NARCISSUS BROUSSONETI...	610
AZALEA DEUTSCHE PERLE ...	460	NYMPHÆA MARLIACEA ...	292
BEGONIAS, TWO ...	146	ODONTOGLOSSUM HARRYANUM ...	76
CARNATION APRICOT ...	244	OXERA PULCHELLA ...	510
„ „ COMTESSE DE PARIS ...	122	PASSIFLORA WATSONIANA ...	194
CATASETUM BUNGEROTHI...	388	PLUMBAGO CAPENSIS AND P. CAPENSIS ALBA ...	364
CLERODENDRON NUTANS ...	412	RICHARDIA ÆTHIOPICA ...	584
EUPHORBIA JACQUINIEFLORA ...	486	ROSE EDITH GIFFORD ...	316
GESNERA LONGIFLORA ...	340	ROSE MADAME DE WATTEVILLE ...	220
HIBISCUS ROSA SINENSIS FULGENS ...	96	STANHOPEA PLATYCERAS ...	534
IRIS HISTRIO, I. ROSENBACH'ANA, I. FERSICA, I. KOL- PAKOWSKIANA ...	558	STIGMAPHYLLON CILIATUM ...	170
IRIS PALLIDA ...	32	URCEOLINA PENDULA ...	436
MARICA CÆRULEA ...	58	ZEPHYRANTHES ATAMASCO ...	10





THE GARDEN.

VOL. XXXIII.

NOTES FROM TAHITI.

At 4 a.m. we started, and a charming drive we had in the bright moonlight, almost as clear as day. The scenery and the mountains in the background are beautiful by sunlight, but I think even prettier by moonlight, and we had the advantage of delightfully cool weather. Day began to break when just beyond Punavia, and it was beautiful to see the rays of the sun gradually give a warmer light to all the mountain tops, and slowly descend the sides till the tops of the Cocoa-nuts and Bananas were reached. . . . Our party being made up, next morning we began our walk. Four stalwart natives accompanied us to carry provisions, bedding, &c., which were wrapped in huge bundles, and covered with the Paumota mats. Each native carried two, one at each end of a pole which they slung on their shoulders, and it was as much as I could do to lift them on to mine, but they took them up and went off with them at a comfortable amble. They went much faster than we, and how they managed to get over the stones and up and down the steep places, I cannot make out. I was shown places where they climbed for Feeiis on the almost perpendicular sides of the mountain, and a long way up. The load that they sometimes bring down weighs over 400 lbs. It would be bad enough and dangerous enough without anything, but with such a load it is simply marvellous. . . . The first part of our journey was easy enough till we got to about the fourth or fifth river. One counts by rivers, that is, how many times you cross it. Of course, the stream winds about round the foot of the mountains, and you may guess how much when I tell you that we had to cross it ninety-eight times before we began the ascent to the lake. Between each river we had to go through a kind of cane-brake of the native Ginger, a long kind of reed, 10 feet to 12 feet high, with large, pointed aromatic leaves. These grew very close together, and the natives, with heavy knives, cut a way through. It was like going through a tunnel, and the walking was troublesome and painful,

as it was over loose round stones and small rocks, and one was always slipping. The first half-hour was through a lovely wood, the usual thing—Bananas, Oranges, Vines, and Hibiscus. I never saw anything like the huge Hart's-tongue Ferns growing on the trees; for instance, there was a piece of tree broken off, and at the top of this a perfect round crown of these Ferns of a lovely delicate green. I saw plenty of these and other kinds of Ferns, Mosses on the trees, and so on. The mountains were nothing much here, but about the 15th river the gorge began to narrow, and it was truly lovely. I will describe it here, as it is much the same all the way, only varied by sometimes one side being perpendicular, and sometimes the two sides approaching close to each other, not leaving much daylight, and at least 2000 feet high. Imagine these covered with all the different trees, Feeiis, Hibiscus or Bourao, Guavas, &c., right up to the top, and coming sheer down to the stream at the bottom. The river had a stony bottom, the water clear and cold, and there is not a yard of it on the level, so it came along, tumbling, roaring, rushing in splendid style. Every now and then there was a cascade, down which it fell in grand form, and up which we had to go when fishing, jumping from rock to rock. Of course, we did not mind the wetting, as we were wet all day. Sometimes one saw an old tree growing out of the side right across the stream, its trunk covered with all kinds of the most delicate Ferns, creeping and otherwise—larger sorts as well—and cushions of luxuriant Mosses; while on the other side would be the enormous fronds of a huge Fern, 10 feet to 12 feet long, hanging over the water, backed by the splendid, shining dark green leaf of the wild Taro, each leaf broad and big enough for a table. It was indeed a grand sight, and the clear, fresh, cool air was so exhilarating.

After lunching, we fished up to the 16th river, our first camping ground. We used a small black fly; our rods Bamboo, with a string for line and a bit of gut at the end—primitive, but effective, for we soon had a nice string of

fish. They call them trout, but the shape is that of a perch, dark-scaled with gilt edges at the top, then grey and white below. They are more vigorous than perch, and one had to be very quick to catch them. . . . A native woman accompanied the party, who was called "Lady Gordon;" having been told a story in which a person of that name figured, she appropriated it! The natives soon ran up our "Palace Hotel," a lean-to covered in at the back and sides with the huge leaves of the Feei and the Taro and numberless pieces of the native Ginger, open to the river in front, and about 25 feet by 10 feet. They had everything to hand, fastening every pole with the bark of Hibiscus, which is as strong and as pliant as rope. Our beds were quantities of the dried leaves of the Ginger, soft and with an aromatic smell; on these were spread the Paumota mats, and we had plenty of rugs and pillows.

After supper, of fresh fish of several kinds (one being eel, a huge ugly-looking creature as long and thick as my arm) and chicken, we had *café au "lait du tigre"* (rum), and were going to have a game of casino, when my native announced that he was going to say prayers. He knelt on his hands and knees, and made a long extempore prayer. He had said grace, too, before our meal. Next day we fished up to the 90th river, and the rain, which continued steadily, almost persuaded us to give up the object of our little trip, which was to see the lake, but on and up we went, for we soon began to ascend, and though still in the dark tunnel of Ginger plants, we had to pull ourselves up boulders of rock by our hands. They rose up before us almost perpendicularly; then we got amongst the Feei, &c., the path still being very steep. When about a third of the way, the path turned to the right and zigzagged along the face of the mountain, and in no place was it more than a foot wide, often less. On our left, the steep mountain; on our right, a sheer precipice of some 600 feet; trees, of course, hid its depth, but we felt it was there. The coming down might be dangerous, as the path was clayey and

rather slippery from the rain. Soon we came to a flat place, where in old times the natives had built a rude fort against the French, and had killed everyone while storming it, and no wonder. Some way further on we came to, in the mountain, an enormous chasm, said to be fathomless, with native legends of its own. Up and on we went, and then descended a little way to the shore of the lake, which is about three-quarters of a mile across and almost round, with mountains on all sides running sheer into it. There were plenty of ducks, and I being desirous to shoot some, the natives cut down some Feeii trees (oddly enough, Bananas will not float), fastened them together by running sticks through, and improvised a raft or catamaran. When I got on it I was nearly submerged, and while wondering if Taia, my native, would sink it, to my surprise, he rolled his shirt round his head and swam behind, pushing me along slowly. My hopes were disappointed; the birds were so high, and not being the Guava season, there were no roupis or wood pigeons. When safe in our shelter that night, we heard a roaring and smashing and crashing of trees, for the little rain we had had after such a dry season had detached a huge rock, which came bounding down the mountain, clearing all before it. That night the natives begged for a story; they are, like children, fond of ghosts and fairy tales.

C. A. P. T.

Tahiti.

MARKET GARDEN NOTES.

THE late frosts have enabled the owners of market gardens to get the ground manured, and now that there is the probability of milder weather, every preparation will be made to catch the first favourable opportunity of seed-sowing, as a good deal of the success in market-growing depends on a rapid rotation of crops. Every day gained in the early part of the season in getting the first crop cleared off is worth a week at the latter part of the season when growth is nearly at a standstill. The first crop that calls for attention is

BROAD BEANS.—These are grown in large quantities as a field crop, and are cleared off in time to get winter Broccoli, greens, or Turnips put in, and being hardy the earlier they can be got in the better. They are not much grown as a late crop, as, after runner and dwarf Beans become plentiful, there is little demand for them. A good breadth sown in January and another in February generally complete the sowing of this crop in market gardens, the varieties used being Longpod for the first sowing and Windsor for the second. Taylor's Windsor is a great favourite in this locality.

PEAS.—Both early and late varieties are extensively grown; in fact, whenever procurable they invariably sell well, but the largest quantities sown are of the early kinds, and growers take the first opportunity of getting the seed sown after the new year opens. Varieties of medium height and of well-known excellence are preferred by market gardeners. Novelties they grow for trial in their own private garden, but do not trust to them for main crops until they have proved them.

EARLY POTATOES.—Although Potatoes are so largely grown, I doubt if any crop is more certain or remunerative than the early kinds. On the south coast the soil is specially adapted for promoting early growth, being light and well drained, and, in addition to liberal manuring, growers make a point of thoroughly pulverising the soil by ploughing deeply two or three times, as in this way the growth is not only much accelerated, but the tubers turn out clean and good, and the land is in good condition for the next crop. Next to Ashleaf Kidneys, that are not yet surpassed for very early crops, there is no variety so popular as Beauty of Hebron, that grows to a large size very early in the season, and in this dry soil is always of good quality.

Forcing Rhubarb is largely carried on, the large crowns being covered with old casks or barrels, and

then enveloped with stable manure, which growers get in quantity from town stables at a cheap rate. A good depth is spread over the remaining portion of the old crowns, and under the friendly shelter of the litter the stalks push up very strongly to succeed those forced in tubs.

Sowing of Tomatoes, Cucumbers, Radishes, Lettuces, and other crops under glass is now claiming attention, and Mustard and Cress is used for filling up any heated pits or frames, as it invariably sells well very early in the season.

The roots of Mint are being put under glass in quantity for supplying green tops, that sell readily before the outdoor crops are fit for gathering.

Gosport.

J. G.

TREES AND SHRUBS.

W. GOLDRING.

THE EVERGREEN OLEASTERS.

(*ELÆAGNUS*.)

THOSE who have seen the evergreen kinds of *Elæagnus* in the perfection of their winter beauty will agree with me in considering them among the finest of all evergreen shrubs. They are so handsome and create such a remarkable aspect in the garden in mid-winter, that one wonders why it is that they are not grown in sufficient numbers in nurseries to be bought as cheaply as other Evergreens. In the first tree and shrub catalogue I refer to, two of these Oleasters, *E. pungens variegata* and *E. reflexa variegata*, are placed in the list of shrubs for covering walls, and in other catalogues none of the evergreen Oleasters are mentioned. This arises from a false impression that the Japanese Oleasters are tender, whereas they are undoubtedly as hardy as common Laurels. With the exception of the Holly, there are perhaps no handsomer evergreen shrubs than *Elæagnus glabra*, *E. macrophylla*, and *E. pungens*, and their variegated forms, and in proof of this anyone can see for themselves how fine they are at Kew, Battersea Park, Victoria Park, Bath, and various other public gardens I could mention where there exist old specimens that have withstood the most severe winters for many years.

The growth of all the Oleasters is different from that of most other Evergreens, being very dense, with drooping, slender shoots, which in time form huge globular, spreading masses, so that Oleasters are adapted for planting as isolated specimens on lawns. The foliage of most of them is as large as that of the common Bay, leathery in texture, deep green above, and covered with silvery or brown scales beneath. The young shoots, covered with a coating of brown scales, have a most picturesque appearance when protruding from the mass of old branches.

The names of the *Elæagnuses* are evidently much confused, for there are several names for the same kind, and what is seen labelled in one place under a certain name is found to be named differently elsewhere. The nomenclature of the collection at Kew does not appear to be uniform, but we must take it as being correct. The finest evergreen Oleaster at Kew is that labelled *E. glabra*, a Japanese species. There is one huge bush of it a mass of luxuriant green. The variegated form of it (*E. glabra variegata*) has its leathery leaves broadly margined with pale yellow, rendering it very ornamental. *E. reflexa* has its leaves of an unusually deep green, and produces the characteristic long brown shoots rather more numerous than the other forms. *E. latifolia* forms one of the finest specimens. *E. pungens* and its variegated form are both handsome, as well as another called *E. Simoni*, a

name given by Carrière to a species said to come from China. *E. macrophylla* is another good species, so that altogether there are six distinct green-leaved kinds, irrespective of the variegated forms, of which there are several; but of all these only about three or four kinds (and these are not cheap) are obtainable at nurseries. If there was a demand for evergreen Oleasters, no doubt nurserymen would soon work up stocks, but so long as they are allowed to remain in obscurity the public cannot be expected to know them and plant them.

Judging by the luxuriant growth of all the Oleasters at Kew, I imagine that a poor sandy soil, with a porous layer of gravel beneath, suits them. In how many places does such a soil exist where these Oleasters would flourish? But I have said enough to show that a valuable class of evergreen shrubs suffers neglect simply from the want of being better known. A group of, say, about five evergreen Oleasters (green and variegated) on a lawn, with two or three conical Conifers, such as the Knap Hill Cypress or *Libocedrus decurrens*, rising out of the mass, would make an uncommonly fine feature in winter by the contrast of habit alone.

The Californian Bayberry (*Myrica californica*) is one of the many valuable hardy shrubs that have not yet come into general cultivation, though it possesses all the qualities of a first-rate Evergreen. It is dense in growth, making when fully grown a compact rounded bush, having foliage reminding one in colour and texture of that of the common Bay. The leaves are narrow and much longer than those of the common Sweet Gale (*M. Gale*), and, like that shrub, the leaves when bruised have an aromatic odour. In the dry sandy soil at Kew it grows freely and does not feel the drought in hot summers. Just now it is most conspicuous, for while its neighbours, *M. Gale* and *M. cerifera* (the Wax Myrtle), are bare of leaf or nearly so, it is a luxuriant mass of green. If this and other distinct-looking Evergreens were taken in hand by nurserymen, how much more variety one could plant in shrubberies, and how much more interesting they would be in winter.—W. G.

The Mezereon (*Daphne Mezereum*).—This modest yet fragrant and beautiful harbinger of spring was one of the two open-air shrubs to be found in bloom at Kew on New Year's Day, its companion being the sturdy yellow Jasmine, which never fails to develop its golden blossoms, even in the severest of winter weather. The Mezereon is peculiarly the favourite of the cottage garden, for it is oftener to be found there than in large places; yet how delightful it is to meet with it in bloom in a walk round a cheerless garden on a January day. Every garden should have its Mezereon, not in an out-of-the-way place, as it is generally found, but within sight of the window and close to the path, where its cheery blossom and delicious fragrance can be enjoyed. The Mezereon, though it cannot be called fastidious, will not thrive well everywhere. It likes a deep moist soil, and particularly resents being overshadowed by any other growth, and if in suitable soil it will grow into a bush 5 feet or 6 feet high. There are several sorts differing more or less widely from each other. The common kind has deep pink flowers, succeeded by deep red berries. The white (*flore-albo*) has yellow fruits, and besides these there is a dark-coloured variety called *rubra*; another, with rather larger flowers, called *grandiflora*; and another, named *autumnalis*, which, besides being very different in growth, flowers during the autumn.—W. G.

Parasol de St. Julien.—This name occurs in the Kew arboretum on the labels of two Poplars, viz., *Populus tremula*, the Aspen, and *P. tremuloides*, American Aspen. Can anyone tell me to which tree this name properly belongs, and also give any clue to its origin, or where it is most commonly used? I cannot find any trace of it in Miller's "Dictionary of English Names of Plants."—W. GOLDRING, Kew.

UPRIGHT CYPRESS.

(CUPRESSUS STRICTA.)

BROADLANDS, Romsey, in many of its features, and more particularly in regard to the grouping of trees in the pleasure grounds and park, shows a strong resemblance to Hackwood Park, Basingstoke, and as "Capability" Brown is said to have been the landscape gardener at both places, the resemblance is at once explained, though in contour of ground and general surroundings no two places could be less alike. Supposing—indeed, I think there is

and, as the guess happened to be correct, I complimented him on it. In reply, he said: "I think that I could guess almost as correctly the work of several other landscape gardeners." Such an attainment shows in a marvellous manner how, by the application of one's mind to any given subject, that subject is mastered, and instead of difficult it becomes natural.

As remarked in a former note, the ground formation of the park is somewhat flat, but as a set-off the distant woods on the higher ground outside the limits of the park are seen to



The Upright Cypress at Broadlands, Romsey, Hants.

scarcely room for supposition—that the same artist laid out the two places, it is but a proof of what is constantly occurring in every-day life, namely, that once a man has become thoroughly master of his work, difficulties of totally different ground formations, such as these display, are no barrier to the successful accomplishment of his object. An experienced landscape gardener—still living—when on a visit to this place a few years since noticed certain clumps of trees in the park, and remarked: "I see you have had Mr. — (naming a well-known landscape artist) down here;

greater perfection, and, in fact to a stranger, seem like a continuation of the park. This is an innocent piece of deception that I doubt not the landscape artist had in his mind's eye when laying out the place, for, look which ever way one will, the clumps of trees are so placed that not a bit of distant scenery is blocked or intercepted. Another very striking feature is the absence—evidently intentional—in the park planting of trees other than those of a massive description, Oaks, Elms, Beech, Planes, Horse and Spanish Chestnuts, and the spiral Lombardy Poplars being the deciduous giants; many are of

exceptionally large dimensions. The evergreen giants consist of Cedars of Lebanon, which, though cruel snowstorms have smashed many of them terribly, are none the less effective by reason of their maimed condition. Scotch and Spruce Fir, Box, and Yew vie with each other as to size and vigour. Add to the large size of trees, expanse of ground, and the grouping of the trees at proportionate distances, then the reader can realise—faintly, I grant—a piece of as perfect landscape planting as there is anywhere to be seen. In the pleasure grounds adjoining the mansion, and which are of large extent, attempts have here and there been made to modernise the scenery by planting more recently introduced trees, particularly Conifers, but the old stagers, such as the one seen in the accompanying illustration, "hold the field" for beauty. I should imagine that this is the finest upright Cypress in the country. It is over 40 feet in height, the trunk is 7 feet in girth, and the circumference of branches is 45 feet, and the tree is still growing. There are other Cypresses that very nearly approach this one in dimensions, and of handsome Yews, Tree Box, Cedars—*C. Libani* and *C. atlantica*—there is a large number. On the low-lying ground near the river are many handsome Firs and evergreen Oaks and an immense grey Poplar (*Populus canescens*). I did not take the measurement, but the height could not be less than 100 feet, nor the girth of trunk less than 16 feet or 18 feet. The chalky subsoil is not favourable to the growth of many of our best Conifers. *Abies Douglasi*, *A. Nordmanniana*, *Picea Pin-sapo*, and the Deodar Cedar (*Cedrus Deodara*) are exceptions, as these all promise to make fine trees. One is almost tempted to say, more is the pity, because there being such a wealth of old-fashioned trees and shrubs at Broadlands, one is jealous lest the present passion for coniferous trees should end in their being planted without regard to the lines of beauty that the original designer has so successfully accomplished. W. WILDSMITH.

Heckfield.

Robinias.—With the exception of the dense-headed *Robinia Bessoniana*, which presents such a marked feature as a decorative street tree, few of the large *Acacias* have become favourites in gardens. Big *Acacia* trees have at the best a gaunt, ragged look, unless occasionally beheaded and induced to break afresh. What with falling flowers, stems, and leaves, the trees are very untidy, whilst only loosely-grown heads flower freely. For these reasons few *Acacias* are planted now, except of the kind named above. That, however, needs hard pruning every two or three years, as otherwise the heads become thin and brittle.—A. D.

Lime trees dying.—Would any of the readers of THE GARDEN kindly advise as to the best time to prune Lime trees? I pruned some in January last, and others I cut in in August. Of those that were pruned in the early part of the year all are more or less dying back to the main trunk. In all respects, except in the case of the branches that have been pruned, the trees are quite healthy. Those, again, which were cut in whilst in full leaf last August show no signs of dying back. I may mention that some of the large branches were sawn off those trees that were pruned during the early part of the year. I remember when a boy some Limes being planted near to where I then lived, and they were cut in every year when in full leaf, and I never remember seeing the trees suffer in the least. Our soil is chiefly gravel.—W. C., Ilford.

Golden Scotch Fir.—This variety of our own native Fir differs from the common type in being far less vigorous (for it forms a low-growing, compact specimen), and also in the foliage during the winter season becoming of quite a golden hue, which changes to a pale green in the summer. For lawns of limited extent, or as an isolated specimen

in a small garden, it is well suited, as from its slow, compact habit of growth there is no danger of the bounds allotted to it being exceeded. Though variegated Conifers, as a rule, are at the best sickly-looking, those in which the foliage is altogether suffused with a yellowish tint (as this Fir is) afford a pleasing variety to the otherwise sombre hue of many of them. Its origin I am unaware of, but it was most probably raised as a seedling from the type.—T.

Cretan Maple (*Acer creticum*).—This tree is more often seen as a shrub than a fully-developed specimen, like the one at Syon House, Isleworth. These famous gardens are noted for their richness in noble trees, representing many rare kinds, and an interesting feature is the Cretan Maple near the large conservatory. It is in a shady retreat, a position in which it delights, and shows a dense spreading head, formed by the interlacing of innumerable twiggy branches, now covered with the light brown hardly converging keys or wings, that at a distance have the appearance of shrivelled leaves. It does not grow very rapidly, generally attaining a height of about 30 feet, and the Syon House specimen is, I should think, about 20 feet—perhaps not so much. It is sub-evergreen and a native of Crete and the Grecian Archipelago.—E. C.

The white Kerria (*Rhodotypos kerrioides*).—In making a selection of a few good hardy flowering shrubs this *Rhodotypos* should be included, for the large white blossoms are borne in great profusion, and, irrespective of this, it is a very ornamental shrub, and also quite hardy. It bears a great resemblance to the old Japanese Kerria, the double form of which is so frequently met with in gardens, and so free-flowering when favourably situated. The *Rhodotypos* is of quick growth, and by no means particular as to soil or situation. It has been grown to a limited extent in this country for some years, but does not appear to have become very popular. In Japan it is very frequently met with.—T.

The Rose-leaved Bramble (*Rubus rosaeifolius*).—The double-flowered form of this Bramble will produce its white blossoms during the autumn and winter months, and on this account it is especially valuable where flowers at this season are in demand. It is a small and erect-growing species, that soon forms a rather dense bush by reason of the numerous shoots that are produced from the base. It is easily propagated in the spring from cuttings of the young shoots, that are readily obtained from plants that have done flowering, and kept a little while rather warmer than usual. During the summer the leaves are somewhat liable to be attacked by red spider, and on that account a good syringing should be frequently given. According to a recent number of the *Botanical Magazine*, this Bramble is a native of the Himalayas, Burmah, and Java, but is now widely spread over many parts of the globe. The fruits, which much resemble those of the Raspberry, are sold in some of the West Indian Islands under the name of Framboisier. From the same authority we learn that the double-flowered form was first brought from Penang to this country, and it is now cultivated in Japan as a garden shrub.—H. P.

The hardiest Laurel.—Several years ago I was advised to plant the Colchic Laurel wherever any blanks occurred among the great number of Laurels grown here, principally for game cover. It was said to be much the hardiest of the two, and such has certainly proved to be the case. In one instance a large island was planted principally with this Colchic Laurel, and the plants have done remarkably well. Last winter many of the common Laurels hereabouts were nearly killed by frosts, those near the lake in which the island is situated appearing, notably after an exceptionally severe March frost, as if scorched by fire; not so those on the island. They were browned somewhat, but soon recovered from this, and have continued to grow vigorously, while many of the common Laurels had to be cut down to the ground. This Colchic Laurel also possesses another good quality, viz., it is distasteful to rabbits.

I do not assert that rabbits will not touch it, but I can truthfully say they have not materially injured any of the young plants dotted among the common laurels where blanks occur, whereas the latter are already very badly barked. The Laurel under notice is here of a rather more erect growth than the commoner kind, the leaves also being narrower. It is supplied at about the same price, and should therefore receive the preference, especially in cold districts or where rabbits are numerous.—W. L., in *Field*.

MUTILATION OF SHRUBS.

THE timely article that appeared on this subject in THE GARDEN (p. 614) did not present an exaggerated picture, but was truthfully drawn and to the point. Attention has been called to the barbaric custom of so-called shrub-pruning before, but it seems a rule, that undergoes no variation, to regularly lop in the autumn of the year the shrubs to a stated height, and even this bold surgery is very clumsily performed. Along the Embankment gardens there are far too many things, so that we can understand that to prevent undue overcrowding restriction is essential, but why not adopt a wiser and more rational course by lifting those plants where they are placed too thickly, so as to give the others free space for the development of their branches? Three or four gnarled spurred stems, unsightly, unhealthy, and distorted, represent some of the unfortunate shrubs, more like the pictures of the Japanese monstrosities than those in a garden in the centre of the metropolis. No plant when pruned so regularly and so severely can possibly display the beauty it is capable of when reasonably dealt with. Of course, it is necessary to cut in a little, as in the case of almost every plant, especially shrubs and trees, but to prune as Pear trees are frequently done is labour wasted and unnecessary destruction. It is not, however, only the bold cutting back that complaint should be made, but also of the practice of digging up the soil amongst the plants, so as to obtain, I suppose, a certain amount of neatness and order. Every gardener knows, or ought to know, that to dig up with a spade between the shrubs destroys a number of the roots, and harm is inflicted on the plants. This hurtful practice of digging the ground between shrubs is not only seen in the gardens along the Embankment, but in many a small plot, and, I am afraid, also in places where other things are, as a rule, well cultivated. The miserable condition of the shrubs in suburban gardens may be traced, not to the smoke, bad soil, or anything of that kind, but to this annual cutting and to disturbance of the ground. A jobbing gardener is called in and told "to make the place tidy for the winter," and dreadful is the injury inflicted. I have no wish to quarrel with the real jobbing gardener, as there are many men who thoroughly understand their work, but there are also many that have never been brought up in the profession, and therefore know nothing of gardening. It is the fault either of the master or the man. E. C.

The Strawberry tree (*Benthamia fragifera*).

—It is much to be regretted that this evergreen shrub is not hardy enough to stand the winter in the open air except in Devonshire. Some fruits now before me, gathered from a large plant growing in a beautiful garden in the south of Devon, each measure $3\frac{1}{2}$ inches in circumference. The fruit is so freely produced every year that a sufficient quantity is obtained for preserving. The position of the garden is in one of those beautiful valleys for which Devonshire is so well known. In this garden the *Benthamia* and several other plants that require the protection of a greenhouse in winter in other parts of the country thrive in the most satisfactory manner without giving any trouble. Here, in Somerset, the *Benthamia* grows trained as a creeper on a wall facing east, and is not often injured in winter, while the fruit ripens in favourable summers. The fruit is, however, much smaller than that from the Devonshire plant, which is 20 feet high, with a proportionate spread of branches. I have an idea that this plant would do fairly well in some sheltered gardens

near the sea on the south coast. I may mention that we grew it here for several years in an unheated house, but it did not produce any fruit. It was not until I planted it against an open wall that it fruited, and this seems to show that it does not like the confinement of a glass structure.—J. C. C., in *Field*.

NEW PLANTS OF 1887.

THE public taste for Orchids of all classes is fully illustrated by the great quantity of novelties which have made their appearance during 1887. New Orchids are very numerous both as garden hybrids and as imported species and varieties. Among the varieties produced by the skill of the hybridiser, the most interesting is, no doubt, *Zygopetalum Veitchi*, which is the result of a cross between *Z. crinitum* and *Colax jugosus*. The flowers partake of the characters of *Zygopetalum*, but are remarkable for the large smooth lip, which, like that of *Colax jugosus*, is beautifully spotted with rich violet on a whitish ground, while the petals are brownish, dashed with yellow. Next in importance we have *Phalenopsis Harriettæ*, which is an interesting and likewise a beautiful variety, the result of a cross between *P. grandiflora* and *P. violacea*. The flowers, about half the size of those of the first-mentioned species, are of neat and compact form; the sepals and petals, being of nearly equal size, make up a bloom of almost circular shape, the colour being greenish white, with the exception of the basal half, which is very bright and forms a pleasing contrast; the whole flower is besides freckled and suffused with rosy crimson. In *Cypripediums*, which have been produced somewhat plentifully, the most distinct and handsome is *C. superciliale*, which somewhat reminds one of *C. superbiens*, of which it is a variety; its splendid broad foliage is, like that of this species, distinctly tessellated; the flowers, which are magnificent and of bold form, have a reddish brown lip; the dorsal sepal, white, with green and purple veins, is very large; the petals and sepals, dull-coloured, have their margins copiously furnished with conspicuous warts of a deep crimson colour. In *C. orphanum* we have, as its name implies, a produce of unknown parentage. It is a beautiful hybrid, with flowers of medium size, but remarkable for their particularly bright colours, especially that of the lip, which is rounded and well-proportioned, and of a bright rosy purple hue. The dorsal sepal, broad, white, veined with green in the centre, and purplish towards the sides, is rendered very conspicuous by the bold band of a deep chocolate colour, which runs down the centre and forms a splendid contrast to the white of the margin. The petals, which are peculiarly wavy and about 2 inches long, hairy at the base, are also ornamented with chocolate-coloured bands down the centre. *Cypripedium leucorrhodum* is a pretty hybrid between *C. Roezlii* and *C. Schlimi* album. The lateral petals are straight and pinkish white, as also the lip in its anterior portion; the dorsal sepal is white, slightly stained with purple and marked with ascending green lines. The *Calanthes Halli* and *Sanguinaria* are also two excellent acquisitions, the former being the result of a cross between *C. Veitchi* and *C. vestita luteo-oculata*. Its pure white flowers, having no blotch in the centre of the lip, are closely set on a comparatively short spike. *C. Sanguinaria* is quite different from the one just described, as it is distinguished by the intense rich crimson colour of its very large flowers, whose sepals and petals are revolute. The lip is boldly lobed, and at its base the colours deepen sensibly, rendering the plant very attractive; as it is by far the darkest variety yet obtained, it makes a grand contrast when grown among such kinds as the ivory-white *C. nivea*, the rose-coloured *C. Veitchi*, the white *C. luteo-oculata*, *C. Regnieri*, and other pale-coloured forms. Some very good new species of Orchids have also been brought out during this year, the most striking being *Catasetum Bungeirothi*, with pure white flowers of massive character and waxy substance, produced from ten to fifteen on a spike; the narrow sepals are pointed and pure white; the two petals, equally white, are erect and of a peculiar shape,

forming a sort of hood, the inner edges being close to one another. The most particular organ is the lip, which is very large and spoon-shaped, somewhat resembling that of certain *Angraecums*; its margins are finely serrated, its glistening white column being very conspicuous. The flower-spikes are produced generally in pairs from the base of the pseudo-bulbs, which are of a glaucous colour, and furnished with foliage of the same colour. The perfume given off by the flowers reminds one strongly of aniseed, and is delicious. Its flowering season is from July to September. *Dendrobium Stratiotes* is an extremely interesting and thoroughly distinct species, with growth somewhat similar to that of *D. bigibbum* and *D. superbiens*. The flowers, which, like those of these species, are also produced at the extremity of the old bulbs, measure about 2 inches across and are unlike those of any other of the genus. The sepals, which are about $1\frac{1}{2}$ inches long, erect, and twisted, are dull yellow, the petals very narrow, white; and the lip, peculiarly trilobed, is white and very prettily pencilled and striped with light purple. By their position, these flowers much more resemble those of certain *Barkerias* than those of *Dendrobiums*. In *Odontoglossum Harryanum* we have a really beautiful species with long, broad petals and sepals, undulated at the margins, heavily blotched with dark brown; the lip is very large, expanded, spoon-shaped, yellow in the centre, richly veined with purple at the sides, and pure white at the upper part. The flowers in general expression may be likened to those of a *Maxillaria*, and are of a rich and decided colouring. *Odontoglossum Schroederianum* is another very distinct South American species, with flowers about $2\frac{1}{2}$ inches in diameter, somewhat resembling, though much larger than those of *O. laeve*; petals and sepals of a yellowish green, heavily spotted and blotched with dark brown. The long, broad lip, lilac-purple at the base, contracted in the middle, shows the peculiar marking also observed in *O. laeve* or *Weltoni*, and which consists in a broad band of purple colour cutting transversely the white ground, and rendering the flower very showy. Its dwarf growth, as also the form of its pseudo-bulbs, somewhat remind one of *O. hastilabium*, but the flowers are produced in much shorter racemes. *Cypripedium prestandi* is an exceedingly beautiful species introduced from New Guinea, possessing to a certain degree the character of *C. Stonei*. The flowers are disposed in five or six on tall scapes, and are most attractively coloured; the dorsal sepal is regularly striped with bands of maroon on a light ground; the petals, 4 inches to 5 inches long, are twisted, drooping, of a greenish colour at the base, and marked on their margins with narrow spots and warts of the same colour. In *Cypripedium Wallisi*, a native of Ecuador, we have a very handsome plant belonging to the caudatum section; the sepals are light canary-yellow; petals very long, of a little darker colour; pouch large, fawn colour outside, spotted inside with dull crimson; the mouth of the pouch is milk-white with a continuous border of crimson.

Besides the above-described species and varieties which are the most noteworthy among the Orchid productions of 1887, there are also *Lycaste plana Measuresiana*, a beautiful variety with a white lip, spotted with crimson, and petals and sepals nut brown colour; *Odontoglossum crispum leopardinum*, a beautifully spotted variety, with flowers large and of good substance; *O. crispum*, Thompson's variety, is a magnificent flower, nearly 5 inches across and of stout substance, white ground colour and bold spots of chocolate-brown; *Cypripedium Boxallii atratum*, whose flowers have the waxy appearance noticed in those of *C. villosum*, and a green dorsal sepal speckled with black-brown and a white upper margin. *Lælia anceps Sanderiana* has pure white petals and sepals, contrasting beautifully with the purple colour of the lip which is stained with yellow at the base; *Cattleya Schroederæ* is distinguished from *C. Trianae* by the extraordinary curling of its lip and of its petals and by its exquisite perfume; *Cattleya labiata leucophæa*, *Saccolabium Heathii*, apparently a white *Blumei majus*; *Aerides expansum Leoni*; *Cattleya Mendeli limbata*; *Cattleya Mossiae*, Darnell's variety; *Coclogyne Dayana*, in the way of the well-known *C. Massan-*

geana, but different in colour, although similar in habit; *Masdevallia luteo-oculata*, a distinct variety of *M. Harryana*; *Oncidium Brunleesianum*, *Barkeria Vanneriana*, and many other varieties more or less distinct.

We notice with great satisfaction that plants used for the decoration of the out-of-doors garden have this year received far more attention than they had for some years past; and it is a very long time since so many good novelties in plants of that class have been produced during one season. Hardy flowering plants, coming within the reach of all, deserve special acknowledgment, and the improvements noticed in *Pæonies*, *Iris* of the *Kämpferi* section, and other equally decorative kinds afford us the greatest pleasure. Of all the hardy flowering plants the Rose is the greatest favourite, and to the list, already very numerous, of that beautiful genus have this year been added four good varieties, the most striking of which, *Puritan*, produces flowers of extraordinary lasting qualities, as was fully illustrated by the flowers of it which were exhibited at Kensington on April 12; these were large, well built, pure white, and of exquisite form, petals round and of good substance, foliage stout and of a metallic green colour. Those which were shown on that occasion left New York on April 2, and were packed, some in damp cotton wool, and some with their stems in water, in an airtight tin box. They all were remarkably fresh after the long journey to which they had been subjected. *Rose Cleopatra* is one of Mr. Bennett's grandest acquisitions and has splendid blooms of large size and good substance; they are also of beautiful form and deliciously fragrant. The petals are exquisitely arranged and of a delicate salmon-pink colour, deepening towards the centre of the flower. In *Rose Lady Alice* we have a fixed sport from *R. Lady Mary Fitzwilliam*, exactly the same in shape and dimensions, but nearly white, faintly tinged with pink in the centre; the petals are also edged with the same hue. The *Bride* is a pale cream or sulphur-yellow Tea Rose of very good form, while *R. Golden Fairy* is a fawn-coloured very diminutive Fairy Rose, and *Minutifolia alba* is an exceedingly dwarf, white-flowered miniature plant of free-growing habit, and foliage of the size and form of the common Box. Among the several new light varieties of the *Iris Kämpferi*, *Acquisition* occupies a prominent position; its beautiful delicately coloured large flowers are white, veined with crimson-purple and yellow central blotches; the limb of the stigma is deep purple. Exquisite has the outer divisions of a lovely shade of lilac-blue, veined with white and blotched with yellow at the base, while *Criterion* is a splendid dark variety with large flowers of a rich colouring, their inner and outer divisions broad, rounded, nearly equal in size, regular in outline, and in colour purplish lilac, veined and suffused with a deeper shade. The varieties *Magician*, *Aphrodite*, and *Figaro* represent the improvements worked in that useful class of plants, the double *Pyrethrums*; the former variety is most distinct, with flowers neat and finely quilled, pink tipped with yellow. *Figaro* is a neat bright crimson flower, tipped with white; while *Aphrodite* is a pure white beautifully quilled. Several superior forms of tuberous *Begonias* have been raised, among them being *Alba magna*, *Snowball*, and *Edelweiss*, three varieties with pure white double flowers; *Mrs. Lewis Castle*, a handsome compact double variety with very large flowers, of very good form, and of a salmon-pink shade; *Jupiter*, with flowers of an intense scarlet colour, and nearly as round as a ball; *Major Lendy*, *Adonis*, *Perfection*, and *Jubilee*, the latter with flowers rosette shaped, and of a bright pink colour, have also to be added to the already long list of useful plants. Among the single-flowering varieties of *Dahlias* we note *Canterbury Tales*, a flower of massive character with petals broad and well shaped, colour crimson, shaded with violet, showing a somewhat novel effect produced by the combination of colours; *Miss Henshaw* is a variety of very delicate pale primrose-yellow colour; *Maude Millet* is a flower of moderate size and of a pale mauve colour, deepening into an intense mauve at the tips of the florets, the base being white; where-

as quite a new departure in the disposition of colours, and one which may be worked up with advantage by florists is noticed in the variety called *Miss Gordon*, whose round and perfect single flowers, above medium size, have smooth florets overlapping, and of a deep yellow, with a broad band of crimson on the edges. *D. Zulu* is one of the Cactus section, with flowers of a deep crimson-velvety colour, and *Henry Patrick* is a very free-blooming decorative variety of snowy whiteness, with flowers of medium size and somewhat flat. In *Carnations*, *Alice Ayres*, a distinct and beautiful border variety, with white flowers of fine circular form, streaked with bright red, very free-flowering, and of good form, must be noted; *Purple Emperor*, a large purple-crimson self flower; *Will Threlfall*, a very handsome, bright, clear yellow self; and *Gravetye Gem*, a showy variety, with orange-buff clove-scented flowers of a bright, unfamiliar, effective terra-cotta tint. In *Pæonies*, among the Moutan varieties are *Baueri*, a large double rose-coloured flower; *Isis*, a semi-double flower of fine form and cherry-red colour; *Lactea*, a good-sized double white flower, with crimson at the base of the petals; *Zenobia*, rich magenta, well imbricated, very full flower; and *Odorata Maria*, a variety with very large flowers, of a blush or pale flesh colour, deeper at the base of the petals. There are also new *Delphiniums*, *Gladioli*, *Azaleas* of the mollis section, *Mimuluses*, and many other kinds which cannot all be enumerated here. *Ranunculus cortusæfolius* is a veritable giant Buttercup, growing 3 feet high, and very effective; the flowers are fully 2 inches across. *Heuchera sanguinea* is a native of Mexico, and an extremely pretty dwarf hardy plant adapted either for the rockery or for the border. It is of very compact habit, with small rounded dentate leaves, and its reddish scarlet tubular flowers are produced freely in neat spikes 18 inches to 24 inches long. It is so very free-flowering, that one plant frequently bears from forty to fifty spikes, which are very ornamental.

The only novelties in ornamental trees are varieties or fixed sports of popular species, such as *Abies excelsa mutabilis*, a very distinct Spruce, with its young growth of a pale sulphur colour, showing well against the other parts of the tree, which are of a dark green; *Abies canadensis argentea*, whose young growths are of a very pleasing light green; *Juniperus canadensis aurea*, of dense habit with foliage of yellowish green; *Sequoia sempervirens albo-spica*, whose young growth almost white is very effective, &c. *Syringa japonica* is the only flowering shrub of special interest this season. It is a beautiful and free-flowering plant which bears a profusion of large, dense clusters of creamy white flowers which have a very powerful fragrance. The leaves are elliptical, 6 inches long by about 4 inches wide; the general appearance of the shrub is that of a *Ligustrum* or *Privet*. The new Cherry called *Emperor Francis* is a distinct and fine variety which will no doubt prove a valuable market kind. It belongs to the late *Bigarreau* section, and has large scarlet fruits blotched with a purplish colour, and is of very good quality. In *Mlle. de Soulangue* we have a small early table Pear, which cannot fail to prove useful, coming in as it does when few are ripe. Its flesh is juicy and well flavoured. In colour, the fruit is rich green, resembling in appearance and size that of *Doyenné d'Été*, though perhaps a little longer and more regular in outline. *Beauty of Bath* is a dessert Apple of remarkably pretty appearance; the fruits, of medium size and regular form, roundish and flattened, bright red on the sunny side, yellowish green on the other parts, are juicy and richly flavoured. *Gascoigne's Scarlet Seedling Apple* is another new kind, useful either for dessert or for the kitchen; it is a pyramidal, large-sized fruit, light green on the shaded side, and bright crimson on that exposed to the light. The flesh is white, firm, sweet, and juicy, and with a pleasant aroma like that of a *Ribston Pippin*. A grand addition to the list of keeping Apples is *Bismarck*, a fruit in the way of *Emperor Alexander*, but flatter in shape, and keeping in good condition until March. It is also a kitchen

Apple of excellent quality. Its colour is a deep red on the exposed side and green on the other, but very variable, as some fruits show bright flushes of crimson on an almost white ground. S.

FERNS.

W. H. GOWER.

THE FERNS OF ST. HELENA.

THIS peculiar and interesting island stands in the South Atlantic Ocean, and is some two hundred miles from Cape Negro, on the African coast, which is the nearest land. It is of volcanic origin, some twenty-eight miles in circumference, the centre rising in a mountain which is nearly 2700 feet above the level of the sea, and which is called Diana's Peak. Most of these points, however, are tolerably well known, but it is not so well known that a goodly proportion of its flora is peculiar to itself, and is worthy of particular attention. Especially so is this the case with its Ferns, which, as far as I can learn, comprise upwards of two dozen kinds, of which about one-half has not been found growing in any other portion of the globe, whilst the others have a more or less extensive distribution, some of our native Ferns even finding a footing upon this lonely isle, viz., *Asplenium Adiantum-nigrum*, *A. lanceolatum*, and *Ophioglossum vulgatum*, all familiar forms to the lovers of Ferns, the fronds of the first-mentioned being now popularly known in Covent Garden Market by the name of French Fern. Nearly all of the species found in St. Helena are amenable to greenhouse treatment, so that any lover of Nature possessing that valuable adjunct to a home of taste can be assured of success in their culture.

ASPLENIUM TENELLUM.—This is a very pretty plant, with spreading pinnate fronds from 9 inches to 1 foot in length, slender, pendent, lanceolate in outline, and very proliferous at the points. The pinnae are oblong obtuse, eared at the base on the upper margin and toothed on the edges, somewhat membranous in texture and deep sea-green in colour. It thrives well in a cool house and, I believe, likes limestone; it should not be watered overhead with the syringe in winter, as such treatment frequently turns the fronds black, rendering them unsightly and injuring the health of the plant. This form, which is more commonly known as *A. reclinatum*, appears to be peculiar to this island, but if all the kinds which are grouped with it are merely varieties, then it is a very variable species, and one that is widely distributed throughout tropical countries.

ASPLENIUM COMPRESSUM.—A large and highly ornamental Splenwort, producing fronds from 1 foot to 3 feet in length, and from 6 inches to 1 foot broad. The pinnae, which are numerous, bear quantities of young plants on their upper surface, and are thick and leathery in texture, and of a rich deep green colour, whilst the numerous bold lines of brown sori on the underside add considerably to the beauty of the plant. It thrives well on the rockwork of a cool house.

A. PLATYBASIS.—This species resembles somewhat *A. falcatum* or *A. serra*; indeed, it is by some considered to be only a variety of the variable *A. falcatum*, but this form would appear to be peculiar to this island. The fronds grow from 18 inches to 2 feet in length, and are leathery in texture. It forms a handsome specimen, but is by no means common.

ACONIOPTERIS SUBDIAPHANUM.—This is not a very showy Fern, but it is extremely interesting as one of the species that only exist on this solitary island. It has been frequently imported, but does not exist long in this country. It belongs to the *Acrostichums*, and is really a Tongue Fern (*Elaphoglossum*) with a few slight differences. The fronds are simple, some 6 inches or 9 inches long and

about 1 inch broad, the infertile ones tapering at both edges; the fertile ones are much smaller and are long-stalked, whilst the texture of both is coriaceous; the veins are joined near the margin by a zigzag vein.

CHEILANTHES MULTIFIDA.—A pretty species, which is also found in various parts of Cape Colony, and also in Java. It is an evergreen plant with triangular fronds supported upon stout, dark brown, glossy stems; they are four times divided, the segments being small, much recurved when fertile, and soft pale green. It should not be watered overhead with the syringe, neither should its roots be overburdened with soil.

DICKSONIA ARBORESCENS.—How few Fern growers know this plant, and yet it is the typical species, and was introduced to cultivation 100 years ago (1786). The stout stems have been introduced from time to time, but it is a difficult matter to start them into growth, and I imagine the best way to establish the species in our gardens would be to either import young plants or raise them from seed at home. It is a bold and handsome plant, totally different from any other species of Tree Fern, and is peculiar to this island, being found growing near the top of the mountain, which rises in the centre. I am told the quantity of plants in this, its only habitat, is not large, and it



Microstaphyla bifurcata (showing fertile and infertile fronds).

is, therefore, to be hoped that the authorities will take proper steps to prevent the extermination of the species. The stems are stout, frequently branched, and attain a height of 10 feet or 12 feet, the crown and bases of the fronds being densely clothed with long, bright, amber-coloured, silky hairs; the fronds are about 6 feet in length, upwards of 2 feet across, and light green in colour; the rachises are clothed throughout with a short brown tomentum.

DIPLAZIUM ARBORESCENS.—A large-growing plant, which develops a short stem with age. In well-grown specimens I have seen the fronds nearly 4 feet long and upwards of 2 feet broad; the crown of the plant is enveloped with black chaffy scales, and the massive fronds are rich deep green in colour.

D. NIGRO-PALEACEUM is a very similar plant to the above, and, indeed, may be only a variety of *arborescens*.

ELAPHOGLOSSUM DIMORPHUM.—Another small-growing Fern peculiar to St. Helena. It may be popularly described as a narrow, simple-fronded plant, and the only member of the genus in which the edges of the fronds are lobed or incised. It seldom exceeds a few inches in height.

E. CONFORME.—This species is widely distributed in tropical countries, and is well known in cultivation. The fronds are simple, blunt at the apex,

tapering towards the base, the fertile frond invariably the smallest, and covered beneath with deep brown sori; they are coriaceous in texture, and deep green in colour. I have never grown the *St. Helena* form, but specimens of it from other places I have found enjoy stove heat.

GRAMMITIS MARGINELLA.—This is a pretty little Fern with narrow Grass-like fronds some 6 inches or 9 inches long, blunt at the apex, and tapering gradually to the base; it also has a narrow black line which extends round the margin of the frond. It is found in various other parts of the world.

GYMNOGRAMMA HAUGHTONI.—A small-growing species, which, as far as I am aware, has never been in cultivation in this country. It is of tufted habit, with ovate-lanceolate, twice-divided fronds, which are deeply divided and from 3 inches to 6 inches high, dark green, supported upon slender shining black stems.

HYMENOPHYLLUM CAPILLACUM is a slender-growing Filmy Fern with much the aspect of our native *H. tunbridgensis*, but is quite distinct from it. I am not aware that it is in cultivation, but it would make a pleasing addition to a collection. It is peculiar to the island.

LASTREA NAPOLEONIS.—In this we have a distinct and handsome form of the Buckler Fern, and it is peculiar to this famous island. The fronds are deltoid in outline, from a foot to 18 inches high, and 6 inches to 8 inches across; the bases of the stems furnished with large pale brown chaffy scales and hairs; the pinnules on the lower pair of pinnae are much the longest, and form a distinct feature in the plant; all the segments are somewhat blunt and toothed, upper side of frond bright green, the under side and the sori tinged with red. This species was introduced to commerce by the Messrs. Jackson, of Kingston, but has never become plentiful.

LASTREA PATENS.—A somewhat common-looking Fern very much resembling *Nephrodium molle*. The fronds are from 2 feet to 3 feet long, and from 6 inches to 9 inches broad. It will grow anywhere. This plant is also distributed throughout Tropical America, and is also found at the Cape.

LASTREA COGNATA is a fine bold-growing plant, nearly allied to *L. Napoleonis*, and, like it, is peculiar to St. Helena. It is robust in habit, producing fronds some 3 feet or more high. These are somewhat triangular-ovate in outline and coriaceous in texture. It is by no means plentiful in cultivation.

MICROSTAPHYLA BIFURCATA.—This is the *Adiantum furcatum* of Linnæus, and the *Acrostichum bifurcatum* of Swartz. It is found in no other part of the world, and is one of the most peculiar Ferns I know. I have frequently received masses of plants, but never kept them alive very long. I confess to having killed them by keeping them in far too hot and close an atmosphere. The infertile fronds are from 3 inches to 6 inches long, frequently forked in the manner of a stag's horn, whilst the fertile ones are nearly entire, but a reference to our illustration gives an excellent idea of this curious and most interesting plant. I believe this Fern will be found to thrive best in stony soil mixed with limestone.

PHEGopteris DIANE, otherwise known as *Poly-podium molle*.—This is a large and extremely handsome species first introduced to cultivation by Messrs. Jackson, of Kingston, and is another of the Ferns peculiar to the island. The rhizome is densely clothed with large light brown chaffy scales, which are continued up the stem and rachis; fronds arching, from 2 feet to 3 feet long, and from 1 foot to 18 inches broad; pinnae upwards of 6 inches long, and about 3 inches across. An extremely ornamental Fern of quite a distinct aspect. It thrives best in strong, stiff soil.

PLEOPELTIS LANCEOLATA.—The fronds of this species are about 1 foot long, simple, tapering at each end, and coriaceous in texture, deep green above, furnished with a few scattered peltate scales; beneath, however, they are more thickly coated. It appears to be widely distributed in tropical countries.

PTERIS PALEACEA.—This species I have never seen in good character. It is said to be found almost at the top of Diana's Peak, and would form a valuable addition to a collection of greenhouse Ferns, from its umbrella-like form, as the fronds—which are supported upon long chestnut-brown stems—are nearly as broad as they are long. It is peculiar to the island.

POLYPODIUM RUGULOSUM.—This is a handsome plant, with a stout, creeping, scaly rhizome; fronds somewhat distant and triangular in outline, from 1 foot to 3 feet in length, intense deep green; sori oftentimes very abundant. It thrives well in a basket, and also forms a handsome specimen planted out in a rather elevated position, but should not be planted on the ground-level. This species appears to be very variable, and is widely distributed.

FLOWER GARDEN.

THE LANCE-LEAVED TICKSEED.

(COREOPSIS LANCEOLATA.)

THIS is the best member of a large genus overflowing with inferior things, and supplying very few that deserve recognition as garden perennials. A border without *C. lanceolata* is not complete; it lacks a plant capable of making a profuse display of a rich yellow colour at a season when gaudy tints are disappearing and the garden shows an aspect of decay. Al-

care is the one great requisite. There is another place besides the border that might be allotted to *C. lanceolata*, and that is the rockery, especially where this approaches the size of the one, for instance, at Kew. In such arrangements as this there are wide ledges, huge tree stumps, Moss-covered boulders, and sheltered bays, where plants can have conditions as natural as it is able to give them when under cultivation. Plant the *Coreopsis* on the higher tiers, in odd corners, that break in on the view, as there the gorgeous blossoms will not be hidden by rampant growth. There is another thing that tends to make the *Coreopsis* popular, and that is the value of the star-like flowers when cut. They are borne on slender, but rather stiff stems, and may be arranged lightly in vases with excellent effect. The engraving accompanying these notes gives a good idea of the usefulness of *Coreopsis* flowers in common vases, as, unlike many of the blooms of hardy autumn-flowering perennials, they are of medium size, and therefore not lumpy or rough. A coloured plate of this appeared in *THE GARDEN*, Nov. 29, 1884 (p. 460). E. C.

LIFTING GLADIOLI.

"DELTA" in his interesting article on Gladioli in *THE GARDEN*, Dec. 24 (p. 583), doubts the wisdom of leaving the corms in the ground so late as the

for a second growth, as the roots of this type are always large and fleshy, no matter when lifted. Those who may have noted the growth of the corms from their earliest stages know that first of all the old corm throws out roots which sustain the plant in its early stages of growth; then, as growth proceeds and the new corm forms on the top, by far the most roots, which are no doubt the mainstay of the plant in its later stages of blooming and maturation, are thrown out from this.

Like "Delta," we have been a little concerned should severe frost make its appearance previous to lifting any late-growing kinds, and have, like him, taken the precaution to cover with litter, though, perhaps, altogether unnecessary, as we had ample proof last winter that Gladioli are quite hardy in the dry, calcareous soils of the eastern counties. The corms in a bed in a neighbouring garden left undisturbed passed through the last severe winter and pushed up with great vigour in the spring, and up to the time of the dry, hot weather setting in, looked quite as promising as the spring-planted corms, but their later stages of growth were not equal to the others, possibly feeling the want of proper division in spring and the deeply worked fresh soil of the spring-planted corms. From this it may be inferred that to leave choice varieties in the ground all winter is a mistake. As further proof of hardiness, numbers come up here the following spring on the ground where the previous year's seedling plants have been grown, where, owing to their being grown thickly, some are missed at lifting time. Here, again, are further proofs that no second growth commences even so late as the early part of February, as I have examined numbers of corms when the ground has been dug over and found them even more dormant than the dry-stored corms, the coldness of the ground during December and January preventing any activity in this direction. This is even so with the moderate-sized seedling corms, which have a greater tendency than any to break into early growth.

These notes have reference entirely to the *gandavensis* hybrids; with some of the earlier-blooming species and hybrids of the *ramosus* section the case is altogether different; these, being early bloomers, mature when the ground is in its warmest condition, and if left in the soil second-root growth commences at once—in fact, many of these scarcely appear to have a resting period at all when in contact with sufficient warmth and moisture.

There is an important matter connected with the subject, that is, our culture is carried on in a part of England where the maximum of sunshine and the minimum of rain prevail, the annual average fall of the latter being only about 20 inches, and on soil both naturally and artificially well drained. Whether in districts with double the rainfall mentioned and in soils abounding in humus it would be wise to defer the lifting so late as November is open to doubt, but that it suits the conditions here we have ample proof from the fact that we never fail to lift double the bulk of healthy corms in the autumn to what were planted the previous spring, the plants of some of the taller growing kinds in favourable seasons often reaching a height of nearly 6 feet.

There are, perhaps, few Gladioli growers who will be disinclined to agree with "Delta" that the past season has been a favourable one for harvesting a good crop of healthy corms, although there may be differences of opinion as regards the blooming period, the great heat and drought in some of the hot districts during the month of August being too much for a fine development of spike. The fierce heat here on, I think, the 4th of August did great harm to the spikes just then showing out of the leaves—in fact, burnt the points out of many, and it was curious to note these, when blooming about a month later on, to find that in many instances the top buds were blind, and the lower buds on the same spike, not then pushed out of the foliage on the date named, gave flowers of full size and good colour. Then, again, some of the dark varieties well exhibited by the northern growers, and generally so fine in colour here, were pretty much the colour of brown leather, evidently from the same



The Lance-leaved Tickseed (*Coreopsis lanceolata*).

though old, it is excluded from many places where it ought to be welcomed as an indispensable hardy flower. It grows about 2 feet in height, in some specially favourable situations rising as much as 4 feet, and such a specimen, when well clothed with the undivided leaves of cheerful green and smothered with flowers, is at once striking and ornamental. Few plants are more easily grown, and to succeed well with it a light, well-drained soil, together with a sunny position, are essential conditions, as cold, clayey ground it dislikes. It often commences to bloom in July, and, by removing the flowers as they fade, a succession is maintained until far into the autumn, as the plant is not unnecessarily weakened. As in the case of most hardy perennials, it is a simple matter to increase the stock. Lift the roots carefully, divide or pull them in moderate-sized pieces, and plant in ordinary well-prepared soil. They will soon become established if the dividing process is properly performed. Many recklessly chop and hack the roots with a spade, and then feel hurt that the plants never do so well afterwards. In all things, especially in such bold surgery as this,

end of November, and as he kindly refers to the system practised here, I should like to make a few remarks on the subject.

The best time for lifting here is determined by the season and state of the plants, and is not a question of any particular week or even month, but depends entirely on the weather during October and November as to whether the frosts have been severe enough to kill the foliage, which even on plants which may have bloomed as early as the beginning of August keeps in a comparatively green state into December, should no severe frosts come in the interval to destroy the same. From this it will be obvious to anyone acquainted with a plant like the Gladioli that the longer the plant is allowed to grow the greater the chances of perfect maturation of the new corms, a most important point in their successful cultivation. There is no fear whatever of any second growth taking place so long as the foliage remains in a comparatively fresh state. Some varieties, especially those making comparatively small corms, naturally make very large fleshy roots. Phœbus, Meyerbeer, and Benvenuto may be instanced as examples of this type, and, unless very closely examined, it is a very easy matter to mistake the root-growth thrown out in July and August (from the newly-formed corms)

cause, as a few late spikes of these blooming in October came in good character.

No doubt the great heat in August had much to do with the poor competition at the southern shows, for even the Gaillardias, so resplendent in tropical weather, hung their heads during the hot period referred to, as though they would have felt happier in a cooler atmosphere. J. BURRELL.

Cambridge.

** With the above notes Mr. Burrell sent us some large, firm, and well-developed corms, showing how well the soil around Cambridge suits this favourite plant.—ED.

HARDY PRIMROSES.

WHAT is the derivation of the term Primrose? Does it mean primitive or original Rose, or does it mean prime or best Rose? The appellation of Rose to so many flowers in no way associated with the true Rose of gardens seems to be as anomalous as is the frequent appellation of the Lily to flowers which have no affinity with the true Lily. The Primrose enjoys one privilege denied to the queen of flowers: it blooms naturally far earlier in the year, and during favourable winters will even flower all through the cold season. What remarkable recuperative powers Primroses have the recent season has fully shown. So recently as August last the plants bore a miserable, withered aspect, not even a green leaf, whilst smothered with thrips. Practically perennial or evergreen, it would hardly be imagined that the plants could recover from the combined attacks of heat, drought, and insects. Too often we see plants under such conditions succumb to the evils named, but Primroses, this year at least, would not be killed. Many hundreds of plants that looked quite dead two or three months ago have now developed luxuriant leafage, and are positively showing bloom. Of old-established plants I do not think the drought has killed a dozen, but some young ones planted out in the spring have suffered a little, because less deeply rooted. Although the period of drought was severe and unusually prolonged, I rather attribute the comparative immunity from harm to the plants to the lateness of the spring and the heavy rains of the end of August, which cooled the soil. But for that most acceptable rainfall we might have found Primroses, and indeed many other spring plants, greatly injured, as considerable drought followed for some weeks later.

There are two seasons in the year for transplanting Primroses; the best, for old plants lifted and carefully divided first, if found desirable, is during the early winter, after good leafage has been formed; and the next in the spring after the blooming period. Plants now divided and replanted, if they have plenty of leaves, soon form roots, and the plants get fresh hold of the soil. In the spring, however, after blooming, plants may be more thoroughly divided, even to the making of single crowns; indeed it is well then to remove all the old roots and trust only to the new roots which come out from the base of each crown. All these crowns dibbled up into good soil soon get established, and if kept well shaded and watered make fine plants during the summer. Some shelter from strong sunshine and frequent sprinklings during the summer are essential to the welfare of young plants thus propagated. Old plants deeply rooted, I find, in stiff soils withstand heat and drought well, but I have no doubt that a dry summer will seriously affect plants of any age when growing in a shallow soil. The raising from seed of a batch of plants annually is, however, a very easy matter. Strong seedling plants when well established withstand the severities of seasons, whether hot or cold, much more readily than divided plants, and there is no reason why hardy Primroses should not be abundant in all gardens. Whilst some prefer to sow seed in the spring, I adhere to my old plan of sowing almost as soon as the seed is gathered, simply allowing it to first become thoroughly ripened. Last summer I sowed the seeds at the end of July in a narrow north border and on fine soil. Of course constant waterings were needful for some time to induce the seed to germinate freely, but it did so, and the entire border is

green from end to end with strong plants, all of which will be dibbled out during the month of March, thus allowing ample time for the development of strong growth before the usual summer heat occurs. It is of little consequence if few or none bloom the first spring, because the plants become so very strong the following winter, blooming early and very profusely. If the white Hellebore is rightly designated Christmas Rose, the Primrose should be termed spring Rose, as being much prettier and more applicable. However, there is not much in a name, and a Primrose under any other name would still be lovely when in bloom, and especially so the beautiful garden varieties. A. D.

Eulalia japonica variegata.—In the article on this useful plant in THE GARDEN, December 31 (p. 599), the two varieties appear to be confused. *E. j. variegata* is distinctly striped lengthwise of the leaves with white, while *E. j. zebrina* has bands of straw colour across the leaves, a curious and distinct form of variegation. Both varieties are very pretty, but I should give the preference to the first-named. Although quite hardy this is well worthy of pot culture, and when grown in a little warmth the leaves become more elongated and are gracefully recurved. It forms a very effective object either for table decoration or for the conservatory, and can often be used when more tender plants would be damaged by cold. A good stock may easily be obtained, as the plants may be readily increased by division. I may add that the green form is also a useful plant, especially where large conservatories have to be filled, the deep green foliage forming a good background for choicer subjects; the inflorescence is also very attractive. The green form may be obtained from seed, seedlings forming prettier specimens than those obtained by division.—A.

Hardiness of Gladioli corms.—At page 583 of THE GARDEN "Delta" says, that "bulbs came up in a part of my Rose garden where I had not planted Gladioli for ten years or more, yet when one attempted to leave some in the ground to see what they would do it was a miserable failure." This is just my experience. Fifteen years ago I made my first sowing of Gladioli seed in the open, and ever since then on that particular piece of ground a good many plants come up every year, and some flower as strongly as those which are taken up and stored through the winter and otherwise well cared for. I do not crop the ground, and do nothing to it except to stir up the surface once during the winter. Strong plants also appear in other parts of the garden where Gladioli have been planted at different times, and they flower well, but if I leave out during the winter any bulbs that I have planted, they invariably die. What is remarkable is that the self-sown bulbs of the choicest kinds are as hardy when left in the ground as the commoner sorts.—J. C. C.

SHORT NOTES.—FLOWER.

Ripened Daffodil bulbs.—Would some of your readers mention the periods at which they plant their bulbs for market forcing, the sorts they grow for cut flowers in quantity, and what advantages are obtained by the importing of foreign bulbs above what can be grown in the south of Ireland or England?—W. B. H.

Narcissus pallidus præcox is in full bloom now with me (Dec. 25), and Ard-Righ, or Irish King, neck and neck with it. The one Irish grown and naturalised for centuries, the other fresh imported bulbs from the south of France. I wish we could grow our own Roman Hyacinths. Probably we could in the Clonakilty sand deposits. Certainly the island of Clonakilty would grow all sorts of bulbs to perfection, and our winters are so mild, a regular green Christmas just now. Daffodils in the open (Ard-Righ: this is to be the name, I suppose) will flower to perfection the first week in February, as usual.—W. B. HARTLAND, Cork.

Carnation S. B. Robert Houlgrave.—It is seldom a Carnation shows such a distinct character of growth as does Mr. Samuel Barlow's new introduction under this name. It has a peculiarly close, wiry, and somewhat pendent habit of growth, and it can be readily picked out among a number of other Carna-

tions. It is said to excel that old favourite C. B. Admiral Curzon in brilliancy of colour. As it is now being distributed, ample opportunities will be afforded for testing it during the coming summer.—R. D.

CHRYSANTHEMUMS.

CULTIVATION OF THE CHRYSANTHEMUM.*

As the Rose is considered to be the queen of summer flowers, in like manner the Chrysanthemum may be called the queen of autumn flowers, no plant having made such rapid progress during the last few years. The Chinese, or incurved section was introduced from China somewhere about the year 1764, but it seems to have found little favour until within the last twenty or thirty years, and now nearly every town holds its annual exhibition. As a mark of its increasing popularity, mention may be made of this year's Portsmouth show, where during the last three hours on the second day no less than 8109 visitors paid for admission, and this is no exception, for wherever good exhibits are brought together, the show is generally well patronised. The later introductions from Japan have had much to do with this, as they have such a striking appearance either on the plant or when cut. Their diversity of form and richness of colour make them most welcome during the dull months of November and December. As they are so easily grown, anyone possessing a small garden might have a rich display in the autumn, and Chrysanthemum growing, when once taken in hand, will not be readily given up.

I will now give what I believe to be the best mode of cultivation, and, first of all, I will deal with plants grown for large flowers. From the middle of December to the first week in January I consider to be the best time to propagate. As there are so many varieties cultivated, it is necessary for the beginner to make a selection of the best and most popular sorts before starting, which is easily done by noting down at the exhibitions varieties most frequently staged by the successful competitors. I would advise growing only a limited number of sorts according to requirements, two or three each of the best rather than a number of uncertain and unsatisfactory varieties. I have tried several methods of striking, but have found the safest and best way is to set apart a light or two of a pit divided by a temporary wooden partition, with hot-water pipes running through, and filled with sifted coal ashes as near to the glass as the pots will allow. I very much object to a cold frame, although I am aware that a great many growers propagate in this way, for the reason that, owing to the bad weather we are likely to get at this season, it is necessary to keep them shut up and covered perhaps for weeks together; hence the cuttings must suffer from damp, mildew, &c., and at the same time remain in an almost dormant condition. To obtain satisfactory results the plants should be kept in a healthy condition from the time the cuttings are put in until the flowering season comes round. The soil used for striking should consist of two parts light fibrous loam, two parts leaf-mould, with a good addition of sharp silver sand, using 3-inch pots, with a little Moss or rough loam placed over the drainage to keep it clean and sweet. Fill the pots moderately firm, and place a little silver sand over the top; insert four cuttings in each pot; these at all times should be clean-cut and not rooted suckers, choosing the strongest and most sturdy. Label carefully, water, and place them in the pit already prepared. For a few weeks they will require very little attention, except a sprinkling overhead on bright mornings. Some sorts will be found to root much quicker than others. They should be taken out as they commence starting into growth and placed either in a cold frame or on a light, airy shelf in the greenhouse.

The whole stock should be ready for potting into 3-inch pots by the end of January or the first week in February. Arrange them in a cold frame

* A paper read by Mr. E. Beckett, The Gardens, Aldenham House, Elstree, at the meeting of the St. Albans Horticultural Society.

facing south on a bed of coal ashes. Soil for this potting should be the same as before advised; thoroughly water in and keep close for a few days, taking care to protect them from frost. Give air freely as they commence to grow, and remove the lights on favourable occasions during the day. Nothing tends to strengthen and keep them in good health when in a young state like fresh air. By the last week in March the plants will be ready for potting into 6-inch pots. The soil should now consist of two parts of good fibrous loam, one part well decayed horse or cow manure, one part leaf-mould with a good addition of coarse sand, and a few half-inch bones placed over the drainage. Place a neat stake to each plant and return them to the cold frame, treating them as before mentioned. At the end of April, if the weather is favourable, move them outside to a sheltered position; the foot of a south wall or fence will suit them admirably. Let them stand clear of each other on slates or boards to keep the drainage perfect. The final potting should be made the first or second week in June. I should recommend 8-inch pots, as these are large enough for all kinds, although a few of the strongest-growing kinds may be put into 10-inch pots. The compost for this potting should be three parts good loam, one part decayed manure, with a good addition of bone-meal. Drain well, using a thin layer of fibre taken from the loam over the drainage, which should be clean crocks and half-inch bones. If the soil is in good order it is impossible to pot too firmly. Secure the stems firmly to a stake, and place the plants where they are to remain for the summer months. The most suitable and convenient place is an open, airy position by the side of a walk, where the plants get the full benefit of the sun during the whole day. If neatly arranged and kept tied they are far from being unsightly. Make secure against the wind, which is best done by driving in strong stakes a short distance apart, and straining wire or strong string to fix the plants to. Syringe freely every fine afternoon. As the plants advance in growth and the pots become full of roots, manure water must be applied at every other watering. Attend to thinning out the shoots, allowing but three or four to a plant, according to its strength and the variety.

Taking the buds is a source of great anxiety even to the most experienced cultivators, as sorts differ so much as to the time it takes them to expand. Experience alone can only make one perfect in this. But generally for those that are required about the middle of November, I have always found from the last week in August to the second in September the best time. From three to six flowers only to be left if extra large blooms are desired, and the central bud always kept. Disbudding should be performed by a steady hand and keen eye. A small pointed stick is what I use, taking the buds away when they are large enough, exercising great care not to damage the remaining bud. By the first week in October all should be safely housed. When first taken in, allow them as much room and air as possible; watering, when required, always to be done in the morning. A little fire-heat in damp, cold weather will greatly help to improve the quality of the flowers, particularly those of the Japanese section, and a little top ventilation will act as a preventive against the damping off of the petals, which often disfigures large, massive flowers.

The dwarfing or cutting-down system, which in some localities is practised rather largely, is useful for some purposes, especially where dwarf plants are desirable, but from my own experience I do not advocate the principle, for the reason that the blooms lack depth and fine finish. They should be grown on in the usual way till the commencement of June, then cut back to within 4 inches of the pot. After this keep them moderately dry until they begin to break; thin out the shoots, leaving three or four of the strongest, and treat in the usual way.

DWARF-TRAINED SPECIMENS.—The principal points to be aimed at are flowers of fine quality and good foliage. Strong plants should be selected early in February, and placed near the glass in a growing temperature. When about

6 inches high, the points should be pinched out and the plants shifted into 6-inch pots when commencing to break. When they are established, they may be removed to a cold frame, and when the shoots are long enough training should be commenced. Fix a wire under the rim of the pot, gently pulling down the shoots until they are in the required position. Admit air on all favourable occasions, syringing the plants early in the afternoon. When required, pot into 8-inch pots, and attend to the tying down of the shoots as before. Harden off the plants, so as to fit them to stand out of doors early in May, selecting a sheltered, but light position. Should the weather be frosty, they must be protected by light canvas. By the second week in June they should be shifted finally into 12-inch pots. Stand them on slates a good distance apart. A wire hoop, painted green, placed round them 6 inches from the pot, is the best means of training the shoots. On all fine days syringe in the morning and again in the evening. Stopping the shoots should be discontinued by the first week in July, or poor flowers will be the result; if left later, the plants should be placed under glass about the same period as previously mentioned. They should also be staked before the flowers are too far expanded.

The above remarks, in all cases, apply to the large-flowering sections, viz., incurved, Japanese, reflexed, and Anemone-flowered.

POMPONS FOR FINE FLOWERS are best struck in February, and stopped once or twice during the spring. Disbudding must not be practised to such a large extent as in the case of large-flowering sorts, but a moderate thinning out of the buds will always repay.

MANURE WATER.—Many kinds have been recommended, but I have found none to suit them so well as the following: In a large tub or cistern place one bushel of soot tied securely in a thin bag and one barrowful each of fresh cow and horse manure; fill with soft water. Stir the whole well up before using, and strain through a half-inch sieve; dilute to the colour of weak tea. Occasionally give them a change of weak guano water.

The diseases and enemies of the Chrysanthemum in some seasons are very numerous, and the past season has been by no means an exception. I have always noticed that there are more blind and deformed buds after a long spell of hot, dry weather. Mildew is sure to make its appearance, notably so on some varieties more than others; as a preventive, dust occasionally with sulphur. When the plants are young the green aphid is often very troublesome, attacking the points of the shoots. Strong tobacco water is the safest and best remedy, dipping the plants thoroughly, and syringing two hours after with soft, warm water. Earwigs are also a troublesome pest from the time the buds begin to form until the flowers expand. These must be watched for night and morning; Bean stalks cut into lengths of about 6 inches and placed among the plants make capital traps. Another insect, commonly known as the jumper, does a lot of mischief to the young points and buds. I know of no remedy for this, except killing with the thumb and finger. But the most destructive of all that I have met with is an insect which in its young state resembles black aphid, becoming a light green later on. At this stage it travels round the shoots very rapidly when disturbed, and when fully developed turns to a soft brown fly. I know of no remedy for this, except catching and killing it. Dust the points occasionally with tobacco powder during the season.

Chrysanthemums from suckers.—With reference to "J. C. B.'s" inquiry in THE GARDEN (p. 575) on this subject, I may mention that for many years past I have propagated from suckers in place of cuttings. I believe that suckers make the earliest and best plants. This being so, it is a decided gain to increase the plants that way; but, as "J. C. B." knows, there are so many of the best sorts which grow so late, that it is difficult to get even cuttings in good time. That was my reason

for adopting the cutting-down system for the purpose of obtaining suckers or cuttings earlier. I am quite sure if the plan is fairly tried it will not disappoint.—J. C. C.

Sweet-scented Chrysanthemums.—It is gratifying to notice that this subject has been taken up, as if the Chrysanthemum has one fault it is that the flowers have a pungent, unpleasant odour that prevents them being used so much as they might possibly be for decorations, as bouquets, button-holes, &c. Some of the varieties are especially notorious in this respect, but we have, happily, a few that rival the Violet and the Primrose in sweetness and delicacy of perfume. Progne is a variety famous for its Violet-like fragrance, and if only this most commendable attribute of the flower were encouraged, we should find the Chrysanthemum occupy a higher position than it does even now in the world of flowers. By all means develop a race of sweet-scented Chrysanthemums, and the step that the Hull Chrysanthemum Society has taken in this direction, I hope, will be followed by other societies, as it is only by offering prizes that attention can be practically drawn to the subject. We are always striving after other novelties, so here is a chance for the hybridist, as we certainly want the disagreeable odour characteristic of many Chrysanthemum flowers driven out and something better substituted. Mr. Burbidge, in his excellent article on this subject in THE GARDEN, Dec. 31 (p. 606), writes: "But all Chrysanthemum flowers have a rather sweet and aromatic smell." Surely this is a mistake—at least, I have found things very different.—E. C.

—Mr. Peter Inebald, F.L.S., in THE GARDEN, Dec. 17 (p. 551), referring to the competition for sweet-scented Chrysanthemums at the Hull show this year, states that "the prizes were awarded, I believe, by the committee." The duty was performed by the regularly appointed judges to the show. That some varieties of Chrysanthemums have a sweet scent is beyond doubt, and the ex-Mayor of Hull, Mr. J. Leak, being desirous of encouraging their cultivation, offered a prize for them at the last show and has repeated it for the next show. Some of my friends as well as myself having grown flowers for this competition, I can with certainty say that some of the single varieties have a most delicate perfume, whilst our old friends, Dr. Sharpe and Progne, are in this respect not to be despised. I hope the fact of the Hull Society giving prizes for sweet-scented Chrysanthemums will lead others to do the same, and thus encourage the cultivation of a class which cannot fail to become popular.—E. HARLAND.

Varieties of Chrysanthemums.—It is well known that fashions and ideas vary with regard to flowers, as first one class and then another will become far more popular than they have hitherto been, and in many cases drop back again to much the same position as they occupied before. Two years ago single-flowered Dahlias were all the rage, while they have now already lost a good deal of their popularity, and two of the most fashionable among florists' flowers just now are the tuberous Begonia and the Chrysanthemum, neither of which from their beauty, and, in the case of the Chrysanthemum, the time at which it flowers, are likely to lose their hold on the public. One agent is, however, strongly at work to dethrone the Chrysanthemum from its popularity, and that is, the practice of issuing such enormous lists of names and the sending out of so many so-called new varieties. I do not know how many kinds are supposed to be in cultivation, but when one firm issues a catalogue of 1000 of the best sorts, it is evident that that number is much exceeded, and the question arises, what are the points of difference between some of them? A perusal of the names of those that are exhibited at the principal shows will reveal the fact that they are limited in extent, and the same varieties crop up over and over again. In addition to those that are shown, there are, of course, some very useful kinds that do not fulfil the requirements of an exhibition flower, and consequently are seldom seen in public; yet, granted all this, a list of 1000 varieties might, except in a few particular cases, be

reduced to one quarter of that number, and a good and representative collection could readily be made. As it is, one gets confused with such an array of names, and although some of the new varieties are undoubted acquisitions, there are, on the other hand, many that differ so slightly from the older kinds as to be indistinguishable, unless by close comparison, and consequently where one is grown the other is not required.—H. P.

KITCHEN GARDEN.

W. WILDSMITH.

KITCHEN GARDEN NOTES.

PROTECTION OF VEGETABLES.—Since the 26th ult. the ground has been frost-bound, as we have had from 10° to 12° of frost nightly; fortunately for our work, however, there has been no snow, and therefore whatever required shelter has been given it. Over the rows of Celery a moderately thick coating of stable litter, with the short manure shaken out, has been spread. Celery is of sufficient hardness to withstand our ordinary winter weather, in such a dry position as ours is, without covering, but on all damp, low-lying ground and stiff soil protection is necessary, and though ours is of the very opposite description, we protect for safety, because the plant is in such large demand that we can ill afford to lose any from neglect of applying protection. The same remarks apply to Broccoli. Very rarely indeed have we occasion to shelter by reason of the severity of the weather, and autumn heeling over, as is so general in some parts, we never do. Late or spring-heading kinds are for the most part so hardy that protection of any sort is unnecessary, but winter varieties require covering, as more than a half-a-dozen degrees of frost injure the flowers. Our invariable rule is to closely examine the plots about twice a week and break down the large leaves over the heads of any plants that are turning in, and this covering is now supplemented by the addition of strawy litter over the entire batch, except of such as may be ready for use, and these are lifted and kept in a frost-proof shed until required. Parsnips still in the ground, Jerusalem Artichokes and young autumn-sown Carrots that serve as new Carrots have all been given a light coating of litter, and to Cauliflower and Lettuce plants that are being wintered on narrow borders sheltered by the fruit tree walls, mat coverings, resting on hooped sticks, have been applied. Parsley, Lettuce, and Endive in cold frames have also to be kept constantly covered with mats in severe weather.

WHEELING.—The weather has been perfect for this work, and a rich top-dressing of old Vine border soil has been spread over Asparagus plots and over the short manure that was some time since placed round Gooseberries and Currants. All manure wheeling required for mulching of Raspberries and alleys next to fruit tree walls, besides soil for top-dressing trees that require such help, are now complete, and once again the principal work is in the

MANURE YARD AND FORCING GROUND.—Fresh linings are here being built round frames containing Potatoes and Asparagus, and new beds made up on which to put in other batches of Asparagus, and for the raising of seedlings of various kinds, such as Tomatoes, Cucumbers, and Melons. A quantity of fermenting material is also being prepared for the renewal of Pine beds, this consisting of one-third stable litter and the remainder of tree leaves. This is thrown loosely together and turned a first time over after an interval of a week, and the process is repeated a week after that, when, if a greater percentage of leaves than is here mentioned has not been used, it will be quite safe to get the material into the Pine pits, and be ready for the plunging of the plants two or three days afterwards.

GENERAL WORK.—More Seakale roots to put into forcing quarters. The roots were safely housed some time since, in prospect of frost, as well as to humour the fancy I have that roots so lifted force more readily than they do when taken direct out of the ground and put in warmth. I have the same notion in respect of Asparagus, another batch of

which will be put in as soon as the heat of the newly-made bed has subsided to 80°, above which figure it is not safe to plant; 75° is a safe maximum. The forcing of Rhubarb will now be an easy matter, because the roots will shortly start into natural growth, and, therefore, it is best to force the crowns on the ground by covering them over with large pots and surrounding them with leaves and litter. Unless there is a great demand, renewal of fermenting material will not be required; for once the ground has got warmed through, though the heat of the manure subsides, its bulk keeps the heat in and the cold out, and growth, if slower, still continues. Potatoes for seed require to be closely examined to rub off surplus shoots, and lay the tubers in single file only on floors or shelves of frost-proof sheds or cellars. I find that early kinds are sprouting rapidly, and the longest shoots of the tubers as laid out will be pulled off, only two, and in some cases only one will be left on the tuber. Late varieties are as yet showing no disposition to sprout, but as soon as they do, at the first available opportunity all but a couple will be rubbed off. The first wet day other work awaits us in the root stores, namely, to look over Carrots, Beet, Onions, Shallots, and Garlic, and seed bulbs of the two last-named will then be selected for planting.

Cauliflowers.—As I do not winter any Cauliflower plants, I sow early, and indeed have made the first sowing of Snowball a few days since in a cool house, and where there is ample light and room, whether the plants be needed to produce seed or heads for cutting. It is important that the seed should be sown in good time unless warmth, which, however, is unnecessary in the case of fairly hardy things, is at disposal. If seed of this very early kind be sown in the autumn, the plants are apt to button in quite early in the spring, instead of heading later on. That arises, no doubt, from the check the plants receive during mid-winter. When seed is sown in January growth is continuous, and the plants, being hardened and robust through growing in a cool temperature, begin heading in soon after being planted out, and as the heads and plants grow together the former are some 6 inches over and very solid, whilst the plants are yet but small. The first batch of plants, carefully lifted with a trowel from the frame into which they have been previously dibbled, and planted out on to a warm border into good soil, head in towards the end of May, and a couple of later sowings will maintain the supply till the end of July. Then very early sowings of King of the Cauliflowers will be turning in and may be followed up with Veitch's Autumn Giant and Self-protecting, keeping up a supply till the end of the year. Thus Cauliflowers are easily obtained during six months of the year, while Broccoli may be had during the remainder of the year.—A. D.

Trenching the soil for Potatoes.—Sometimes one meets with an old garden in which it is difficult to grow a Potato that is fit to eat. There may be no difficulty in getting a crop, and the produce may be as large as could be desired, but still the Potatoes are so close in texture as to be almost uneatable. My first acquaintance with a soil that produced such tubers was in a very old garden within ten miles of London. The staple was about 15 inches deep, consisting of a dark brown mould resting on a bed of gravel. In this garden great pains had been taken in the culture of the Potato, especially in regard to changing the seed and in trying different sorts, but all ended in failure. I know of a rectory garden where the soil is heavy and strong, and splendid crops, as regards quantity, of fine large tubers are annually produced, but they are not eatable. They are close in texture, and of a strong earthy flavour. Here also efforts have been made by changing the stock and manure, but without any good results, the produce being only fit for pigs. The garden attached to the cottage in which I live has not produced a Potato of good quality, except on a small part of it, during the last twenty years, yet I have tried many sorts, but there is no difference in the quality of the tubers, which boil more like balls of soap. The small portion I have

alluded to as an exception explains what is necessary to be done to make the ground once more suitable for Potatoes. This part of the garden I trenched up 2 feet deep, bringing the bottom spit to the surface. Close by this plot is a large shrubbery adjoining the pleasure ground. In this shrubbery was a heap of rotted material, the accumulation, in fact, of years of the sweepings of the lawns and walks. This material was wheeled on to the trenched-up ground, and after being spread over the surface it was forked in, so as to mix it up with the staple soil. I do not say that this has altogether altered the character of the soil, but it has very much improved it, or rather, I should say, the Potatoes it produces are of much better quality than they were before the ground was trenched, and I think the improvement effected in this case clearly shows what is necessary to be done in the case of every bad soil. Deep trenching, where practicable, so as to bring to the surface some fresh soil, and the incorporation with it of other obtained from a source where no Potatoes have lately been grown, is the only way to improve the ground. I am satisfied that the less manure there is in the soil, so much the better will be the quality of the Potatoes.—J. C. C., in *Field*.

GARDEN FLORA.

PLATE 630.

ZEPHYR FLOWERS.

(WITH A COLOURED PLATE OF THE ATAMASCO LILY, ZEPHYRANTHES ATAMASCO. *)

THIS genus, which now numbers something like thirty-four distinct species, including *Pyrolirion*, *Habranthus*, &c., has of late years become a very important one to the gardener, as much for the comparative hardness of most of the species mentioned below as for the striking beauty of their large and graceful flowers. They have been termed American Crocuses, probably from the fact of their flowers appearing in the spring, and so abundant are they, we are told, that the swamps, the Pine barrens, and even the high and dry ridges are literally covered with masses of rose, pink, or white blossoms. With us, when doing well, whether in the house or open air, their flowers are always admired, and although our climate is not the most suitable to their requirements, a little experience will soon enable the grower to attain a fair amount of success. Unfortunately, for general open-air treatment in this country, the Atamasco Lily requires to be somewhat at rest during our winter season. Mr. Watson, of Kew, who has given much attention to this class of bulbs, has succeeded in thoroughly establishing in the open air most of the species noted. They are planted in narrow borders against a south wall; the soil is light, rich, and raised about a foot above the path, so as to ensure perfect drainage. This plan answers admirably, and the mass of flowers produced every spring and summer leads one to hope that the cultivation of these supposed half-hardy bulbs will eventually be mastered. There is no reason at all why these Zephyr flowers should not be planted on southern exposed places on the rockery, 3 feet or 4 feet above the walk, and success is certain in the south of England at any rate. In low-lying districts it will be a waste of time to try them, and unless under very special conditions it will be better to give them the protection of a cool greenhouse. Others not mentioned in detail, though equally desirable, are *rosea*, *texana*, *verecunda*, *citrina*, *Andersoni*, &c.

THE ATAMASCO LILY (*Z. Atamasco*), of which a coloured plate is given, is one of the most charming

* Drawn for THE GARDEN by Miss E. Lowe, April 20, 1887, at Miss Hunter's, The Firs, Wimbledon, and printed by G. Severeys.



ATAMAS, LILY (ZEPHYRANTHE ATAMAS)

early summer-flowering bulbs we possess. It is probably the easiest of the whole group to cultivate, and coming, as it does, from the Southern United States of America, it proves fairly hardy in the open air in this country, so much so, at least, as to be grown on a south border without any protection whatever during the winter season. Elliott tells us, in the "Botany of South Carolina," that this plant is called "Stagger Grass," from a prevalent belief that a disease called the staggers is produced by animals feeding on its leaves. It is the Swamp Lily of the Georgians, and is generally called Toonan by the Creek Indians, who use its bulbs as an article of food in times of scarcity. It is found plentifully in low wet places in South Carolina, and although it is said to be most abundant on or near water-courses, it also luxuriates on the highest ridges, though somewhat less robust and with smaller flowers. It is said to be variable in a wild state, and from what we have seen under cultivation this is fully verified. The variation, however, is oftenest noticed in the colour of the flower, which becomes intense rosy pink instead of white as in the ordinary form. In its native haunts it seems to flower as early as March, giving remarkable beauty to the fields and forests. In more northern countries or districts it blooms during May, and in the neighbourhood of London about the beginning of June. A few years ago it used to be a common practice to grow the Atamasco Lily in pots for the greenhouse, and its large, handsome white flowers were certainly an acquisition about the middle or end of April. On a warm south border in the open there is little fear of this bulb suffering from frosts, &c. It produces offsets very rapidly, and the bulbs will thrive better if lifted every two or three years.

Z. CARINATA, figured in the *Botanical Register*, tab. 2594, is a lovely species, and the commonest of those now in cultivation. Though not quite so hardy as the Atamasco Lily, it produces its flowers freely under much the same treatment. It is widely distributed in South America, where it is called Mayo by the natives. The leaves are produced at the same time as the flowers, from 4 to 6 to a bulb, narrow, and from 6 inches to a foot long, more or less distinctly channelled down the face. The flowers are bright rose-red on stems from 6 inches to 9 inches long. *Z. grandiflora* (Lindley) is a synonym, under which it is figured in the *Botanical Register*, tab. 902.

Z. TREATIE.—This, an engraving of which is here given, is a handsome species, very nearly allied to *Z. Atamasco*. It was first found by Mrs. Treat in swampy ground in Florida, and afterwards by Curtiss. Although of recent introduction only, its great beauty has gained for it a lasting popularity. Under somewhat similar treatment to the others, it produces its flowers freely, the latter 3 inches long, pure white, keeled with red on the outer side. The half dozen or more bright green and very narrow leaves are produced at the same time as the flowers, viz., in April and May.

Z. TUBISPATHA.—A slightly fragrant and very beautiful species, and though a native of the West Indies, New Grenada, &c., it will do in the open ground in mild localities if the bulbs are protected from damp during winter. When grown in the open, a position in front of a stove or other warm house should be chosen, although when accommodation can be afforded in the house, it is much the

safest treatment. Each bulb produces four to five very narrow, bright green leaves, which, when fully grown, are over a foot long. The flowers are from 2 inches to 3 inches long, pure white, tinged with green (never red) on the outer side. It flowers late in the spring and early summer.

Z. SPOFFORTHIANA, figured in the *Botanical Register*, tab. 1746, is a hybrid between *tubispatha* and *carinata*, partaking about equally of the characters of each, and has large lovely pink flowers.

D. K.

Mesembryanthemums are in disfavour with all classes, and thus they are seldom seen, except in



Zephyranthes Treatie.

a botanic garden, or where collections of plants are made. It is hard to account for this neglect, as *Mesembryanthemums* present interesting characters in the arrangement of the leaves, and when in flower they are bright, showy, and distinct. In the Heath house at Kew there are two kinds now blooming, both of which, if a select list of *Mesembryanthemums* were made, should be included; they are *M. filamentosum* and *M. tigrinum*. The first has rich

purplish flowers, produced in a setting of thick, fleshy leaves, and the other, in the arrangement of the leaves, margined with thick hairs, may be fancifully likened to a tiger's mouth. The flowers are orange flamed with red, and very showy. A few kinds suspended in pots in the greenhouse or some cool structure would make a change from the usual winter-flowering plants that, although beautiful, become somewhat monotonous by reason of their abundance.

STOVE AND GREENHOUSE.

T. BAINES.

STEVENSONIA GRANDIFOLIA.

CULTIVATORS are now acquainted with numerous species of Palm that are naturally much smaller growers than those that used to be grown, and better adapted for houses of ordinary size, added to which kinds that have been more recently introduced are more elegant in habit and will bear their roots being confined for a length of time within the limited space that a pot affords.

Amongst the most desirable kinds that can be kept to a moderate size and still show their natural character is *Stevensonia grandifolia*. It is a stemless species, with large massive leaves, of which a strong specimen usually carries about five or six. The blade of the leaf is obovate in shape, much wider towards the extremity than at the base, and deeply plaited. Whilst young it is pale brown in colour, changing with age to a deep olive-green, with the surface spotted with reddish brown, and the whole suffused with a bronzy shade. The leaf-stalks are long, especially when the leaves attain their full size, and they fold closely round each other from the base upwards for the greater portion of their length, which gives the plant the appearance of having a slender stem. The lower portion of the stalk is armed with formidable black spines. It is the only species of the genus that has yet been introduced, and comes from the Seychelle Islands, which shows that it requires a high temperature. Taken altogether, it is not only one of the handsomest Palms in cultivation, but also one of the most distinct of all fine-leaved plants.

Like most other Palms, it is raised from seed, but so far, I believe, it has not flowered in Europe; consequently there is no alternative but to trust to imported seeds, which, like those of some other fine species, are difficult to obtain in good condition. The seed should, as soon as received, be sown at once. Drain a large pan or shallow box, and fill it with sifted peat to which has been added a liberal quantity of sand, pressing it down moderately. Distribute the seeds 2 inches apart over the surface and cover them with some of the soil. Keep the material fairly moist—not wet. The length of time required for the germination of the seeds of Palms varies much. In the case of some species the seed takes a year to germinate, whilst in other cases it comes up much quicker. The age and condition of the seed of any particular species have a like influence in shortening or prolonging the time that elapses before it vegetates. After sowing stand in a warm stove in subdued light; as soon as the seedlings show above the soil give more light, but keep them shaded from the sun and give more water. The little plants must not remain too long in the seed pans, for, in common with other Palms, if this occurs they suffer more than other plants, the first roots being sensitive of the least injury; 3-inch pots will be large enough to put them in at first, drain well, and use soil of a like description to that in which the seed was sown. In summer give a night temperature of 65° or 70°, with a

rise in the day temperature according to the state of the weather. Maintain a moist atmosphere, syringe overhead freely in the afternoon, and give a moderate amount of air in the middle of the day, but not so much as will dry up the atmosphere of the house to the extent supposed to be necessary for stove plants, but which produces stunted foliage and increases insects.

When the pots get fairly full of roots give a shift into others 3 inches larger, breaking the soil with the hand. In potting, make the material firm and drain well; this is essential, as the roots of this species, like those of other Palms from hot countries, require to be kept wetter during the growing season, and must never be allowed to get nearly so dry in winter as most stove plants need. From the end of September no shade will be required; the atmosphere should also be kept drier from this time through the winter, during which the night temperature should be 60° or a little over. It is better to syringe the plants overhead about twice a week, even in the dormant season, as by this means they will be kept free from thrips or red spider. If these insects gain a footing they injure the foliage considerably. After the plants have reached this stage they will make greater progress.

Henceforward the treatment required will be such as so far advised, giving more room as required. Eighteen-inch pots are large enough for large specimens, as much may be done to keep up the requisite vigour by the use of manure water during the growing season, but this must not be applied too strong. With fair attention the plants will last for a number of years, during which time they will be amongst the most effective objects in the stove. Scale can easily be got rid of, if the plants should become infested with it, by sponging the leaves. Mealy bug has not much chance of existing upon the foliage when the syringe is regularly used so that the water reaches the whole surface.

Correa cardinalis.—Among the various hard-wooded subjects known as New Holland plants that flower at this season one of the most showy is this Correa, whose bright-coloured, drooping blossoms are just now borne in great profusion, and are so pretty as to make one wish that this class of plants was more popular. The New Holland plants are by no means difficult to grow if they receive a fair amount of care and attention, but they will not stand rough treatment or neglect. This Correa is apt to run up tall and thin; therefore the shoots should be stopped when young and the plants should at all times be grown well exposed to the light. This last is especially requisite during the dark winter months.—H. P.

Two Rhododendrons for forcing.—Everyone who wants a quantity of flowers for Christmas decoration and onwards should grow Rhododendrons Early Gem and davuricum atrovirens. This season I had an extra demand for cut flowers, and having plants of these dwarf Rhododendrons I put them into an intermediate house the third week in November. One specimen of Early Gem I lifted from a border (where it had been growing for four years) with a large ball of soil, potted it into a large pot, and it flowered as well as those that had been growing in pots. The colours of the flowers are purple and rosy lilac. The plants are very dwarf and free-blooming, and cannot be too highly recommended for early forcing and for cutting from.—JOHN CROOK.

Eupatorium odoratum.—This species and E. riparium are very useful winter-flowering plants, for their requirements are simple, and they can always be relied on for a handful of blooms whenever required, provided the plants get an ordinary amount of care and attention. After flowering the plants may be cut hard back, when they will break again

into growth very freely if occasionally syringed. The young shoots then produced will strike readily, and if the plants are grown on during the summer, they will form neat little flowering specimens by autumn, while the old examples may be grown on into good-sized bushes. We grow ours during the summer plunged in the open ground; indeed, they get much the same treatment as the Chrysanthemums, and consequently the plants are sturdy, and towards autumn become full of flower-buds. Care must be taken to get them under glass before the frosts make their appearance, as the blooms are injured much easier than those of Chrysanthemums are. As these Eupatoriums are gross feeders, liquid manure occasionally during the growing season will be of great service.—H. P.

DISTINCT HYDRANGEAS.

THE common Hydrangea is known to everyone, and is generally cultivated either as a flowering shrub in the open ground, or in pots for indoor decoration. It is indeed one of the commonest of market plants, as a visit to Covent Garden during the early summer will testify. The usual way in which Hydrangeas are grown for market is in the shape of plants with onestem, bearing on the top a huge head of blossoms. These plants are obtained from cuttings taken during the preceding summer from specimens that have been grown in a fully exposed spot, only the best shoots that could be depended upon to flower if left on the plant being chosen for the purpose. There is a variety of this Hydrangea the leaves of which are suffused with yellow, but it is not constant, and as a rule quickly reverts to the typical form. A couple of very distinct varieties are Thomas Hogg, a slender growing kind with white blossoms, and H. cyanoclada, which is characterised by blackish purple-coloured stems and large heads of deep rose-pink blossoms. In all stages the dark-coloured stems cause it to stand out very conspicuously from any other Hydrangea. This is, I believe, the same kind as that which received a certificate at Kensington two or three years since under the name of H. mandshurica. H. japonica in many respects greatly resembles the common Hydrangea, the principal points of difference being that H. japonica is rather more slender in growth than the other and the leaves more pointed, while the most prominent feature from an ornamental point of view is the fact that, whereas in the ordinary kind the sterile blossoms are sufficiently numerous to form a large, compact head, in H. japonica they are usually limited to a very few, arranged around the outside of the cluster, which principally consists of the small fertile blossoms. H. japonica is represented by two or three variegated varieties, in one of which the leaves are marked with gold, and in another with silver, while the third (tricolor) is a very distinct form. In this the leaves are variegated with white and green, while the broad, but irregular margin is of a golden yellow. H. rosea alba is of quite a woody texture, being more slender in habit than any of the preceding, but given good soil and a favourable situation, it attains the dimensions of a good-sized bush. The clusters of flowers are not large, but are borne in great profusion, and the sterile ones, which are scattered around the outside of the cluster, are pinkish, becoming suffused with crimson in a sunny spot. Another very distinct Hydrangea is stellata prolifera, with double blossoms like pink stars. This is the most delicate in constitution of its class, but it is so distinct and beautiful as to merit a little additional care and attention. It is very well fitted for growing in pots as a greenhouse or conservatory plant, for it will bloom freely in a small state, and the flowers last a long time in beauty. Another tender kind is the North American Oak-leaved Hydrangea (H. quercifolia), which is a really grand shrub when well developed. The leaves are large, lobed like those of the Oak, and downy beneath, while the sterile flowers are pure white. The most prominent feature of this Hydrangea is, however, the handsome foliage, which is entirely different from that of any of the other forms. No mention of Hydrangeas would be complete without noticing that beautiful late summer and autumn-flowering shrub, H.

paniculata grandiflora, whose large masses of creamy white blossoms are borne in great profusion. It is also readily forced into bloom earlier in the season than it naturally flowers. The typical kind, H. paniculata, is very seldom seen, but it is by no means to be despised, though it is less handsome than its variety. H. paniculata differs from grandiflora in many respects, for the leaves are larger and of a deeper green, while the habit of the plant is altogether more vigorous, but the blossoms are much inferior. The last to be mentioned is the climbing Hydrangea scandens, whose habit renders it quite a curiosity among Hydrangeas. This, when established, is of free growth, and will by means of stem roots attach itself to any rough surface. I have seen it treated as a wall plant, when it soon mounted upward, and against the dead trunk of a tree it was quite at home. The flowers are not borne very freely, neither are they particularly showy, as the sterile blossoms are few and scattered. When grown as outdoor shrubs, the Hydrangeas delight in rather cool, moist situations, as they suffer severely from drought. At the same time an occasional dose of liquid manure will be of service. T.

Caladiums.—These are now at rest, but it is at this season that many losses occur through an improper method of wintering the corms. Messrs. Laing and Co., who make a speciality of fine-foliated plants, store the corms in pots or shallow boxes, and cover them with silver sand. They are placed in a cool corner away from frost, and when lifted are found in excellent condition, being both plump and healthy. When started, bottom-heat is used. The corms are placed in pots, and these are well crocked and filled with light peaty soil, finishing off with a layer of silver sand on the top. The pots are then placed in a frame in a warm house, and the bottom-heat soon induces growth. This is an excellent way to follow where large plants are desired.

Azalea Deutsche Perle.—A great future is before this new Azalea, and the old narcissiflora and Fielder's White will have to give way to it. It will, of course, take some time for the variety Deutsche Perle to come into general cultivation, but its popularity is ensured, as the flowers are of the purest white, quite double, produced freely, and have a firm, handsome, well-formed petal. It seems likely to become a favourite with growers for market, and all who require choice decorations should certainly grow it for supplying cut flowers during the winter months. One of its great points is its adaptability for early forcing. Its flowers can be had at Christmas and Easter if a proper succession of plants is maintained.

Wintering Caladiums.—Complaints are often heard that some of the garden varieties of Caladium do not winter so well as we might expect, and the reason of this, I think, is in most cases because they are kept rather too dry during the resting period, or sometimes the reverse is the case. There are plenty of the old vigorous kinds that never give any trouble in this respect, but some of the newer, and more especially the highly coloured, varieties are far more delicate in constitution. In the case of large pots full of roots, they may be laid on their sides under a stage or some similar place, as a large mass of soil does not become so baked up as a small quantity. In the case of choice kinds a little more attention may, however, well be given them, and as a good deal depends upon the thorough ripening of the plant before winter sets in, the supply of water should not be stopped all at once, but the bulbs must be ripened off gradually. In this way the bulb, though small, will be found quite ripened on turning it out of the pot, and, therefore, in a far better condition to pass the winter than if the ripening off had been more rapid. In the case of the choicer kinds I prefer to turn them out of the pots they have been growing in, as this allows of a close examination of each bulb, and should the least signs of decay be seen, it can be at once removed and the mutilated portion covered with pounded charcoal. The bulbs keep well in a mixture of this last and silver sand. Where the bulbs

are kept in too dry a state a kind of dry rot will often attack them, and they will then crumble to powder if pressed between the finger and thumb.—H. P.

Hibbertia dentata.—This is one of the few greenhouse climbers that flower at this season, and on that account its merits stand out even more conspicuously than they would at any other time of the year, though the profusion of deep green foliage and the reddish tint of the leaf-stalks, twining stems, and young shoots are features that will assert themselves at any time, irrespective of flowers. The fully-developed leaves are about 4 inches or 5 inches long and a couple of inches broad, while the flowers, which are of a bright golden-yellow colour, are about 1½ inches in diameter. It is a plant of free growth and of very easy culture, as cuttings of the weaker shoots will strike without difficulty, and when once established the young plants make rapid progress.—H. P.

The old white Azalea for cutting from.—After all it would be very difficult to find an Azalea better suited for supplying cut flowers at mid-winter than this old favourite. I remember three years or so ago seeing some very fine plants at the Chilwell Nurseries—indeed, a large number of them—that had flowered with great profusion the previous Christmas. There is such a large demand for cut flowers at this season of the year that the plants are cut back quite hard, but in early spring they begin to grow freely again. In June they are placed out of doors, after they have been thinned out a little. Mr. Pearson spoke of this old white Azalea as the finest plant in the world for cut flowers. The blossoms are as white as snow, and coming in at Christmas they are most valuable. It is not to be wondered at that the plant is so much grown by those who require a good supply of cut flowers during winter. Some prefer Fielder's White Azalea, but Mr. Pearson was quite enthusiastic in favour of the old white.—R. D.

Tree Pæonies.—As the flowers of Tree Pæonies are frequently destroyed by late spring frosts when the plants are in the open ground, it follows that they will do better if protected by glass during the flowering season. As they may be readily grown under glass, the Tree Pæonies are very useful in maintaining a floral display in the greenhouse or conservatory during the spring, and since they bloom naturally early in the season, mere protection is all that is needed. Plants required for blooming in the spring should be potted as soon as possible, and plunged somewhere safe from frost till the buds show signs of starting into growth, when the plants may be moved into a greenhouse. With ordinary attention the large flowers will open well, and with care will remain a considerable time in beauty. When the plants are required for blooming in this way, care must be taken, in lifting them from the open ground, that the roots are not injured, and the same thing must be borne in mind when potting them. Should it be intended to plant them out after flowering, on no account must this be done before the spring frosts and cutting winds which prevail at that season are past, for the foliage will, as a matter of course, be more severely injured when it has been brought forward under glass than in the open.—T., in *Field*.

SHORT NOTES.—STOVE AND GREENHOUSE.

The Scarlet Spurge (*Euphorbia jacquiniæflora*).—Mr. Hudson, of Gunnersbury House, grows this beautiful *Euphorbia* in a warm pit, planted out in a bed of soil composed of about equal parts loam and peat. The plants, trained round the inside of the pit, make robust shoots, which are wreathed at this season with brilliant scarlet star-like flowers. To give colour to the stove, or to supply bright blossom for the epergne or bouquet there is no better plant during the winter season than this.

Daphne indica.—When well established this useful plant supplies an abundance of flowers. There is a specimen in the Rose house at Gunnersbury Park, planted in the centre bed, where there are several thriving Camellias. It succeeds vigorously here, though it was some time before the plant could be made

thoroughly at home. Every branch is tipped with a cluster of flowers set in a base of dark green foliage, and their fragrance pervades the whole house.

WORK IN PLANT HOUSES.

ALLAMANDAS.—Where these plants are grown in a warm stove, so that they can be started soon after the beginning of the year and be grown on briskly afterwards, they produce flowers for a longer time and in larger quantities than any other species that require warm treatment. Plants that were rested in autumn by withholding water should now be cut in; all the green, immature wood ought to be removed, cutting the shoots back into the hard-ripened wood. In the case of full-sized specimens that are already in pots as large as it is advisable to give them, it is better to repot them at the time they are headed in rather than wait until they have broken into growth. If the potting is deferred till the young shoots are present, the reduction of the roots will stop much of the new growth from making headway. If water has been withheld, as advised, when the plants were put to rest, the soil will now be quite dry; this will admit of its being readily shaken away; two-thirds of the old material may be removed, and about half the roots may be cut away. It will be well to soak the remaining portion of the soil in water until it is thoroughly moistened, as if the potting is completed without this it will be difficult to moisten the ball thoroughly. Where the plants are grown on trellises the branches should be secured to them at the time of potting; if this is left till the young shoots have appeared, their brittle nature is such that in training the branches many will get broken off. In tying the shoots to the trellises it is necessary to keep them well down to the bottom, as if the extremities are taken to the top the young growths will have to be brought down so as to clothe the base; this will stop further extension. Do not give much water until the roots have begun to move. In potting make the soil quite firm. The best material for Allamandas is fresh loam with plenty of vegetable fibre in it, to which add about one-sixth of rotten manure and some sand. As soon as the plants have broken they should be raised so that their tops will be close to the glass, the object being to keep the shoots from the first short-jointed and sturdy, as on this to a great extent depends the time of their setting their buds and flowering. Syringe overhead once a day; this is best done in the afternoon, early enough to let the foliage get dry before night-fall.

AMARYLLIDS.—The time for repotting and starting the bulbs of the deciduous varieties has to be regulated by the time the plants are required to flower. Where large collections are grown, and a house is devoted to Amaryllids, during the time they are flowering and maturing growth, the varied colours of their flowers have a fine effect. But, managed in this way, they are not so useful as when portions of the stock are started at intervals. Where the plants are wanted to bloom early the potting should shortly be carried out. I have always found that the deciduous section does better in soil of a somewhat lighter character than the evergreen sorts. Good rich, fibrous loam, with a little peat added and some sand, answers for them in every way. The bulbs should be shaken completely out, being careful not to injure the roots. Drain well, using pots of a proportionate size to that of the bulbs and the more or less vigorous character of the respective varieties; but it is well to err on the right side by not giving too much root room, especially to the deciduous kinds, which require repotting annually. Pot firmly, making the soil quite solid. Where bottom-heat can be given it will help the plants somewhat, if in plunging the pots the tops are not too far from the light, otherwise they are better without it. But where a large body of fermenting material, such as new tan, is used, care must be taken that the bed does not get too hot or the roots will suffer. I have grown both the deciduous and the evergreen varieties for many years without bottom-heat, and found that its absence is not so much of a disadvantage as is often supposed. Be careful not to over-water; the soil is

better for being a little on the dry side until the roots have begun to move. The evergreen kinds will do with more pot room, especially if the offsets that are made are allowed to remain attached to the parent bulbs until they are large enough to flower. When grown several together in this way the specimens are more effective, as they will bear a number of spikes. The evergreen sorts do not require repotting every year, and they are more impatient of having their roots disturbed; consequently it is better not to shake out the bulbs, as in the case of the deciduous varieties. There is a difference of opinion as to the best time for potting the evergreen kinds, some preferring to repot them before they begin to move, whilst others defer it until after they have bloomed. My own practice has been to carry out the operation at the latter period, but I never repot the evergreen sorts oftener than once in two or three years. There is no difficulty in keeping up the requisite strength by the use of manure water, given at short intervals from the time growth begins until it is completed.

DRACÆNAS.—As these plants attain size they lose their bottom leaves, in which state they do not look well. It then becomes necessary to head them down. This may be done at any time of the year, as, unlike flowering subjects, it is not of much consequence at what season they make growth. If cut down during the present month there will be more time for the stools to make new heads before autumn than if the work is left until spring. Previous to heading down let the soil get somewhat dry; the tops should then be cut down to within 6 inches of the bottom; stand the stools in the warmest place the stove will afford, syringing them overhead in the afternoons. Do not give much water until they have broken into growth and made some progress, as if the soil is too wet whilst there is almost an absence of leaves, the roots are liable to perish. Potting had better be deferred until later on when the young growth has made some progress. The tops, with about half a dozen leaves attached, if treated as cuttings will strike and make handsome plants before the end of summer. Do not use larger pots than the particular variety happens to require, except for the largest growths, such as *D. Shepherdii* and *D. Baptisti*; 4-inch or 5-inch will be large enough. Drain and half-fill the pots with a mixture of peat and sand, the top all sand. Confined in a striking frame or under propagating glasses, the tops will soon make roots if kept warm and moderately moist. The bare stems even when the wood is old and quite hard can be made into cuttings that will soon grow into handsome plants. Cut the stems into pieces about an inch long and insert them about 2 inches apart in pots or pans drained and half-filled with a mixture of peat and sand—the top all sand; leave the ends of the cuttings just above the surface, give a moderate watering, and stand them in a striking frame or cover with propagating glasses in a brisk heat. The eyes will start in the course of five or six weeks, roots being formed at the same time. When they have made several leaves 1 inch or 2 inches long, put the little plants singly into 3-inch pots drained and filled with sifted peat, to which some sand has been added. If kept through the spring and summer in a warm stove they will be found very useful before autumn. As soon as the pots are fairly filled with roots, move the plants into others 2 inches or 3 inches larger.

LASIANDBRA MACRANTHA.—There are two varieties of this plant, one which begins to bloom sooner or later in autumn, according to the treatment it receives, and continues flowering through the early part of the winter, during which time it is very effective for conservatory decoration. Whilst in bloom, the appearance of the flowers is improved if the plants can be kept in a temperature of about 48° in the night. Under such conditions they open more freely and attain a larger size. Nevertheless, this *Lasiandra* will bloom under cooler treatment than this, so that where there is a difficulty in giving it the warmth that suits it best, there need be no hesitation about growing it. The length of time that it continues in flower, its profuse blooming disposition, combined with the scarce

colour of its flowers—glowing purple—make it deserving of cultivation wherever plants of a distinct character are appreciated. As soon as the plants have done flowering the soil should be allowed to get a little drier, after which they may be cut in. Large specimens may have last summer's shoots reduced to about half their length; whilst smaller examples that are wanted to attain size can have one-third of the growth removed.

SOILS FOR POTTING.—Peat and loam required for potting are much better kept out of doors than stored in sheds, except for such time before being used as will admit of their getting sufficiently dry. When under cover for any considerable length of time in summer, the material seems to lose its fertility through getting too dry, a condition which no subsequent watering will set to rights; but now, when the season for repotting most plants is approaching, a sufficient quantity of peat, loam, leaf-mould, and sand should be got under cover and spread out thinly so as to expose them to the air. An open shed is best, as in such the wind is naturally most effectual. Where necessary the materials should be turned over frequently, so as to get the whole to a uniform condition. T. B.

FRUIT GARDEN.

W. COLEMAN.

GOOSEBERRIES.

Of this wholesome and delicious fruit we do not make anything like as much as we might. A few bushes planted near the margins of walks, or perhaps half-a-dozen rows running across a quarter in the kitchen garden, and these, without names, early and late mixed together, generally form the sum total of the collection. This unsatisfactory state of things arises from two causes, the first being fat catalogues, which deter growers from making selections; the second, one's own ability to propagate from year to year—nay, from generation to generation—the few sorts left behind by our predecessors. We do not want an endless array of painted labels more conspicuous than the fruit, but we do require something like order in the arrangement of our selections, and when it is borne in mind that the Gooseberry can be grown as bush, pyramid, and cordon on any aspect from the open quarter to the north wall, it does seem a pity that everybody's favourite fruit is not better managed. Not only do we want the cream of the creams of each section, but we want the earliest for picking green or for the dessert, the best for bottling and preserving, and equally valuable a few sorts best adapted for resisting the weather and hanging late on north walls.

The Lancashire sorts produce enormous berries and are well worthy of extended culture, but for rich flavour we have nothing to beat the old small-berried sorts, of which I will enumerate a dozen:—

Early Sulphur, very early; Greengage or Hairry, very early; Greengage Pitmaston, Champagne, yellow; Champagne, red; Champagne, white; Bright Venus, Ironmonger, Keen's Seedling, Warrington, Old Rough Red, the best for preserving; Rumbullion, a favourite for bottling.

Of Lancashire sorts, the start might be made with the following:—

Yellow.—Broom Girl, Husbandman, Marigold, Leader, Leveller, Viper.

White.—Jenny Lind, Lady Leicester, Ostrich, Patience, Smiling Beauty, Whitesmith.

Green.—Angler, Conquering Hero, Green Walnut, Profit, Telegraph, Thumper.

Red.—Crown Bob, Echo, Hopley's Companion, Lion's Provider, Prince Albert, Slaughterman.

Here we have three dozen sorts that will give the earliest and latest dishes of fruit for the dessert, that will supply the first picking for tarts,

and that cannot be surpassed for preserving and bottling.

All Gooseberry bushes should stand on a clean single leg, which must not be allowed to throw up suckers, and although amenable to hard spur-pruning, they will produce the finest and best-flavoured fruit when the heads are well thinned out and clean young wood is allowed to extend full length in every direction. Upright growers are best adapted for pyramids and cordons, but drooping varieties may also be trained to walls, stakes, or trellises, where a little extra attention is of secondary importance. Cordons may be trained single, double, or treble, according to the height of the wall or trellis. The first may be placed 12 inches, the second 18 inches, and the third 24 inches from each other at the time of planting. Duplicates of the different varieties should always be kept together, not only on walls, but also on open quarters, and these, too, should follow each other in point of earliness for the convenience of protecting with wire or twine netting. The blackbird—no bad judge of fruit—will have his share of the best, and here we find nothing circumvents him so effectually as medium-sized wire netting round the sides, and Eddy's new square-meshed twine nets resting on laths or wires strained across the quarters. In the purchase and formation of young trees the purpose for which they are intended and their adaptability to the different modes of training should not be overlooked. Bushes, as a matter of course, can be made out of any well-rooted plant with a good stem by cutting back; whilst plants with a straight leader and two side shoots may be considered most suitable for pyramids and cordons. Old and scrubby trees are dear at any price, as more time is lost in bringing them round than in raising a new stock from good cuttings. Being so extremely cheap, anyone wishing to work up a good named selection should now buy in the best the trade can supply, and after planting in fresh new soil they will be poor indeed if out of every score he does not secure as many good cuttings. If taken with a heel of hard wood and put into nursery lines before the middle of February, they will make nice little plants by the end of the year, and under good management they will soon overtake their parents.

Bright-coloured Apples.—"Philomelos," in THE GARDEN, Dec. 24 (p. 587), gives the names of a few good early Apples whose fruit and flowers are ornamental, and justly remarks that nearer the Crab the brighter the blossom. "J. C. C.," in THE GARDEN, Dec. 10 (p. 538), enumerates several varieties of first-rate quality, alike ornamental and useful for cooking and dessert, and to these all planters for the future should confine their attention. No one can go far wrong in planting Blenheim Orange, Margil, Cox's Orange Pippin, Cockle Pippin, and, descending to a lower grade, the handsome Tom Putt may be extensively grown for cooking, market, and cider purposes; but Kingston Black, an inferior cider sort, Sanguinary Butcher, and Ploughman should be given a wide berth, as we have plenty of first-rate sorts, many of them late keepers, equally handsome. In Herefordshire and all cider districts high-coloured Apples of the one-bite class are abundant, and, being heavy croppers, they look most tempting when hanging on the trees in the autumn. A few years ago they were converted into cider worth 3d. a gallon; but afternoon farmers, even in this part of the country, are working them out with all speed, as they find that potting for market good, reliable sorts pays better. Another paragraph, the outcome of "J. C. C.'s" shrewd remarks, having appeared last week, I am constrained to inquire what good can come of these lists of inferior fruits without pedigree and only known locally. I do not for a moment suppose that

they will upset the laudable work of paring down fat catalogues you now have in hand; neither do I think anyone who wishes to improve our Apple culture will plant a single stock of these inferior sorts. One thing, however, they may do: they may head back existing trees, and work them with varieties whose fruit will please the eye and furnish the fruit room with fine examples worth storing. In addition to the sorts named by "J. C. C.," I would advise the introduction and extensive growth of—1, Red Hollandbury; 2, Baumann's Red Reinette; 3, Alexander; 4, Bismarck; 5, Beauty of Kent; 6, Flower of Kent; 7, Hoary Morning; 8, King of Tompkins County; 9, Lady Henniker; 10, Washington; 11, Sandringham; 12, Mère de Ménage; 13, Tyler's Kernel; 14, Striped Beaufin; 15, Herefordshire Beaufin; 16, Melon Apple; 17, Cumberland Favourite; 18, Fearn's Pippin; 19, Court Pendu Plat; 20, Scarlet Nonpareil. The whole of these are excellent Apples for the kitchen or the dessert; all of them are bright and handsome, and many of them being long keepers, are well calculated to take the place of the rubbish with which our old orchards are still choked and pestered.—W. COLEMAN.

THE BEST PEARS.

THE notes by Mr. Douglas in THE GARDEN, November 17 (p. 587), afford a good illustration of the difficulty to be encountered in attempts to limit the varieties of Pears to twelve, or even twenty-four. This place is not, I should say, any more favourably situated either as to climate or soil than is Ilford, and yet results as to Pear culture are, according to Mr. Douglas's note, in some respects of a totally opposite character, and the question arises in what direction shall we look for the cause. I give it up; and take my stand on the suggestion I made in a previous note, namely, that you should ask "your readers in all parts of the kingdom to send you their selection of twelve sorts that they have practically tested over a series of years." By such lists I think it would be possible to work out a list of twelve kinds for every given district. As to the exclusion of Louise Bonne of Jersey from my list, it is not that I do not think highly of the variety, or of other early varieties, such as Beurré de l'Assomption, Beurré Giffard, and Clapp's Favourite. These are all first-rate, but for the season none of them equal Williams' Bon Chrétien or Fondante d'Automne, and, having to limit my selection to twelve kinds, the reason for the exclusion of other excellent kinds is obvious. I regret to read that Mr. Douglas does not get Winter Nellis to grow well with him. If I may be presumptuous enough, I would advise him to try it in the stiff soil of Great Gearies, grafted on the Quince stock and trained to a west wall. I agree with Mr. Douglas as to Van Mons Leon Leclerc, but it is wanting in keeping qualities, or, rather, it keeps long enough, but after a certain time the quality of flesh deteriorates—becomes mealy and insipid—and as we have abundance of varieties that ripen at the same season and keep better, it is hardly worth while to grow it for size only. Beurré d'Arenberg I most reluctantly left out of my list of twelve; could I have found room for it I should have placed it after Doyenné du Comice and before Glou Morcean, as it well fills the break there sometimes is in the supply of ripe fruit between the ending of one and the ripening of the other. W. WILDSMITH.

Heckfield.

Pruning in frosty weather.—It has been asserted that it is wrong to prune in frosty weather, but this is not my opinion, for I have been in the habit of pruning deciduous trees of all kinds whether there was frost or not. As a matter of fact, our soil here retains so much moisture during the winter that I have often waited until the ground was frozen in order to prune pyramid and other fruit trees. I remember that during the long and severe frost that occurred in 1860, having a scarcity of work outdoors, I set my men to prune the Apple trees in two large orchards, and although many of the trees had to be rather severely dealt with, they

received no harm. In the case of Evergreens it is a different matter. Even the common Laurel suffers if pruned during severe frost, unless the plant is cut down close to the ground, or large limbs are removed, but to clip Laurel hedges is not good practice, because it exposes to severe frosts and cold winds other growth that is not so hard. Even Box edgings, if clipped during the winter, become injured by frost. I think the middle of April is soon enough to clip or prune Evergreens that are much exposed, and if done at that time the plants quickly start into growth again.—J. C. C.

FEWER KINDS OF APPLES AND PEARS.

THE discussion that has recently taken place in THE GARDEN upon the merits of different varieties of Apples and Pears touches an important subject. It may safely be said that nine-tenths of the sorts of Apples and Pears grown throughout the kingdom are worthless. What is the use of growing sorts that are either deficient in quality or do not bear freely, whilst there are more than enough varieties that possess these properties? In regard to Pears, it is of no use having a number of sorts that all come in at the same time, and amongst which the majority are wanting in some quality or other. The indescribable number of good and worthless sorts that has usually hitherto been planted is accounted for by the fact that fruit growing in this country has been looked upon more as a fanciful, interesting hobby than a pursuit, in which usefulness and profitable return were matters of leading importance. American fruit growers who have brought views of a more utilitarian and common-sense nature to bear on the subject have not committed this mistake, as shown by the fine, though few sorts of Apples they send us, and which have done something to open the eyes of many English growers. For my own part, when either speaking or writing about fruit growing, long before the subject in its present form was mooted, I never failed to urge the mistake of growing more varieties than necessary to give a regular supply for as long a time as possible.

How long the fanciful and wasteful practice of growing indifferent kinds for the sake of novelty will go on in private gardens it is difficult to say. But now, when those who have to make their living out of the land are at their wits' end to know what to grow that will pay, and are turning their attention to fruit growing, it is tolerably certain that they will only grow good varieties that are reliable bearers. Still, in greatly reducing the number of varieties, it is well not to go to the opposite extreme, and only grow one sort. If there were any object in only growing one variety, it would be very difficult to name a better sort than Cox's Orange Pippin. I saw Mr. Waterer's fine Pippins some years ago, and it is something to know that this excellent kind will succeed on peaty soil, such as the Woking district mostly consists of. I do not think there is any other really first-rate dessert variety that will do well over such a wide range of country, or in soils that are so different in nature. One of the finest and best-looking samples of this Apple I have seen this year was sent me by a friend, who gathered it from a tree at the bleak north end of Yorkshire. Apple-growing for market and for home supply are widely different. The market growers may be trusted to look to their own interests in the matter by confining their selection to a few of the earliest cooking sorts and the best dessert and cooking varieties that will keep well.

For private use the number of varieties will in most cases require to be slightly increased. With the exception of a few of the common early cooking sorts, soil and situation have a greater influence on Apples than those who have not had experience with them in various parts of the country seem to be aware of, but such is the case, and on this account a selection that is the best for one place will require to be varied considerably in another. Some of the best cooking sorts being naturally good growers and free-bearing, they answer in different soils and localities. For instance, Keswick Codlin, Cellini, Dumelow's Seedling, Tower of Glamis, and Yorkshire Greening will thrive and

bear wherever it is worth while attempting to grow Apples, whilst there are other sorts equally as desirable that will not succeed everywhere. For example, I could never get Blenheim Pippin to do nearly so well in light soil as in strong clayey loam; nevertheless, it is one of the best and most valuable Apples in cultivation. Those who have had much experience in Apple growing need not be told that the flavour of the best dessert sorts is much influenced by the soil. Yet the land has not so much influence on Apples as it has on Pears, some varieties of which are first-rate in some soils and all but worthless in others, and this where there is nothing to choose in the climate. It therefore follows that in making a selection of Pears, even more than of Apples, it is necessary to know something about the character of the soil in which they are to be grown. The subject is as wide as it is important, and the more evidence that is brought to bear on it the better the chances are of more rational proceedings in Apple and Pear growing and equally so of fruit in general. Many who raise new varieties generally place their merits much higher than they deserve. Not a few who cultivate the trees for sale think that if a fruit is fair to look at, it is good enough to sell. T. B.

NOTES ON FRUIT.

I AM sending you by rail to-day characteristic specimens of Josephine de Malines Pear. I think you will find them in good condition. I hope Winter Nelis will obtain a foremost place in your selection of Pears; it is the Pear I should grow if confined to one sort. The Apple named Melon which I send is not very generally known. I know some who grow it, and like it very much for its flavour and tender flesh. It is of American origin, but the tree grows and bears well with us. I think a dessert Apple is doubly valuable if the flesh is tender, and quite agree with your remarks on that subject. Many of our dessert Apples are too hard to be eaten with comfort. Cox's Orange Pippin I prefer to Ribston Pippin because of its tender flesh; in fact, I do not think there is another dessert Apple so good as Cox's Orange Pippin, taking all points into consideration.

There is an American Apple called Mother of first-class quality; it is ripe at the end of September and October; if you do not know it you ought to see and taste it next year. The others I send are Court Pendu Plat, and one locally known as Pigeon-house Pippin. The former can always be depended upon to give a good crop, as, flowering late, the blooms escape the late frosts. Do you intend to divide your two dozen Apples into dessert and culinary varieties?—ARTHUR BARKER.

. Certainly not. This division is one of the causes of our poor stocks of fruit. There should be no such division of our standard fruits. But there might be one or two small sections after the standard one—say kinds remarkable for beauty of flower, like "Sharps"; cider Apples; very small, good flavoured sorts, but too small to take a place among market sorts. These we should call by some distinctive name, and Crabs, which are now becoming an important class. We hope that the ugly words "for culinary purposes" will not be heard much longer in England.—ED.

Apples and Pears.—I send you a list of Apples and Pears that are well adapted for Scotland. They have all been proved:—

Apples for wall.—Cox's Orange Pippin, November; Mannington Pearmain, January; Golden Harvey, February; Ribston Pippin, March; Scarlet Nonpareil, April.

Standard Apples.—Early Almond, August; Scarlet Crofton, August; Worcester Pearmain, September; Hawthornden, October; Scarlet Golden Pippin, November; Cobham, December; Brabant Bellefleur, January; Reinette du Canada, February; Besspool, April.

Pears for wall.—Citron des Carmes, August; Jargonelle, August or September; Williams' Bon Chrétien, September; Beurré Superfin, October; Marie Louise, November; Thompson's, November; Hacon's

Incomparable, December; Doyenné du Comice, December; Passe Colmar, January; Easter Beurré, February; Bergamotte Esperen, March; Beurré Rance, April.

Standard Pears.—Summer Doyenné, August; Beurré Giffard, September; Green Yair, September; Sinclair, October; Moorfowl's Egg, November; Achan, December.

We now only plant eating or dessert Apples. They are just as good for cooking as the sharp sour cooking Apples. For market purposes Pears are more valuable than Apples. If Apples are 1d. a pound, Pears will be 2d. Good Apples are twice as valuable after the new year. We put our most valuable, or late keepers, on the wall.—J. D. B., in *Field*.

APPLE BLENHEIM ORANGE.

THE samples of Blenheim Orange which I herewith send you are from various places in the district for the purpose of providing you with as many forms of the Blenheim Orange as I could procure. The raiser of this Apple is deceased, as is the original tree, if I am correctly informed; the period that he survived his production, however, I cannot accurately state. He was an old man. An account of his death and of that of the tree appeared some time ago in the *Oxford Journal*, but I have as yet had no opportunity of scanning the back numbers of the paper to enable me to give you all the particulars I would desire.

The employment of various stocks may account in some measure for the difference in the appearance of the fruit, but I am more inclined to attribute it to the raising of the trees from kernels. The variation occasionally is too marked, I think, to support the theory that it is the influence of certain stocks alone which has caused the distinctive features exhibited by this variety. In the one case the variation would naturally follow, but in the other, certainly not to a similar extent in any one year when produced in the limited area in which the fruit sent to you have been gathered.

I am entirely in accord with the opinion that "the Blenheim Orange is the best all-round Apple," more especially as relates to some of the best forms of it. Without desiring to contribute towards diminishing the fame of the raiser of even a famous Apple, yet it must not be forgotten that there are some aged trees of this kind within a radius of ten miles of the historical town of Woodstock, and it may perchance be that Kempster raised his seedling from a kernel taken from what he regarded as an exceptionally fine specimen of a sort he desired to possess, from a knowledge of the local fame of the parent tree. As in some instances "like begets like," and at the time in question the methods of grafting and budding as a means of propagating trees were practised only to a comparatively limited extent, it is possible that it was with the object of possessing a similar sort that the raiser of the Blenheim Orange was prompted to adopt the plan of raising it from seed. If this be so, we can imagine the feelings of satisfaction with which he viewed the appearance of the first fruits of his then unchristened seedling, and the pleasure it afforded him in having secured the tree by adopting the readiest method known to him of acquiring it. And this may not be entirely supposition. Further, bearing in mind the oft-proclaimed success of the raiser, it would follow as a matter of course that, more particularly in the neighbourhood, he would have many imitators, and by the kernel-setting system there would doubtless be obtained results that would account for the dissimilarity of the fruit of this kind that one meets with at the present day. I have supplied you with specimens that at least warrant the explanation that I have presumed to advance, and there is no doubt a good deal more may be said in connection with this subject.

The heaviest specimen of this variety that I have seen this year formed one of a dish of twelve Apples that in the aggregate weighed 11 lbs., the one in question weighing one quarter of an ounce short of 18 ozs., and measuring nearly 14 inches in circumference. Such an example as this cannot but be considered otherwise than as an interesting speci-

men. Yet even this is smaller than fruit of other seasons' growth, notably one that was exhibited in Oxford that weighed no less than 21 ozs. It is singular, in respect to the larger-sized fruit, that they rarely acquire the brilliant colour of some of the smaller ones—a matter, however, of no great importance when it is considered that their very proportions render them quite unsuitable for the purpose of dessert. The difference, too, in the appearance of Blenheim Orange Apples from certain trees, irrespective of locality, is so marked as to account for the fact of their being considered as falling under the head of both culinary and dessert fruit. It is to this that may be ascribed that of the number of exhibitors who selected this variety as one of the best suited for growing in their respective localities, as may be seen in the report of the National Apple Congress, 1883, sixty-three regarded them as cooking and fifty-two as being dessert fruit, thereby collectively placing it in the position of the most popular Apple.—JOHN E. JEFFERIES, *Oxford*.

P.S.—Since writing I have been informed by a gentleman, who has been familiar with Woodstock for many years, that he remembers Kempster's tree when it was growing in his own garden, and that it was not known as the Blenheim Orange until after it had been introduced into the palace gardens. The old Kempster tree in the orchard of Mr. Joseph Druce, of Eynsham, is probably from the original stock. It produces very large fruit of the conical type, and furnished the only dish exhibited under this name at the Apple congress, but it will be found catalogued as Kempston. I am enabled to write with some authority on this point, as, through the kindness of Mr. Druce, I gathered the fruit then exhibited.

* * A very interesting series of fruit, showing how the Blenheim Orange Apple varies in size, shape, and colour, was sent us by Mr. Jefferies with the above.—ED.

Profitable fruit culture.—I have a good deal of sympathy with the one-Apple man, for at the present moment our gardens, orchards, and nurseries are overburdened with useless varieties, and if any profit is to be made out of fruit culture in the future, in the face of the severe competition we are sure to be exposed to from the foreigner, there must be an entirely new start, and only a very limited number of sorts grown. As a dessert Apple at the present season, or Christmas, Cox's Orange Pippin is certainly the best, and on good fruit-growing soils the tree is a good grower, both as a standard and also on the Paradise stock. But we want both early and late Apples, and we want kinds that will cook well and bear heavy crops. For cooking purposes early in the season the Codlins are indispensable, and Lord Suffield, which appears to be a descendant from the Keswick Codlin, is, in my opinion, the most profitable to plant. But there is nothing in this world absolutely perfect, and, unfortunately, Lord Suffield, good as it is, would be still better if it had more vigour, but its early and incessant bearing habit keeps it of small stature. Therefore, in planting Lord Suffield largely, it will not require so much space as is commonly allowed. If the one-Apple man happened to have a soil suitable for the Blenheim Orange, a fortune might be made by planting that variety by the acre. But the Blenheim, good as it frequently is, is not profitable everywhere, and we want a few Apples to suit our own particular soils and situations, and one of the very best Apples for extensive planting is Dumelow's Seedling, otherwise known as the Duke of Wellington. This may be planted by the dozen or hundred without fear. Cultivate the land well before planting, and give the trees plenty of room, as crowded orchards cannot pay. If the trees are planted on Grass make holes 6 feet square and 30 feet apart. Cultivate and improve each 6-foot space, stirring it up at least 2 feet deep, but either give time to settle or make the bottom firm by treading, as planting in loose soil will lead to undue settlement, and if the trees are too deep in the earth they will not succeed. Other good Apples are New Haw-

thornden, Echlinville Seedling, Prince Albert, Potts' Seedling, and Alfriston. A few acres of land planted with the above kinds of Apples grafted on the Crab with stout stems 6 feet high as a top crop, and a bottom crop of Industry and Red Warrington Gooseberries, the former to be pulled green and the latter converted into jam, should be a paying speculation.—E. H., in *Field*.

MARKET APPLES.

DISCUSSING with a large local market gardener the other day the respective merits of Apples, he said: "No doubt Cox's Orange Pippin ('Cox's' in the trade vernacular) is one of the very best Apples when you can get it to do well, but its defect is that if the seasons prove rather cold we miss crops for two or three years, because the trees need so much sun-heat to mature the wood and the buds well. I daresay it thrives well on the Bagshot sand, and it also does in portions of our Middlesex black loam, but not so well on the colder clay, unless the seasons are dry and very warm. I think the man who goes in for dessert Apples largely is wisest who has more than one string to his bow." Then he went on: "If I were going to start a young orchard I should plant, in addition to King of the Pippins and Yellow Ingestrie, Worcester Pearmain for early and the delicious Cockle Pippin for late work. The first is a certain and free bearer, and the fruits come rich in colour, and always realise a good price. Cockle Pippin is a delicious Apple; indeed, to my mind, when well grown second to none for flavour, and it is a regular and capital cropper." Asked to name a sixth dessert Apple, he said: "There is none equal to Blenheim Orange if you can get the trees to fruit, but we cannot afford to wait so long for a crop. If a man is planting his own ground put down dwarfs of good kinds and standards of Blenheims for the future cropping, but it will not pay to plant them on short-leased land. On the whole, perhaps, as early good coloured Apples pay best, I think the Duchess Favourite, which is such a heavy bearer, one of the best for regular cropping and for profit. Given a good season, and with strong, healthy trees well thinned and cultivated, I think Ingestries, Kings, and Cox's the three best market dessert Apples. Flavour is a good deal, of course, but in our line it is not everything. We must have crops of taking fruit. Still, I do not think there is much to find fault with in the selection I have given you. Kings may not be up to Cox's, I admit, but we market people think that clean grown Middlesex Kings are first-rate all the same; but then Apples are not the same on all soils. Ribstons will not pay for market, and it is useless to think of growing them. As to bush trees *versus* standards, well, there is much to be said on both sides. You cannot grow much about bush trees, but Wallflowers, Violets, bulbs, bush fruits, &c., will do well under standards. I think for the larger sorts of Apples bush trees are best, because they are less exposed to the wind, and a thick dressing of litter can be laid down about the trees to help save the fruit should it fall. However, in planting a market orchard, soil, situation, length of lease, and other things have to be considered.

"As to kitchen Apples, I do not see how we can do without Juliens, as there is no other Apple which cooks so well in August, and we get them off very early; in fact, the crop is, as a rule, off and gone and the trees are ready to produce another before the winter sets in. You cannot place too much stress on the importance, too, of getting the crops off the trees early; it makes such a difference to the plumping up of the buds for the next year. If we grew long hanging sorts, of course we should get crops much less often than now. As to a successor to the Julien, we used to trust to Manks Codlin until Suffields came in, and I do not see that we can better that one now. Suffields fruit early, are very fine and handsome, and cook well; in fact, are always on demand, and we cannot well have too many of them. The only thing with Suffield is that the trees are not so long-lived as others, but it does not cost much to put down a hundred trees every year, so that the stock of bearing trees is

always kept up. Then comes Stirling Castle, a roundish, clean Apple, something like old Hawthornden, and a greater bearer. This is first-rate on dwarf trees, and I am going in for it largely as a sure cropper and a good successor to Suffield. I do not know a better one to follow than Warner's King, a good, compact-growing tree, and one that carries grand fruit. Frogmore Prolific is another fine kind I like very much, for it is a first-rate bearer, and the sample is so good all round. We do not go in for late sorts, as I said before, but still we cannot dispense with Wellington, perhaps, on the whole, the best late market Apple. But, then, Wellingtons on good trees come up so well, and look so gay and clean, and cook so well at any time, that you can run them right off the trees into market without storing at any time. The most that we do is to lay a few hundred bushels in a heap on straw in the shed, especially if the weather looks stormy, as then all hands are put on to get the fruit in. The worst of hurry is that many of the fruits get roughly handled, but that cannot well be helped. However, once under cover they are safe, but we sort them and work them off in a few weeks, and then with us the Apple season is over. Well, I do not think it will pay us to grow late Apples for storing, for many reasons. In the first place, we are near London and must keep up a constant supply of produce, so that the rule is—the moment ready, away with it; something else will be ready to-morrow. Then our rents, rates, labour, &c., are heavy, and it is only on the principle of quick returns we can hope to thrive. Few know what the cost of labour alone is in any good metropolitan market garden. I have no doubt that we pay as much per 100 acres, perhaps more, than many a farmer does on 1000 acres. That is a fact which has its bearing on the labour question. Then we crop every part of our soil rapidly, and the moment fruit is off the soil is dug, perhaps planted with flowers, sown with Spinach, or something or other, and so we go on. Everything must be as quick coming as possible, and if we could get even another crop, we should endeavour to do so. We are obliged to have a good many eggs in our basket, and it is just there where we beat the farmers, although our risks, and expenses, and rents also are so much greater, that whilst they are dependent upon one or two chief products, we have fifty, and if one fails, another possibly proves profitable.

"As to growing Apples to compete with the Americans, I think it can be done, but, as usual, our abominable land system stands in the way. If we had men of capital and enterprise willing to plant with a few selected Apples some 20,000 acres of the best land in the very best Apple districts, I think in a few years, with judgment and good cultivation, the American competition could be overcome. All late fruit for this purpose is best grown further away from London, because the fruit is both cleaner and more thoroughly ripened, and the rent is less and labour cheaper. All the fruit should be very carefully picked and barrelled as gathered, in my opinion, then stored with the heads out of the barrels in a cool place, and sent off to London or elsewhere as needed. The difficulty is with the land, held as it is. Who is going to begin? All the same, it can be done if gone at in the right way." These are my neighbour's observations epitomised.

A. D.

SHORT NOTES.—FRUIT.

Hardiness of the Wealthy.—This Apple has proved extremely hardy. A. W. Sias, of Minnesota, says that after the trees were subjected to 50° below zero, and afterwards to an unprecedented drought, they were completely loaded with perfect fruit. One planter reported 700 bushels of Apples last year, of which 250 bushels were perfect specimens of the Wealthy.

Christmas Pears.—The following are recommended by Mr. Barron as good Christmas Pears: *Joséphine de Malines*.—This is the leading Christmas Pear, one of its great merits being its constant good quality. *Beurré Sterckmans*.—Of very great merit. *Beurré de Jonghe*.—Of delicate and extra quality, and always good. *La Sœur Gregoire*.—Of brisk, piquant

flavour. *A1. Nouvelle Fulvie*.—Generally ripens later; fine quality. *Bergamotte Esperen*.—A well known good sort; constant.

HARDY FRUITS.

It is pleasant at the commencement of the new year to be able to congratulate ourselves upon fruit prospects of unusual promise. Trees of every kind are literally loaded with plump, silvery flower-buds, and the wood upon which they are borne as well as the roots is as well ripened as it has been at any time within the last thirty years. So far, notwithstanding the ruin predicted a few months ago, Nature has performed her part, and it now remains for man to perform his. In matters of this kind where success or failure depend largely upon our fickle climate, we cannot command full crops of fruit, but by paying minute attention not only to every detail, but to its performance at the right time, plenty in many places may smile where otherwise failure will follow. Root-pruning and planting for the present having been brought to a close, we still have a good two months before us which should be devoted to cleansing, spur and branch-pruning and training, and when this work is finished it will be high time to provide means for protecting early blossoms from spring frosts. Taken in the order in which these operations are here named, cleansing deserves more than passing notice, for prune and train as we will, we must be heavily handicapped where the destruction of Moss, Lichen, and insects is neglected or only partially carried out. Cleansing can hardly be called skilled labour, and yet it is best performed by hands used to the work; moreover the materials and insecticides used should always be prepared by persons who know exactly what strength will destroy the parasite without injuring the tree. Commencing with

PEACHES,

the work for the early part of January is detaching from the walls, which at any time before the middle of March should be well coated with a wash composed of lime, soot, sulphur, a little linseed oil and venetian red, the quantities of each being regulated by the desired tint when the wash is dry. Pruning having been performed not later than the end of October, the use of the knife will not extend beyond the general dressing off of imperfect cuts, and perhaps the removal of a faulty branch which escaped the eye when the leaves were upon the trees, and they will be ready for washing. Before this work is commenced it is a good plan to place a layer of fresh stable litter upon the wall paths, for the two-fold purpose of protecting the surface roots and top-dressing from incessant treading, and at the same time to enable the workmen to move on and off the borders in comfort. Unless the trees have been badly infested with spider or scale, an ordinary wash of soap water will be found strong enough, but where these pests are lurking, a pound of Gishurst compound to three gallons of soft water may be used effectually and safely. When all the old wood has been well scrubbed, each flower-laden shoot resting on the palm of the left hand must be carefully washed with a half-worn paint-brush repeatedly drawn outwards towards the point. Dry, mild weather is most suitable for this work, as a portion of the insecticide then remains upon the branches and twigs, but on no account should washing be continued when sharp frost prevails. The next operation is tying the branches to light rods stuck into the ground a foot from the base of the wall and terminating with a tie to a nail driven in beneath the coping. Six or eight rods will suffice for a large tree, but why go to this trouble when the branches are so easily tied in bundles and suspended against the walls? My reasons are three-fold. In the first place, tying in bundles is bad gardening, as it hastens the swelling of the buds in the spring, it makes them tender and susceptible to frost, and the bundles are very much in the way when the workmen commence washing the walls. Tying out, on the other hand, exposes every shoot to the retarding and hardening influence of the air; it delays the opening of the flowers quite a fortnight, and all know that many "a slip 'twixt cup and lip" takes place within this period so early in

the season. I do not profess to enlighten the experienced, but at the risk of being voted tedious I like to show to the young beginner that my remarks are practical.

APRICOTS,

I take it for granted, have been pruned and trained, but have they been detached and washed and the walls cleansed? If they have not, no time should be lost in plying them copiously with soapsuds from the garden engine. With us the buds already show signs of swelling, and soon we must see that materials are in readiness for protecting purposes; meantime it will be well to make certain that the roots are in a properly moistened condition. If any of the trees have been lifted or root-pruned more mulching may be added not only to feed the young roots, but also to keep in moisture. Bud-dropping commences very early, and the cause in nine cases out of ten may be traced to want of water. The soapsuds, after leaving the wall, will be of some service, but the rainfall has been light, and unless the hose was freely used in the autumn, the lower roots may still be on the dry side. It is now late, but, better late than never, this great drawback without a day's delay should be corrected.

CHERRIES,

also precocious, require precisely the same treatment, both as regards cleansing and root moisture. I take all my Cherries away from the walls, wash them, and lay in plenty of young wood in preference to spurring. May Dukes submit to spur-pruning, but some of the strong growers, especially on north walls, resent it by showing a disposition to gumming. The knife aggravates this disease, and so does a cold, rich, and unlimited root-run. To correct it, keep the knife in the sheath, lift and relay the roots in well-drained, elevated borders, and give plenty of water when the trees are growing in summer. Unlike the Apricot, they do not shed their buds early in the spring, neither do they present a semblance of a doubtful set, but the stoning stage settles the question when dropping not unfrequently may be traced to want of water.

PEARS.

Where the rational mode of checking luxuriant growth in breastwood and forcing the sap into the spurs by summer pinching is judiciously followed up, the old method of collecting fagots of gross shoots for flower-sticks has become an operation of the past. This change for the better does not, however, relieve the pruner altogether, as it is necessary to go over every tree when dormant, not only to put the finish upon the work commenced in July, but also to thin out the old spurs where too thick, and to cut them back to within an inch of the main branch where too poor to produce fruit. This work, I need not say, should be performed piecemeal a little every year until the whole of the spurs have been removed, and every new bud is produced within the ripening and protecting influence of the brick-work. Quality is now absolutely necessary, and the roots being right, no process with which I am acquainted is so likely to produce it as the repression of gross growth, the removal of barren spurs, and the free ingress of sun and air. Pears, like all other fruit trees, pay for cleansing, especially where they have become hide-bound by an accumulation of Moss and scale; indeed, where the latter is not present, a thorough scrubbing with a solution of Gishurst compound favours the expansion of the bark and sapwood quite as distinctly as cleanliness improves the condition of animals. The oyster scale—a very minute insect nearly the colour of the bark—often passes unnoticed for years, and, preying as it does upon the trees, soon puts an end to the expansion of the stems and branches. Paraffin and other oils destroy it, but removal being better than the use of these crude insecticides which varnish the bark with filth, the hard scrubbing-brush should prepare the bark for a composition of healing loam, cleansing lime, and soft soap, to which paraffin (a pint to a gallon) may be added.

APPLES.

The pruning of these and Gooseberries is generally left till after the turn of the year, but no time

should be lost in getting all this work finished, especially where woolly aphid is troublesome. Apples, like all other fruit trees, in course of time become a great deal too full of branches and spurs, and although they may produce an abundance of fruit, all, with the exception of that borne on the tips of the shoots, is small, deficient in colour and flavour. The method of spur-pruning as recommended for Pears is the only means by which such trees can be restored to a profitable condition, and now is the time to set about it, as the sharp dressing necessary to the destruction of American blight should be applied before the buds begin to swell. In pruning, all cross and crowded branches should be cut out and parts that are cankered, always the stronghold of the enemy, well pared and cleaned out with a sharp knife preparatory to washing and painting with the mixture recommended for Pears. When choice varieties growing in gardens have been cleaned and painted, all old mulching and loose soil, particularly near the stems, should be cleared away and burnt; otherwise, no matter how well the trees may have been cleansed, a new colony may spring from insects now lying beneath the surface. A top-dressing of good fresh compost will then close the winter operations, but no one must deceive himself by supposing the war of extermination is finished. As warm spring weather comes on the beginning of the end must be commenced by a careful and systematic examination of each tree, and wherever a solitary insect is found, the dressing again and again must be applied. Woolly aphid is the most persistent hardy insect we have to deal with, and yet this ought not to be the case, as oils melt all they touch in an instant, but no man can reach all at the first dressing, and it is this premature relaxation which enables the remnant from the winter dressing to survive and multiply. Many persons assert that aphid does not produce canker, but this, I think, is a mistake, as I lately inspected a lot of old stocks that had been grafted with Blenheim Orange. Some of the trees had been worked from a foul, others from a clean stock of grafts. There was no difference in the age or condition of the trees, and yet many of the scions on the first were eaten through, whilst the others were as clean and free from blemish as young maidens.

BUSH FRUITS,

Currants and Gooseberries especially, should be well thinned out to make room for the free admission of the hand when gathering the fruit, as well as to let in sun and air. In dealing with old trees having a multitude of stems, it is a good plan to leave a few young shoots every year and to cut out a corresponding number of the old ones, as these always produce the finest fruit. No modern fruit grower approves of the many-stemmed Red and White Currant, but where it exists heavy crops of good fruit can be obtained by this method of cutting away the old and leaving the best of the young ones immediately after the crop is gathered. Digging amongst these remnants of the past being an impossibility, we, for I must admit I have a long row of these veterans, throw in a good quantity of rotten manure every autumn, and ply the liquid manure throughout the winter. Summer, no doubt, is the best time to feed, but having so many mouths at that season to fill we give hardy fruit trees a benefit when otherwise the liquid would be wasted. Black Currants, Raspberries, and Strawberries, also orchard trees, receive their share, and Roses, which it may not be quite orthodox to inscribe in a fruit calendar, pay in summer for liberal supplies given to them in winter. After reading the above remarks the young gardener may infer that I prefer seeing all bush fruits growing on single stems, but this really is not the case, as the Black Currant always does best when allowed to stool. The ground for this useful fruit cannot be too rich, light and moist, always provided it is well under-drained to prevent the accumulation of crude putrid water. This variety will fruit fairly well when pruned on the spur principle, but the produce is neither so plentiful, so fine, nor so juicy as when the oldest branches are cut out boldly to make ample room for the young ones, which, by the way, should never be shortened back. Assuming that Raspberries have been well thinned out, and

the stakes renewed, also that old Strawberry beds are free from weeds and runners, the principal work here will be the addition of fresh soil and manure whenever the weather is favourable for wheeling. The Raspberry revels in a light, rich food, such as leaf-mould, charred prunings, old Mushroom manure, peat, road-scrappings, and the like—anything that is fresh and feeding and will keep the old roots moist and draw a mat of fibres to the surface. The Strawberry, on the other hand, feeds on a fat heavy compost, than which there is nothing better than mellow loam or the remains of old Melon beds, manure and soil together, thrown loosely and roughly amongst the stools to be pulverised by the weather. Soot in moderation is an excellent stimulant to the roots, and being unpalatable to worms and slugs, a light dressing in mild showery weather throughout the winter and spring will be found highly beneficial. If young plants put out late in the autumn have been loosened by frost they should be carefully trodden round with the foot on a dry day and protected by the addition of a light dressing of fresh compost. For this purpose the remains of a Mushroom bed, with which fresh turfy loam has been liberally incorporated, is quite suitable.

THE ORCHARD.

As planting cannot be resumed before the middle of February, the next month may be profitably employed in preparing the stations, mixing and carting compost, getting in the stakes and drainage, and pushing forward every detail that will facilitate the disposal of the trees when the proper time arrives. Conjointly with this work branch-pruning and heading-back for grafting may be carried on, when the refuse and wood can be used for burning the old roots and stiff sour clay thrown up from the bottoms of the holes. If a cartload of fresh compost can be given to each young tree, so much the better; but this material being scarce, exposure of the turf spit to the action of frost and calcining the bottom spit with wood will fit all the old soil for using up again. Scraping, washing, and painting with a mixture of soft soap, lime, soot and clay should now be vigorously pushed forward, pruning, as a matter of course, preceding the application of this material. Lime alone will destroy Moss and Lichen, but woolly aphids, which buries itself deeply in the bark and blemishes, must be fought to the bitter end with an insecticide that will kill all it touches, and poison with its fumes all that are encased beyond its reach. The above mixture will answer this purpose, but where the blight is thoroughly established on old trees, the addition of one to two pints of paraffin to each gallon of the wash will make it more effectual. Young trees should now be pruned where the centres of the heads are likely to become crowded, and upright growers may be greatly improved, often without the use of the knife, by drawing the external branches outwards and downwards with soft tarred twine placed over them and fastened at each end to the tops of the cradles. If not already done, the packing of short soft hay should be renewed, to prevent the stakes from chafing the stems. Rabbits and hares must be kept away by the use of lattice wire or a cradle of Blackthorn running 2 feet or more up the stems, when a run over with the wash as a preventive will put them right for another year. Young growing trees, like young children, are always ready for food, and their roots being near the surface, a coating of fresh compost at all seasons is acceptable. A feeding mulch just now will do good; later on the addition of a moisture-retaining mulch will be equally acceptable.

W. C.

Culture of the Orange in England.—It would be very interesting at the present time if your readers would only take up the discussion as to the advisability of growing Orange trees for the sake of their fruit in hothouses or greenhouses in this country. Mr. A. Dixon, of Cherkeley Court, near Leatherhead, writes me that he has had, at the present time, as many as 200 Oranges on some of his trees. Anyone who has lived in a country where ripe Oranges can be culled from the tree well knows the magnificent flavour they possess. The higher the quality and the thinner the skin,

and, consequently, the more juice it contains, the more difficult is it to transport after being packed. It would not be at all difficult to cultivate such Oranges in England. Several growers have lately informed me that last year they only obtained 2s. per dozen for splendid Peaches when sent to London, and that for Grapes they have not received more than 2s. 6d. to 3s. a lb. This week Mr. G. Bloxham, of Brickhill Manor, said that not only had he been able to grow as many as from fifty to sixty fruits on one tree, but also that the plants were easily protected from insects.—T. CHRISTY, F.L.S.

ORCHIDS.

W. H. GOWER.

CATTLEYA WARSCEWICZI.

THE specimen from which our present illustration was taken was grown in the collection of



Cattleya Warscewiczii.

Mr. W. Holland, Linwood, Moseley Hill, Liverpool. It is doubtless more familiar to Orchid growers as *Cattleya gigas*, a name it obtained in Belgium when first introduced in a living state, and before it was recognised as being identical with the *C. Warscewiczii* of Reichenbach, which had been discovered by the grand old collector, whose name it bears, as far back as 1848. It is a native of the province of Medellin, in New Grenada, where it is said to grow upon the branches of the forest trees, which are well exposed to sun and air, and which grow in the neighbourhood of water. It is one of the boldest-growing and most magnificent *Cattleyas* when in bloom that has yet been discovered, but it has not hitherto proved to be so free-

flowering as many others of the labiata section, neither is robustness a sure indication or guarantee of flower to follow, for I have seen very many more plants flower which had made medium-sized bulbs than I have of the very stout and robust form.

It has stout clavate pseudo-bulbs, which support a large single oblong-obtuse leaf, which is very thick and leathery in texture and deep green. The scape rises from between an oblong spathe and bears from three to five flowers, which measure from 7 inches to 8 inches in breadth and some 9 inches or 10 inches in length; sepals and petals soft rose colour or rosy mauve; lip very large; the sides erect, rolled over the column; the front portion large and spreading, crisp at the margin, and of a rich purplish crimson, flushed with violet in front, and bearing an eye-like blotch on each side of the throat, which is usually some shade of yellow. It appears to generally flower during spring and summer, but I saw plants of this species blooming last November. The variety *Sanderiana* is found in the district about La Palma, and affects the same positions as the typical plant. It appears to be free-flowering, and the large spreading front lobe is rich purplish magenta. Its treatment should be the same as that so often recommended for *Cattleyas* of this section, but it appears to enjoy a slightly higher temperature than most of them.

Orchid names.—I am indeed puzzled to know where we are going in this matter. One moment we are told that hybrid Orchids should have a scientific name manufactured from those of their parents; then, again, we are told that the hybrids imported from abroad are to receive a scientific name, but that the hybrids obtained in this country—most of which have had some amount of science brought to bear upon their origin—are unworthy of a name; but why is this? The natural hybrids are the result of chance, and are oftentimes inferior to their parents; whereas the hybridist endeavours to assist and improve Nature. I am still further puzzled to know what we are to do in the case of introduced plants which have been proved to be natural hybrids, a case in point being afforded by *Phalaenopsis Portei*, discovered and introduced by M. Porte, and named by the botanists *Portei*. Now, what about the same hybrid that has been raised by the Messrs. Veitch in their nursery at Chelsea? Must the British reared stock have an English name? Fancy having a beautiful Orchid in flower, perhaps the only plant of the kind in existence, and through the whim of the botanical world we have to say that it is *Cattleya Miss So-and-so* or *Laelia Mrs. So-and-so*. I for one am much pleased that this latter-day absurdity was not recognised by the president of the Royal Horticultural Society upon the occasion of his exhibiting that beautiful collection of hybrid *Calanthes* raised by him, and I should advise all raisers of hybrid Orchids to name them themselves, unless the botanists will drop their fads and be reasonable. There does not appear to me to be the slightest reason why one hybrid should

have a scientific name and the other a popular one, like that of a florist's flower, which an Orchid certainly not. I know this is not preaching in an orthodox manner, but if the botanist will not allow us to be orthodox we must become nonconformers.—A.

Paphinia cristata.—The members of this genus have increased in numbers considerably during the past few years. This particular species has been frequently imported from Trinidad to this country, but the plants never remained in a healthy condition for any length of time. Things, however, appear to have changed, and Mr. Williams seems to manage them as easily as anything else in his Holloway nursery, where this plant flowers regularly year after year. I recently noted several plants bearing their strange and beautiful blooms; they were growing in small wooden baskets, with a little peat and Sphagnum about their roots; the temperature of the house was hot and the atmosphere was well charged with moisture.—W. H. G.

Vanda tricolor.—The beauty of this Japanese Orchid is proverbial; its flowers are both strongly fragrant and richly coloured. There is a robust specimen at Gunnersbury House, from which Mr. Hudson has obtained nine spikes this season, the one now on the plant carrying ten flowers representing a very good variety; the sepals and petals are of waxy texture, white, freely spotted with a light brown colour, effective colouring being given by the rosy crimson lip. The plant is grown near the light; in fact, the top almost reaches to the glass, and it receives an abundance of moisture. The individual flowers are excellent for the button-hole, as they are of the right size, while their fragrance is delicious, perhaps a little too powerful. *Vanda tricolor* never bloomed so freely until given the large amount of light that it now obtains.

Odontoglossum aspersum violaceum.—*O. aspersum* is supposed to be a natural hybrid, having for its parents *O. Rossi* and *O. maculatum*. This theory appears to be correct, as the plant much resembles both the above-named species. The typical plant has roundish ovate pseudo-bulbs and strap-shaped acute leaves, which are some 4 inches in length; the scape is erect, bearing towards the top several flowers, each of which is some 3 inches across; sepals spreading, bright brown, irregularly marked with transverse streaks of white; petals creamy-white, transversely banded with brown at the base; lip sharply heart-shaped, white, serrate at the margin, crest yellow, column rosy purple. In the variety *violaceum*, which is now flowering at Cambridge Lodge, Camberwell, the portions that are white in the typical plant are here changed to mauve or light violet. It is a Mexican plant and thrives under the same conditions as *O. Rossi*.—W. H. G.

Lælia albidula bella is a superb form of this Mexican *Lælia*, which produces stronger spikes and larger flowers than the typical plant; the sepals and petals are creamy white, in some forms broadly tipped with mauve or rosy lilac, whilst the middle lobe of the lip is more or less suffused with magenta. It is an exquisite flower, and extremely useful for cutting during the Christmas and New Year's festivals, and, judging by the numerous specimens which I have seen blooming this winter, its merits are becoming appreciated. Some other beautiful forms of this species were introduced a few years ago by the Messrs. Low, of Clapton; I believe through their collector, Mr. Tucker, who had the good fortune to send home *L. anceps Dawsoni*. The forms of *L. albidula* to which I refer are *L. albidula brunnea*, with chestnut-brown sepals and petals; lip of the same colour in front, beautifully veined with purple towards the base, and crested with yellow. *L. albidula Tuckeri* is a superb form, the flowers being very large; sepals and petals beautiful amethyst, whilst the front lobe of the lip is rich purple, bearing two yellow spots in front of the crests. *L. albidula ochracea* is yet another form from the same batch, and all these varieties may appear in an importation. In the last-named variety the sepals and petals are pale brown; the lip is also of the same colour, the lateral lobes being streaked with purple, and the disc is white. It appears to be more crested than any other form. These varieties, as well as the typical plant, do not

require great heat, but their satisfactory management is yet a thing for Orchid growers to achieve. Naturally, the plants grow at about 7500 feet elevation near Oaxaca, in Mexico, and are sometimes subjected to a very low temperature at night, and even at times hoar-frosts descend upon them. This, however, does not prove that the plants would be benefited by such treatment in this country. The Messrs. Backhouse, of York, as also Mr. Horsman, of Colchester, appear to grow and flower the Mexican *Lælia*, and I believe in both places they are fully exposed to sun and light during the whole season, and at the same time have plenty of air. The two grand specimens of *L. albidula*, recorded in THE GARDEN (p. 575) as flowering in Mr. Sander's nursery at St. Albans, are perfectly marvellous, and I should imagine, fully equal to anything ever seen in their native country. I only hope these plants will continue in the vigorous health they now exhibit.—W. H. G.

Lælia peduncularis.—A charming compact-habited plant (perhaps more correctly named *L. rubescens*) which one seldom sees in flower; in fact, I very much question if many plants can be found in the neighbourhood of London. It is a plant with roundish, ovate, compressed, pseudo-bulbs, which become wrinkled with age. These bear upon their summit a single oblong, obtuse, leathery leaf, and from the apex of the pseudo-bulb issues a long slender spike, which bears upon its summit four or five rosy-purple flowers. Several nice examples of this plant were blooming at Christmas in the collection of Mr. Measures, of Streatham. *Lælia peduncularis* is a near ally of *L. acuminata*; indeed, it is difficult to distinguish them when not in bloom. It differs from *L. peduncularis* entirely in colour, the sepals and petals being pure waxy white; lip also white, the disc stained with lemon colour, and the throat deep purple. Its beauty and fragrance have obtained for it in its native country the name of Flor de Jesus. It is often called the white variety of *peduncularis*. Native of Mexico and Guatemala, requiring an intermediate temperature and the same treatment as *Cattleyas*.—W. H. G.

A new *Lælia* named *L. Gouldiana*, after Mr. Jay Gould, the well-known American, is now in flower in Messrs. Sander's Orchid nursery at St. Albans. To describe it intelligibly it must be compared to *L. albidula* in growth, its bulbs being long, slender, and furrowed, just as those of *L. albidula* are. The leaves are also long and narrow, and borne in pairs on each bulb; in short, one could hardly distinguish it from *L. albidula* when out of flower. The flowers, intermediate between those of *L. anceps* and *L. autumnalis*, are about the same size as those of the latter species, but the broader petals are, in fact, of the same size and form as those of *L. anceps* var. *Dawsoni*. The lip most resembles in shape that of *L. anceps*, but the black pubescence on the exterior of the ovary is unmistakably that of *L. autumnalis*. The colour of the sepals and petals is a very deep rose, intensified at the tips, while the labellum has the terminal lobe a very deep purple-crimson, with rose-tinted wings and a golden crest. It is therefore an extremely beautiful plant, and one might suppose it to be a natural hybrid, though the very distinct characters are sufficient to entitle it to specific rank. It originated, we believe, in an American collection, and Messrs. Sander have purchased the entire stock of it.—W. G.

SHORT NOTES.—ORCHIDS.

Cymbidium elegans.—This is a rare species of a genus which has of late years become very popular; in general habit the plant resembles *C. Mastersi*, and produces a nodding raceme of creamy white flowers, which are tinged with pale yellow on the outside, the lip being dotted with red. A plant of this species is now flowering in Mr. Measures' collection at Streatham, the spike bearing fifty-four flowers.—W. H. G.

Oncidium ornithorhynchum albiflorum.—This exceedingly rare plant is now flowering in Mr. Measures' collection at Streatham. In habit of growth it resembles the typical plant, but its raceme, which is much branched, is laden with sweet-scented flowers, which are pure white, with the exception of a tinge of

yellow on the crest of the lip. The flowers yield a perfume resembling that of *Heliotrope*. Like the original form, it thrives best in a cool house.—W. H. G.

Books.

HAZEL NUT CULTURE.*

THE cultivation of Hazel nuts, Filberts, &c., in this country is, unfortunately, not carried on so systematically as it ought to be, to judge from the large number of nuts annually imported into the United Kingdom, so that a book of this kind ought to prove of great service, but, unfortunately, being in German, it is of little use to most gardeners. This work on the different varieties of Hazel nuts and the methods of cultivating them goes into the whole matter very thoroughly. Under the term Hazel nuts the author includes all the various varieties of Hazel, Cob nuts, and Filberts in cultivation; each kind is carefully described and figured. This book is very well got up, is printed in good type in English characters, and is illustrated with seventy-six plates, which are boldly drawn and show the characteristics of the nuts remarkably well, even if their artistic merit is not very great. The nuts are figured both in their husks and separated from them, and are shown in every position, so that every part of the nut may be seen. The leaves, catkins, and female blossoms are also figured. Notwithstanding all the care in the descriptions and in the figures, some of the varieties seem to run so close to one another that it must be very difficult to distinguish them. This work is the result of more than ten years' observation and study; no less than eighty-seven varieties are described and figured; previous to its publication only a small proportion of the varieties treated of had been described. In the catalogue of fruits grown by the Royal Horticultural Society in their gardens in 1826, thirty-two kinds are enumerated; in Dr. Hogg's "Fruit Manual," published in 1844, thirty-three different varieties; and in Dittrich's "Systematic Hand-book," 1841, thirty-one are described. According to the author, the following species may be found in cultivation: *Corylus Avellana*, the true Hazel nut, of which there are nineteen varieties; *C. tubulosa*, the Filbert, divided into ten varieties; *C. maxima*, the Cob nut, into forty-six varieties; *C. americana*, rostrata, cornuta, humilis, the American Hazel nuts; and the following species, of which the author says he has practical knowledge: *C. intermedia*, mongolica, californica, algeriensis, and spicata. In addition to these there are six varieties of so-called bastard nuts, which are crosses between *C. tubulosa* and *Avellana* or *maxima*; among these are Jeeves' long seedling, the Northamptonshire Prolific, or Pearson's Prolific. After a chapter on the characters of the genus *Corylus* there follows one on the history and literature of Hazel nuts, in which the works of numerous authors from Pliny up to recent times are quoted. The next chapter is on the culture and propagation of nut bushes, in which full particulars are given. The last chapter is in the classification of the Hazel nuts. The descriptions of the various varieties are very methodically given under different headings, which are in larger type; the origin of the variety being placed first, then the synonymy, the books in which the variety is mentioned, then a description of the nut, its husk, the scar or hilum, the kernel and its skin, the time of ripening, the shrub, its leaves, the catkins, the female flower, the time of flowering. An alphabetical list of the authors and their works alluded to in the body of the work, and a full index with the plates complete the volume. Thus it will be seen that Professor Goeschke treats the subject in a thoroughly scientific and systematic manner, and has added a most useful book to the literature of Hazel nuts.

The "American Florist" pursues its wild career in the engraving of the most childish nonsense we have ever seen in the way of flower gardening. The cut looks exactly like a bit of confectionery that one sees in the shops for poor children. Oddly enough, this "magnificent piece

* "Hazel Nuts." By Prof. Franz Goeschke, of the Pomological Institute of Proskau.

of work" is seen at the lunatic asylum. The following is the *Florist's* description:—

Fancy bedding.—The accompanying cut represents a bed at the grounds of the State lunatic asylum, Danvers, Mass. Danvers is situated on the Boston and Main railroad, about twenty miles from Boston. The asylum buildings are very extensive, and are located on a hill commanding a magnificent view in all directions. The ground plan of this bed is a circle 23 feet in diameter. The extreme height to top of the dome is 17 feet, the dome itself measuring nearly 9 feet in height. An archway underneath (not shown in picture) is about 7 feet high. In addition to the two jets shown in the picture, there is also a fountain and basin in the centre of the dome. *The calendar which is seen on the front of the bed is made in the usual manner with such designs, the plants composing the letters being set in boxes, and these boxes changed daily to correspond with the day of the week and month.* Mr. Ettore Tassinari, the gardener who designed the bed, is an Italian by birth. He came to this country eleven years ago to work at his trade as a mason, and was employed for two years on the erection of the asylum buildings.

* * The italics are ours. We heartily wish Mr. Tassinari had been promoted as a builder of lunatic asylums. What may the subtle effect of such a degradation of natural forms be on the minds of patients of a sensitive sort? We hope the *Florist* itself or some of the other journals may do something to neutralise this floral farce which it calls "artistic" and "magnificent." Our readers would be amused at the cuts, but they are large and a shocking waste of space, otherwise we might reprint them as a laughing-stock.—Ed.

NOTES OF THE WEEK.

Apple Blenheim Orange.—This is my especial favourite, and for my own eating I prefer medium-sized, highly-coloured fruits. Ribston, Cox's Orange, King of the Pippins, Claygate Pearmain are all good here, but of all I prefer the Blenheim.—H. MARKHAM, *Mereworth Castle*.

Rosemary-leaved Gromwell (*Lithospermum rosmarinifolium*).—Messrs. Backhouse and Sons, of York, have forwarded a plant of this pretty hardy flower. It does exceedingly well in a pot, judging from the excellent condition of the leaves, their glossy green colour, and the profusion of flowers. It makes a woody growth, and the flowers are small, but of a beautiful turquoise-blue colour inside, the exterior approaching more a purplish shade. Such flowering plants as these are most welcome at this season.

Pear Winter Nelis.—I consider this one of the best Pears we have in its season here. It bears freely and is of good flavour, although the fruit is rather small. The following are a few of our best Pears: Williams' Bon Chrétien, Beurré Superfin, Louise Bonne, Marie Louise, Doyenné du Comice, Chaumontel, Glou Morceau, Beurré d'Aremberg, and Josephine de Malines. There can be no doubt that certain localities and soils have a very great deal to do with the fruitfulness and flavour of a great many Pears. Before coming to Guernsey I lived in Wiltshire, and I find that most of the early Pears were much better flavoured there than here, whereas later sorts grown here are the best.—E. PETERS, *Guernsey*.

Apple Cornish Gilliflower.—Mr. Coleman has been unfortunate with this Apple. Two bushels of fruit from one tree in twenty years is a very bad record indeed, and would make the most enthusiastic grower hesitate before planting it. Of course, with Mr. Coleman it would be given every chance of doing well. It is gratifying, however, to find that it succeeds well with some of your correspondents. Here, a bush-shaped tree, spreading about 15 feet, gave this year rather more than three pecks of good-sized fruits, and this is what I should call an average crop for the variety.—JOHN C. TALLACK, *Livermore, Suffolk*.

—I quite agree with what Mr. W. Coleman says of this Apple in *THE GARDEN*, Dec. 21 (p. 586). It is of good flavour, but it is very shy-bearing. I have a tree here that must be over twenty years

old, and all the fruits I have picked from it during the sixteen years I have been here would not amount to half a peck; therefore, I cannot consider it one of our best Apples.—E. PETERS, *Guernsey*.

—For flavour this undoubtedly is one of the very best of dessert Apples, but with regard to its bearing qualities I incline to think it is one of the worst; in fact, such has been the case here. For the past four seasons from a couple of trees which have been in bearing for several years I have not been able to gather more than three dozen Apples. Careful pruning has been most strictly adhered to, still, I can obtain no fruit, and for this reason I consider it is not worth growing here.—H. MARKHAM.

Azalea Deutsche Perle.—This splendid acquisition is gaining favour, as it was at once seen it would do when first brought before the public. It is now used for early forcing at Syon House, Isleworth, as Mr. Woodbridge highly prizes its massive, double, and pure white Gardenia-like flowers, that are preferred before those of the old narcissiflora and even Fielder's White, both two favourites that have held their own for many years. The variety Deutsche Perle, while having flowers of greater usefulness than those of the other kinds, blooms with freedom.

Odontoglossum Humeanum.—Few plants of this rare and chaste Odontoglossum at present exist in this country. It is now in flower at the St. Albans Nursery, where it has been in perfection several weeks. It first flowered in January, 1876, in the collection of the late Mr. Hume, of Winterton, near Yarmouth, after whom it was named. In habit it closely resembles *O. cordatum*, having fine conspicuous veins in the foliage, the same as in that species. The flowers are of the Rossi type, and measure 3 inches across, the sepals being beautifully blotched and spotted, as in *O. cordatum*; the petals are broad and creamy white, with bright chocolate blotches at the base; while the broad, flat lip is of a delicate rose colour.—A. M.

The Silver Wattle of Tasmania is again the glory of the great temperate plant house at Kew, where the tree of it, 30 feet high or more, resembles clouds of gold, and, one might add, silver, for the ferny foliage is white with the silvery glaucousness. From such big trees as these one can have an idea of the beauty of the Acacias in the Australian bush, though, perhaps, exposed to the weather, they are not so beautiful as these carefully nurtured specimens at Kew. This Silver Wattle (*Acacia dealbata*) is now quite a common thing in the London flower markets, as it is imported in large quantities from the sunny south, chiefly from the Riviera, at this season and onwards. The collection of Acacias at Kew is very large, and for the next month or two there will be a continuous succession of bloom.

A new Odontoglossum, a variety of *O. Alexandræ*, recently flowered at the nursery of Messrs. Veitch, of Chelsea. This may not be great news, as forms of this *Odontoglossum* are constantly appearing, generally showing a distinctness in the markings of the flower. But in the one under notice the whole of the bloom is washed with a kind of rose tint, such as we find in *Cattleya Lodigesi* or *Miltonia vexillaria*. It, however, lacks the rounded sepal and petal, fullness and substance characteristic of the finest forms of *O. Alexandræ*, so that its colour is the one great feature, and that a most noteworthy one. It would be almost an era in the history of the Orchid if a race of self-coloured *Odontoglossums* could be promoted; and now that it appears a start has been made, there is no knowing what advances the hybridist will make, as we already have had such marked successes produced by his skill.

Mahernia odorata, or glabrata.—This, though by no means a new plant (having been introduced from the Cape in 1792), seems to be a very desirable one, and having been, I believe, for many years lost to European gardens, its re-introduction cannot but be a source of pleasure to all lovers of pretty, easily-grown, and deliciously sweet-scented plants. I find young plants of this species offered among many other novelties in the cata-

logue of Mr. J. L. Childs, of Floral Park, Queen's County, New York, and the very moderate price at which it is quoted of 1s. each puts it within the reach of every lover of pretty flowers. Coloured portraits of this interesting plant will be found in the second volume of Andrews' "Botanist's Repository," plate 85, and in the ninth volume of the late Professor Morren's *Belgique Horticole*, plate 19. It is described as a very beautiful plant, of compact trailing habit, and produces from February to May a profusion of bell-shaped, golden yellow blossoms, which exhale a perfume strongly resembling that of the Jonquil, one plant being sufficient to perfume a room. It only requires the protection of a cool greenhouse during the winter months, but in summer it does best in the open ground. It is easily propagated by cuttings, which may be struck in a gentle hotbed in March, and quickly form good bushy plants. A constant supply of young plants should be kept up, as *Mahernia odorata* is short-lived, seldom surviving more than two years.—W. E. GUMBLETON.

Christmas Roses.—Just as "Shandon bells" of Prout pealed in the new year 1888 and rung out the old, the enclosed Daffodil, Ard-Righ, or Irish King, saw the light. It is my first bloom. Had I put the batch that this first bloom was cut from into a continuous temperature of about 50° night and day, like some of my friends in England, I should have had blooms a fortnight since. *Pallidus præcox* I already have sent you from imported bulbs. I also send specimens of *Helleborus niger* and its varieties, St. Brigid, Riverstoni, Mme. Fourcade, caucasicus, and Irish major.—W. B. HARTLAND, *Temple Hill, Cork*.

* * A most interesting gathering of Christmas Roses, the flowers fresh and as pure as snow. The Daffodil is a fine variety of the trumpet section.—Ed.

Carnations at Gunnersbury Park.—Amongst the many things that Mr. Roberts manages with conspicuous success are the Carnations, to which the greater portion of a house is devoted. The plants are of robust constitution, and show a moderate display of flowers, as almost as fast as they appear they are cut for decoration. It is at Christmas and in the new year that the flowers are so valued, as they are full, firm, and stand well when cut. There are only six sorts grown, and these are Empress of Germany, white, with rose-coloured flakes; Brunette, a fine rich maroon; Bright Phœbus, scarlet; Irma, one of the best, rose-pink; Tussock's Yellow, yellow; and Purity, white. To obtain flowers at this season, the cuttings are struck, not in the spring, as is the usual plan, but in the autumn. A moderate degree of heat is given to induce quick root-formation, and about this time the cuttings are potted off. During the summer they are placed in a cold frame, and when the flower-stems begin to rise, taken to the house where they are to remain during the winter.

Transactions of the Royal Horticultural Society.—"J. J." can obtain the "Transactions of the Horticultural Society," first and second series, complete, with coloured plates, 10 vols., half-bound in calf, 1792 to 1848, price £3 18s. 6d., at John Wheldon's, 58, Great Queen Street, Lincoln's Inn Fields.—RICHARD VESEY.

Cut flowers for winter.—Will any reader of *THE GARDEN* give the names of some easily grown flowers (for a garden where there is not much glass) to come in after Chrysanthemums? Large quantities of cut flowers, white ones in particular, and such as will bear packing, are required. During the months of December and January the supply does not equal the demand until the forced bulbs come in. Camellia plants take too much room.—C. H., *Gloucestershire*.

BOOKS RECEIVED.

"Bulletin of Miscellaneous Information." Colonial fruit (continued). Official copy. Royal Gardens, Kew.

Names of plants.—*Q. S.*—1, *Adiantum Sanctæ-Catherinæ*; 2, *Adiantum concinnum*; 3, *Adiantum cuneatum grandiceps*; 4, *Adiantum Luddemannianum*; 5, not recognised.—*Salford*.—Please send better specimens with flowers if possible.

Names of fruit.—*Ardee* and C. H.—Next week.

WOODS & FORESTS.

FORESTRY.

THE prices of timber, like those of other commodities, fluctuate according to the supply and demand, and I have found some classes of home-grown timber difficult to sell at any price. I have sold good Scotch Fir, Spruce, and Silver Fir at prices ranging from 4d. to 8d. per cubic foot. The timber was felled and prepared by the proprietor's men, but the purchaser had to take delivery from the plantations at his own expense. This same class of timber, cut up into scantlings of various sizes at the sawmill, I have supplied at 10d. per cubic foot, lathwood 5-16ths of an inch thick at 2s. 6d., half-inch boarding at 5s. 6d., three-quarter-inch boarding at 8s. 4d., and 1-inch boarding at 12s. 6d. per 100 square feet. Lathwood boards are sometimes cut up by contract at the rate of about 5d. per 100 square feet, and I have occasionally had it cut for less when the men were employed by the day at stated wages. A man will cut up about 1000 feet per day, and in cases where the work was done by contract and by working a little extra time I have known much more to be done. The price of labour fluctuates considerably in different parts of the country, and the prices quoted here refer principally to the north of Scotland. On estates of any considerable size, and where the plantations occupy a large area, it is an advantage for the proprietor to have a sawmill and some of his woodmen capable of working the same, by which means he can have his own timber cut up and prepared on the spot for general estate purposes. It is also an advantage when a proprietor can supply his tenantry with timber cut into scantlings and boarding of different sizes for building and other purposes at a reasonable price. By such a system of estate management the proprietor is enabled to utilise his timber to the best advantage, besides the great convenience thus afforded to his tenantry and others in the neighbourhood.

When I see an estate well stocked with fine matured timber ready for cutting, and yet at the same time when wood is wanted about the place for repairs or other purposes the order is sent to the wood merchant, I cannot help thinking that there is something wrong in the management of such an estate. There is, however, something to be said in favour of the utility of cutting down trees when they reach the years of maturity, and if the timber is not to be used about the place it should be sold to the best advantage. The item of carriage on newly felled rough timber is in many cases a heavy one, and often takes away all the profit. In cases where there is a sawmill on the property the trees should be cut up into such sizes as are suitable for the demands and wants of the district. In this way the slabs and waste of timber in the course of cutting it up have to be deducted from the cost of carriage, and if the wood is properly handled and allowed time to become dry, the weight, and consequently the cost of transit, are reduced. This item of itself would form a handsome profit to the proprietor, and as economy should always be a leading feature in estate management, owners of woodlands would only be consulting their own interests by acting on the lines thus indicated. When trees have attained their full size and are adding little or nothing more to their cubical contents they should be cut down and disposed of, as they are then not paying for the ground they occupy; and, besides, there is always the risk of such trees contracting disease, and indeed in many cases

heart-rot has actually commenced in some species before they have matured their growth.

In order to realise the best results, trees, like other crops, should be cut down when they are ripe. The timber of some species of trees when allowed to stand too long gets dry and short in the grain, and consequently defective in quality, and this defect I have noticed more particularly in the common Ash. No timber merchant or consumer will give the same price for old Ash timber, even although the trunks of the trees are clean and free of knots, that he will give for clean, well-grown trees of forty or fifty years' growth. Old Ash timber is used for a variety of purposes, but as it is wanting in elasticity it cannot be used with advantage for handle wood, so that young elastic trees are always preferred for that and many other purposes, and always command the highest price in the market. Trees are liable to be damaged by fracture during a storm; sometimes they contract rot in the centre of the stem, while others are affected with ring-shake, star-shake, and section-shake, any or all of which damage the timber to a serious extent, and consequently lessen its value in the market. It therefore follows that when trees are allowed to stand for an unnecessary length of time after they have attained their full size, the risk of loss is thereby augmented to a large extent, and this should always be guarded against by felling and disposing of them at the proper time. When cutting up old Scotch Fir trees in the natural forest I found the wood to be generally of a hard, firm texture, but not so elastic as that of trees of from sixty to eighty years' growth. Some of these old trees were likewise damaged by section-shake; whereas had they been cut at the proper time, the wood in all probability would have been perfectly sound. J. B. WEBSTER.

Pinus ponderosa.—Some time ago I gave in your paper a short description of the *Pinus ponderosa* as I saw it growing in the Kootenay Valley, British Columbia, and it may interest your readers to know that the opinion I then formed of it as a good timber tree is fully borne out by a report of my friend, Mr. Baillie-Grohman, who says, speaking of the Kootenay Valley:—

The prevailing Pine timber (*Pinus ponderosa*) is, so far as I can learn, nowhere else in Canada cut for commercial purposes, its geographical distribution being very limited. Our millwright and other experts pronounce the timber which this tree furnishes to be of excellent quality, almost as good as that of the famous white Pine (*Pinus Strobus*), which is getting so rare, and which fetches £12 per 1000 feet. I caused one of the largest trees to be cut down so as to get accurate figures. It girthed 20 feet 4 inches, and contained thirteen sound logs of 12 feet each in length, and would furnish 8600 feet of timber, so that this tree when sawn returns us something like £26 net profit.

—THOMAS BATE, Kelsterton.

Destroying tree stumps.—You have on more than one occasion fully described the American method of destroying tree stumps, viz., by boring an 18-inch hole with a 1½-inch auger, putting 1½ ozs. of saltpetre in the hole, filling up with water, plugging and leaving for say six months, after which time the plug to be removed, and the cavity filled with petroleum; the petroleum to be ignited, and the stump to smoulder away to the tips of the roots. All these instructions I have carried out to the letter, up to the point of lighting the oil, and nothing has happened beyond a very slight charring of the wood around the mouth of the hole. As I am experimenting upon some thirty or forty large stumps, I shall be greatly obliged to any of your readers who can not only inform me why I have so far failed, but who can also tell me what further steps are required. It seems to me that some important point has been left out in the instructions,

and that possibly the petroleum ought to be allowed a certain time to thoroughly permeate the wood. Failing any advice from your readers, this is what I shall try, for, having gone so far with the experiment, I do not like being beaten.—A. K.

DECLINE OF BRITISH FORESTRY.

THE Select Parliamentary Committee's report on the conditions and prospects of British forestry has lately been issued, and the general and unanimous conclusions arrived at are to the effect that our "woods and plantations" are neither sufficiently extensive, nor remunerative, nor in a satisfactory condition; that for climatic, social, and economical reasons, and especially on account of the importance of tree planting as an accessory to agriculture, our woodlands might be, and should be greatly extended—the subject being described as "one of great importance and well worthy of early consideration." Such is the report, condensed, as to the condition of British forestry, and as to what should be done in the future. What has actually been going on for years, and what is taking place at the present time under the long-continued adverse influences of depressed trade on the one hand and foreign competition on the other, I shall endeavour to describe. There is nothing more certainly proved than that climate depends, more than anything else, on the physical configuration and condition of the land. It is equally certain that the destruction of the natural forests has been followed quickly by drought in summer, greater cold in winter, and consequent sterility in the land. I need only refer readers to the carefully prepared transactions of the Scottish Meteorological Society to see for themselves how much the rainfall and temperature vary in different parts of the country not far apart, and due, so far as we know, wholly to the physical features of the land.

It is well known that trees encourage moisture and increase the rainfall. What I wish to show now is that our woodlands are being destroyed at a rapid rate, and nothing, or next to nothing being put back in their place, except here and there on a few large estates; that this destruction has been going on for years, and is likely to continue at an increased rate as trade is at present. I will not say how much the phenomenal seasons we have lately had have brought this about, but recent droughts have this peculiar feature about them, viz., that they do not consist of "dry summers" only, but have been caused by a light rainfall pretty evenly spread over the whole year—winter as well as summer—hence the low reservoirs not yet nearly filled—an unparalleled state of things.

According to the agricultural returns published by the Privy Council office for the ten years ending 1881, the average annual increase in our "woods and plantations" was only about 1¼ per cent., but as immense quantities of mature timber were sold during the same period, this gain, small as it is, is converted into a loss, and I have no doubt that I am well within the mark in saying that during these ten years our woods were not added to, but greatly reduced in extent. For practical purposes the Privy Council records are valueless. If we had even an approximate idea of the quantity of timber in the country, instead of the acreage, and if the returns gave the quantity of timber removed, as well as added, we could get at it better. And this is not the worst. The Privy Council records from 1881 till the present year give no increase whatever in our woods and plantations, while it is well known that millions of feet of mature timber, of which we have no record, have been cut during the same period. The quantity of timber that has been felled and sold during this period, I have reason to believe, is in excess of any quantity recorded in previous years. The turnover for years has been heavy because of the depression in land. This is especially the case in regard to small proprietors, numbers of whom have been compelled to sell their timber to meet the pressing obligations without putting a tree back in the shape of young plantations.

In Ireland, as might be expected, things are worse, according to the *Timber Trades Journal*

one of the best informed papers in the country. A few weeks back it stated that:—

From causes which it is not our province to discuss, owners of growing timber have in many cases realised it in vast quantities—in fact, have denuded their land without any regard to reforestation. This only shows how necessary it is, in a matter which affects the whole community, that some controlling power should be exercised in order to enforce a policy of reproduction. Timber trees are not like some products of Nature. The cornfield can be restored in a single season, but how different with the Oak and the Ash tree, which require for their full restoration almost a whole century. That timber is a material indispensable in the industries which minister to the wants of all, goes without saying; it is, therefore, on this ground alone, were there no other, incumbent on the authorities to enforce, if necessary, proper methods for reproducing those patriarchs of the forest which are removed with thoughtless inconsideration by many owners. Their removal cannot be objected to if judiciously carried out, but that which it is needful to object to is the utter disregard on many estates, in this as well as in other countries, to the necessity of replacing them. It is also just as injurious to withhold from the market timber that has become matured, and which after that period deteriorates in quality, as it is to strip the land of its timber and withhold the means of supplying future generations with the same material.

That the planting of forest trees in Ireland has been practically suspended for many years, owing to the unsettled state of the country, is a fact well known to foresters and nurserymen, and no one need wonder at owners disposing of what native timber they possess in order to pay their debts and meet their wants. In some cases the woods are the only security the creditors have got. In Ireland it is the large proprietors only that do plant or have planted, and if ever they withdraw from the country the much-talked-of "reforestation of Ireland" is hopeless, unless the nation does it.

In Scotland planting has practically ceased. As in Ireland, felling timber is the order of the day, where the cost of transport leaves the smallest margin, and even in such cases trade reports state that owing to the supply being in excess of the demand prices are kept to their lowest limit. In out-of-the-way districts forest windfalls, amounting to hundreds of thousands of feet of timber, have for years been lying rotting in woods, and cannot be given away, as the cost of carriage alone would exceed the price of foreign timber delivered at the spot. Trade reports for Scotland state that since the season for cutting down began, felling has been pursued with great vigour on many estates, as if it was who to be first in the market, and that we should shortly have more than a sufficient supply of all kinds of timber thrown on the market. So handicapped are the producers of home-grown timber by foreign competition and carrierates, that owners near railways and canals, and not far from consumers, can alone hope to realise a margin, and that margin, if measured by a debtor and creditor's account, would in few cases cover the cost of production. Favoured by much lower wages, cheaper inland transit, little or no expense of production in his natural or semi-natural forest, and by low freights and railway charges, the foreign timber dealer can underbid the most favourably situated timber grower in Great Britain, and at the same time deliver his timber in a prepared or partially prepared state, while owners of woods far from railways or wharves here cannot enter the lists on any terms. Is it to be wondered, then, when we consider that British forestry depends almost wholly on private enterprise, that proprietors should decline to invest money in planting trees that at the best of times yielded but slender return, and which now hold out no prospect of return whatever? If our woods are to be maintained, aid will have to be given to planters at the beginning or protection at the other end, because while timber-growing does not pay it is idle trying to persuade landowners to invest their money in such a hopeless enterprise. A word must be said for owners of large estates, and that is that to them almost wholly belongs the credit of having created what woods and plantations we have in this country. Were there any prospects of better prices, it would pay to allow healthy timber to stand; but no such prospect exists

while our market is glutted with foreign supplies of woodwork of all descriptions, and pressed by circumstances over which he has no control, the producer of British timber is forced to dispose of it for what it will fetch, hence the large turnover which does not denote good trade, but absolute depression of the most marked description.

One thing which presses heavy upon owners of English timber is the cost of transport by road and rail. The railway charges alone, in not a few instances, turn the scale in favour of the foreigner, as may be guessed when I state that a ton of timber shipped to Grimsby from Norway can be delivered at Sheffield for considerably less than it would cost to take one ton of English timber from Sheffield to Grimsby; and when you consider that the cost of felling and transport from our woods to the nearest railway station amounts on the average to about 10s. per ton, exclusive of loading and wharf charges, it will be understood how heavily handicapped the English dealer is under the most favourable circumstances, and why owners of timber in remote places are simply out of the running, and have no interest in caring for the woods they have, let alone adding to them. At one time our collieries used more English timber than any other, and it was nothing unusual for one colliery to buy whole falls of timber for its own use, but these days are gone by, and now foreign timber is almost exclusively used for props and other purposes, and in some collieries not a foot of English timber is admitted. Nor is it "raw material" in the shape of round timber of which the foreign timber consists, but of timber either prepared ready for use, as in the case of pit props, or partially prepared, as in the case of logs, planks, deals, &c.

Notwithstanding all these drawbacks, there is nothing left for the owners of English timber but to sell it when they can, especially timber that is mature and not increasing in bulk, or that is decaying, as much of it is, because the money so realised can be invested to better purpose. The only hope for better times the Select Committee's report holds out for home-grown timber is "the waste of forests elsewhere;" but that is such a remote possibility, and assumes such a want of foresight on the part of foreign Governments whose timber trade is of so much consequence to them, that I do not think such an argument is worth listening to. What kind of timber we should grow in the future to realise a price it is difficult to say. Such changes occur, and iron and steel are being so much used instead of wood; and foreign competition is blocking up every channel of demand in both the raw and manufactured condition.

With regard to the Forestry Committee's report, it really states nothing that was not known before regarding British forestry, while it has missed the real point in not pointing out that so long as timber growing depends on private enterprise, and there is no prospect of it paying, it is unreasonable to expect landowners to plant trees. Either the planter must have a premium at the beginning or protection at the other end, or else the Government must take the woods under its own care. Large landowners have planted much from philanthropical motives in the past, not a penny of the value of which they will ever get back, and they would be foolish to spend more under present conditions while they can invest their money to better purpose, while, should the nation ever take the matter up, it is to be hoped it will manage our woods better than it does the limited area of woods it has under its care now through its Parliamentary representatives. The most telling and sensible paragraph in the Select Committee's report is that written by Mr. Lascelles, the deputy surveyor, on the present unsatisfactory condition of the New Forest, managed by Acts of Parliament. He writes:—

There are to be seen, by the student of forestry, over 40,000 acres of waste land lying idle and worthless. But by Clause 5 of the Act of 1877 no planting may be done there. He will see several fine plantations of Oak, which are not only ripe and mature, but which are going back rapidly, and he will wonder why the crop is not realised and the ground replanted, till he is referred to Clause 6 of the same Act, by which he will see that the ground may not be cleared of the crop.

Last, and worst of all, he will see some 4600 acres of most beautiful old woods in the country, most of which are dying back, and steadily going to wreck and ruin. But here again absolutely nothing can be done. . . . It is sad to see them dying out, when all that is required to preserve them for future generations is to imitate the wisdom of those who made them at first, and by simply protecting, by enclosing them and removing dead trees, leave it to Nature to perpetuate them. . . . Those who framed the New Forest Act of 1877 desired to conserve these old woods, but their zeal seems to have carried them so far as to defeat the object they had in view; and I cannot but think that had forestry been a science commonly taught in the past, as I trust it may be in the future, owing to the result of this inquiry, no such clause could ever have found a place in an Act of Parliament dealing with woodlands. The object of the Act of 1877 no doubt was that the forest should be maintained in a state of natural beauty; and as the effect now appears to be to defeat this very object, the present condition of the forest demands the serious attention of the Government.

I need say nothing of the loss to the labouring classes by the backward state of our forestry. On all estates the woods have always employed a large number of both men and horses, &c., which, in turn, helped other trades, but all over the country these have been reduced to the lowest number, while in some cases I could name, not a man is employed. The woods are simply left to take care of themselves unless someone cares to buy when it (the timber) is sold standing at the purchaser's risk. —J. SIMPSON, Wood Agent, Wortley Hall, Sheffield, in the *Sheffield Daily Telegraph*.

Avenue in bad condition.—In THE GARDEN of December 24 (p. 594) "R. L. A." says:—

I shall be much obliged if one of your correspondents will be good enough to inform me where I can get information as to the proper treatment of our avenue here. The part through the wood is in bad condition, though successive layers of gravel have been applied to it. Ought it to be broken up and a layer of broken stones, followed by gravel, be used? Avenue roads through woods are often kept in a damp, wet state by the proximity of trees in the immediate vicinity excluding the rays of the sun and the free circulation of the wind to carry off surface moisture. Under such conditions, and in order to have a dry, firm road, it is absolutely necessary to have it properly macadamised with broken stones. Strip off the gravel on the surface to a sufficient depth, and apply a good coat of road metal; spread out the stones in a uniform manner, allowing them to be rather higher in the centre of the road than on the sides in order that the surface water may run off; replace the gravel removed, and press the whole firmly together by a heavy stone roller. Smooth water-worn stones should not be used for road metal, as they never grip to make a firm road, and are always liable to shift by the pressure of wheels. It sometimes occurs that roads are damaged by the presence of subsoil water underneath; this may be known by digging a few test holes here and there along the sides of the road, and if these should attract and retain any considerable quantity of water, it shows clearly that the subsoil is wet and requires draining. When such is the case, cut a drain right along the centre of the road, lay a tile pipe along the bottom, fill up with stones, and finish in the way recommended above. When tree roots extend across the road they should be cut through at the sides of the road where they occur otherwise they will soon choke the drain and render it useless.—J. B. WEBSTER.

—A correspondent complains of his avenue being in bad condition, and asks what to do. My avenue is in the same plight, and is caused by the roots of the trees growing out under it, and when the trees are disturbed by wind they shake up the ground and prevent the stones and gravel from keeping as hard and united as they otherwise would. Your correspondent must remove the roots, or put up with the evil.—T. W. BROWNING, Carass Court, Croon, Ireland.

What is the value of pond leaf-soil?—Can any of your readers inform me what manurial properties are contained in decayed leaf matter taken from a pond? I have some hundreds of loads already stacked, but a really experienced gardener informs me that it is of no value. The pond contained no real mud, only decayed leaves.—A. K., Bentley Priory.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE CHINESE PRIMROSE.

THERE is an exceedingly good coloured plate of this plant in the *Botanical Magazine* (tab. 2546), and we are told that "this beautiful acquisition to our greenhouses was received from China and first cultivated in our greenhouses by Mr. Thomas C. Palmer, of Bromley, in Kent." Mr. Palmer stated that it was generally considered shy in producing seeds, and remarked that impregnation was assisted by blowing into the flower. He treated it as a very hardy greenhouse plant, and found out that it was liable to rot off at the crown. The plant from which the drawing was taken flowered with Mr. Joseph Knight in the King's Road, Chelsea, in April, 1824. In 1825, a large collection of plants was cultivated at the Horticultural Society's establishment at Chiswick. The flowers were stated to be purplish crimson, the segments of the corolla being deeply notched and separated from each other. The above historical remarks are appropriate at the present time, when our greenhouses are gay with the exquisitely beautiful varieties which have been produced during the past sixty years from this Chinese species. The horticultural public were startled in the early weeks of the past year by the wonderful exhibition made at South Kensington by several of the leading growers, notably Messrs. Sutton and Sons, of Reading, who obtained no less than six first-class certificates from the floral committee of the Royal Horticultural Society. They had evidently been growing and working up the various strains for several years, as numerous plants were exhibited of each type. The blue-flowered varieties were very conspicuous, especially two semi-double kinds; perhaps the varieties exhibited produced flowers of as nearly a blue colour as anything we have yet seen; the colour is a purplish blue or lilac-blue; one variety had Fern leaves, the others had them of the usual form. Perhaps the blue varieties with well-formed single flowers would have most admirers. There were also double scarlet and double rose-coloured forms remarkable for their rich and pleasing tints.

The variety with white flowers named Gipsy Queen was quite distinct. It had well-formed flowers on a compact, handsome truss, the leaf-stalks being deep red, the leaves a rich dark green colour. I fancy the first white variety with red leaf-stalks was Waltham White, sent out by Mr. William Paul quite twenty years ago. It was propagated by cuttings or division, and may even yet be in cultivation. There was also a variety with large, well-formed, salmony rose-coloured flowers named Rosy Queen, of surpassing excellence. The white varieties have been greatly improved. At the February meeting there were no less than three distinct white varieties exhibited. White Perfection, from Messrs. Cannell, of Swanley, was certificated a second time by inadvertence. Purity, from Mr. James, of Farnham Royal, and Snowflake, from Messrs. Veitch, were examples of the highest point of excellence yet attained in the white forms with green leaf-stalks. In the last month of the old year some excellent varieties were exhibited by Messrs. Cannell and Mr. James. Bridesmaid, shown by the first-named, had very pleasing rosy pink flowers,

and was thought worthy of the highest award given for new plants. Messrs. Cannell have also greatly improved the crimson flowered type. Mr. James had crimson-flowered varieties and his usual fine white strain. Messrs. Carter, of High Holborn, also exhibited a fine collection in all the colours I have named, and it shows the esteem in which these beautiful winter flowers are held when so many of our best horticulturists vie with each other to obtain the richest and most varied forms, and who also grow them so well, for a great deal consists in the way in which the plants are grown. The largest proportion of them are raised from seeds, and when the plants have produced their flowers they are destroyed. But these plants can also be well grown from cuttings, and if they receive the proper treatment are very easily managed. A seedling plant is usually more vigorous than a propagated one, and when the seeds have been saved from the very best strain of plants, one may reasonably expect that, if many of the seedlings are not so good as the parents, some of them will be as good, and a few are likely to be superior. In fact, it is the pleasurable excitement of watching the flowering of the seedlings that is one of the charms of this branch of floriculture. The seeds may be sown at any time between the first week in March and the end of July. The latest sown will flower well in March and April, but of course it is as winter flowering plants that they are most valued; and they make a truly beautiful display, whether it is the rich red and crimson or softer shades of rose and pink, as well as the pure white forms. They are free-growing plants if they have some rich open compost, such as good loam, leaf-mould, and decayed stable manure. They dislike a high temperature, but a low, damp atmosphere in winter will cause some of the plants to damp off at the neck. Our plants intended to flower in March are now in a span-roofed house, the temperature of which at night is from 45° to 50°. They are showing their flower-buds and growing very vigorously. The plants are placed near the glass, and they receive plenty of light and air. This is quite essential to the development of all such plants as these; in fact, it is owing to the want of light and air that they succeed badly in small gardens. Many persons attend the exhibitions of flowers in autumn, winter, and spring, and see these Primulas far more beautiful than any they can produce in their own gardens, and feel rather disappointed, and wonder how they, too, cannot obtain similar results. The fact is, it is all a matter of house accommodation. The plants seen at flower shows may have been grown in a house set apart for the culture of Primulas only, and it is quite impossible to grow such examples in an ordinary greenhouse, mixed up, as they must be, with a miscellaneous collection of other things, and perhaps at a long distance from the glass.

The production of plants from seeds is easily managed, and the details of the work are known in every garden. Propagation from cuttings is not so well known, but the various operations are not difficult. During the early summer months is a good time to attend to this work, as then the old plants will have finished flowering. If they are also bearing seeds, propagation must be delayed until these have well ripened. Place the pots containing the plants on a shelf near the glass, and allow the soil to become quite dry, because if the juices of the plants are not well dried up the cuttings are likely to damp off. Each cutting should be cut clean across the stem under a leaf, and be laid out to dry for an hour before planting it in a 2½-inch pot, using fine sandy soil. This ought to be mode-

ately moist, as it is better not to water the cuttings for a week at least after they have been put in. Place them in a hand-light, plunging the pots to the rim in Cocoa-fibre refuse, which will aid in retaining the moisture. The lights must be kept quite close over them until roots have been formed; in fact, I do not care to water them at all until they are rooted, and as they will not all produce roots at one time, the rooted ones must be removed from the others and be placed in another hand-light where more air is admitted.

J. DOUGLAS.

CHRYSANTHEMUMS.

E. MOLYNEUX.

MANAGEMENT OF CUTTINGS.

THOSE cuttings inserted at the time previously advised will now be forming roots; in fact, the earliest and strongest-growing kinds will have rooted, and should be removed from the handlights to a position nearer the glass where the growth will become stocky. The plants previously having had more air given them will now bear exposure without flagging, but where they are removed direct from the handlights to shelves nearer the glass without first having had air given them to gradually harden the growth, the leaves are sure to flag. The varieties when they are well rooted should be thinned out in the handlights. The position they are to occupy is the next consideration. No better place can be found for them than on a shelf suspended from the rafters of the house; in this way the plants being nearer the top of the house more air is able to play about them than if they were standing on the stages. Any house from which frost is simply excluded answers well; in fact, they are much better in such a temperature, as growth is more steady and solid. If the house is not provided with shelves, temporary ones can easily be put up by suspending them from the rafters by means of strong wire and screws. The shelves may be about 9 inches wide, according to circumstances, and on each side there should be a groove to run the water off to one end, which can easily be done by allowing a slight slope in fixing the shelves; any plants standing underneath the Chrysanthemums are not then splashed by the water given to those overhead. When the plants are placed in this position great care will be necessary in supplying them with water as required. The pots being small and the plants receiving more air, they become dry sooner than when standing in the handlights; therefore, an examination of each should be made daily to ascertain if water is needed. On the shelves the plants should not be crowded. It is far better, instead of growing so many that overcrowding has to be resorted to, to confine the number to a reasonable limit; the leaves of each plant should not overlap those of its neighbour; in this way a free circulation of air can get amongst the plants.

Where the method of striking the cuttings in a cold frame singly in pots, or by pricking out the cuttings in rows in prepared soil is followed, roots will now be forming. The pricked-out plants being probably the first to show signs of new growth, air should be admitted to both batches of plants to dry up superfluous moisture, gradually at first, until it can be increased daily. At present, if the lights are tilted on one side, by supporting them with a wedge, say 2 inches thick, for an hour in the middle of the day until the leaves are dry, the plants begin to grow, when a little air should be given daily and throughout the greater part of the day. Any leaves which show signs of

damping should be removed, then with improved atmospheric conditions damping off of the leaves will be checked, and, as the plants make roots, will entirely disappear if treatment is adopted to prevent a stagnant atmosphere. Propagation of the large-flowered varieties, Japanese, incurved, reflexed, and Anemone-flowered kinds, will by this time be complete, except for bush or decorative plants.

When it can be seen that the cuttings previously inserted are certain to grow, no object is gained by allowing old stools to remain in the houses or frames where the room is perhaps required for other things. Such old plants are well adapted for planting at the foot of walls or in the herbaceous or shrubby borders. If this is the intention of the cultivator, any plants which have a profusion of growths springing from the base of each should have such growths thinned out to about eight on each plant. Any sheltered spot at the foot of a south wall, where a mat can be thrown over them in the event of frost if the frames are required for other things, will suit them, otherwise the cold frames are perhaps the safest quarters for the plants for two months yet; but where space is limited such means may be employed to preserve them safely.

Striking Chrysanthemum cuttings in heat.—I do not doubt that those who give directions for the striking of Chrysanthemums in unheated pits and cool greenhouses are recording their own practice, and state fairly the results obtained from it; but when I have made the attempt to strike the Chrysanthemums in mid-winter in cold houses, it has taken a long while to get the plants rooted, much longer, in fact, than the time stated by some growers to be necessary. For that reason I now place the cuttings in a warm house, and the plants are as leafy and give as fine flowers as those from cuttings struck in a cold frame. I always get the cuttings rooted as early as possible, but when the stock plants have to stand in the conservatory until near Christmas, the rising suckers often become so much drawn that it is a difficult matter to find any strong enough to make into cuttings. One often, in fact, has to wait until they get hardened. I now strike my stock in a temperature of from 55° to 60°, and all the cuttings it is possible to obtain I put in by the middle of December, and those that are taken after I strike on a good bottom heat. I am not, however, advocating the late propagation of the plants or the use of bottom heat when there is time to strike the cuttings without it; all that I wish to show is that there is not so much risk in striking the cuttings in heat as some seem to think.—J. C. C.

Sweet-scented Chrysanthemums.—Perhaps it is my love for the Chrysanthemum which makes me blind to its failings. But, certainly, I cannot see any great fault in its not being what is termed "sweet-scented," and I must enter my protest against its perfume being called disagreeable. I do not say it possesses such scent as we find in the Rose, Carnation, Violet, &c., but, strange as it may appear to "E. C.," in *THE GARDEN*, January 7 (p. 9), I, like Mr. Burbidge, think the scent of Chrysanthemums "sweet and aromatic." I often take a good long sniff at the blooms, especially when they first open in the autumn. To me there is something refreshing in their distinct perfume. But if not pleasant to everyone alike, it is not strong enough to be disagreeable. One may admire a house full of plants in bloom and not detect any particular scent, unless brought into close contact with them, or quantities may be placed in a room in a cut state without any inconvenience arising from an overpowering perfume, as is the case with some flowers. I do not think "sweet scent"—other than that which is characteristic of the plant—will ever be developed to any extent in the Chrysanthemum. True, there are a few varieties with a faint perfume, somewhat resembling that of Violets, but they would seem to have derived it by a freak of

nature, and from their being old varieties, one would suppose if "sweet scent" was to become one of the qualities of the Chrysanthemum it would before this have been developed in it more extensively than it is at present the case. Some of the single varieties are said to be "sweet-scented," but I think, as a rule, all single flowers are of stronger perfume than double ones.—A. BARKER.

ORCHIDS.

W. H. GOWER.

MICROSTYLIS.

THIS genus comprises a good number of species, about a dozen of which are in cultivation, although not generally known, but I have had numerous inquiries for them during the past season, by which I infer that the taste for handsome-leaved Orchids is reviving again. I venture to hope that we may again be able to feast our eyes upon the beauties of such plants as *Anæctochilus*, *Physurus*, and *Goodyeras*, as we were wont in days gone by. There are but few species of *Microstylis* which produce conspicuous flowers, but the majority of them, remarkable for the beauty of their leaves, are all dwarf in habit, and their general contour is so distinct, that they are well deserving more general attention. The cultivation of these plants is extremely simple. They all form more or less stem-like pseudo-bulbs, from which the leaves fall annually; the soil should be rough peat and Sphagnum Moss; the drainage must be ample, as they enjoy copious supplies of water during the summer; the atmosphere must also be kept well charged with moisture. Whilst thus treated they should be well exposed to light and air, but I do not think they like too much sunshine. The following are some of the principal kinds which have come under my notice, but long descriptions of them are needless:—

M. METALLICA.—I recently saw at the Messrs. Low and Co.'s Clapton nurseries quantities of newly-imported plants of this species, which fact affords an ample proof that whatever plants are in demand the nurserymen are always ready to import and supply the amateur with. The species in question attains the height of about 8 inches; the leaves are plaited, slightly undulate on the margin, the upper surface of a deep metallic-purple, whilst beneath this colour extends to the petioles, and is suffused with a rose hue. The spikes are erect, and bear a profusion of inconspicuous, curiously-shaped, pale pink flowers. It comes from Borneo.

M. PURPUREA.—The leaves of this plant are ovate, some 4 inches long and nearly 2 inches across, much undulated on the margin, the upper surface being rich, deep crimson-purple, while beneath they are of a reddish hue. The flowers are small, yellowish-purple. Ceylon.

M. JOSEPHINE.—In this we have a member of the genus which is deserving of cultivation for the beauty of its blossoms. It forms a rather stout pseudo-bulb, which is somewhat oblong in shape and about 4 inches high. The leaves are upwards of 6 inches long, the upper surface being of a bronzy-copper hue, the lower surface green. The scape is terminal and erect, bearing from nine to twelve globose flowers, which are nearly 1 inch across; the ground colour is yellow, suffused with a coppery tinge, and the lip, in addition, is blotched with reddish-brown. It comes from Sikkim.

M. LOWI is a plant with lanceolate-acuminate leaves, the margins much undulated, upper surface reddish-brown, bearing a broad central band of metallic grey, petioles and under side rosy-pink. The flowers of this plant I have not seen. It comes from Borneo.

M. CHLOROPHYLLIS.—The whole of the upper surface of the leaves of this handsome plant is of a rich bronzy-purple, bordered with light green, the

under side being dull purple, the flowers orange-yellow and purple. Borneo.

M. DISCOLOR.—An elegant, somewhat small-growing species from Ceylon. The leaves are about 4 inches long, upper surface rich, deep reddish-purple, narrowly bordered with light green. Scape erect, many-flowered, the flowers small, rich yellow, changing with age to deep orange. One of the most beautiful kinds with which I am acquainted. Other species of this genus are *M. bella*, *Wallichii*, *Rheedi*, *calophylla*, &c. W. H. G.

Vanda teres.—Many fail with this Orchid, but Mr. Roberts, at Gunnersbury Park, grows it with conspicuous success, and when it can be induced to give a profusion of flowers this is a grand species. The specimens are planted out in a bed formed by first placing in the bottom a layer of crocks, 3 inches or 4 inches in thickness, and over this a 4-inch layer of Sphagnum Moss. They are planted in this, and during the summer a night temperature of 75° is maintained, the day temperature varying, of course, with the sun heat, the thermometer sometimes registering as high as 120°. The lights are closed in the afternoon, and syringing is given to create a humid atmosphere, such as this *Sylhet* Orchid revels in. The plants are put out at the end of May and this season they have made strong, healthy growths over 2 feet in length, and this is due partly to the heat, and partly to the abundance of moisture. During the winter the plants are kept dry, but moisture is again supplied when the flower-spikes appear, and sometimes the blooming season commences in April, though the usual time as recorded in the books is from June to August. The plants are cut down every year to within about 15 inches or 16 inches of the base, and the small pieces at the bottom are inserted three or four together in pots and these supply the material for the bed for the following year. This practice, judging by the splendid results obtained, is worth following. It is simple, practical, profitable, which is not always the case when this *Vanda* is grown in pots. The plants promise to flower unusually well this year.

Grubs destroying Cattleya shoots.—I forward you some insects found on the young growths of *Cattleyas*, and from the destructive manner they do their work I think they will completely destroy every plant. Each young growth when about an inch long swells at the base, gets very pointed at the top, and turns reddish brown. I have opened several growths, and have found from five to ten insects inside, they having completely scooped out the centre. Hoping you can give me some information respecting it and the means to eradicate it.—F. NEWMAN.

** In reply to the enclosed from F. Newman, the insects you find on your *Cattleya* shoots are not those which have done the mischief. The shoots have been attacked by grubs, which in their turn have been attacked by the parents of the little parasitic flies which you have found. They (the parents) laid their eggs in the grubs, and the little grubs which were hatched from these eggs fed on the victim in which they were placed, and in due time destroyed it, and underwent their transformations and became perfect insects. They are very nearly allied to the ichneumon flies. If you would send some more shoots I might be able to find a grub, and could then advise you better.—G. S. S.

SHORT NOTES.—ORCHIDS.

In the January number of *L'Orchidophile*, a creditable coloured plate is given, representing *Cattleya Harrisonæ* splendens and *Oncidium flexuosum*, both highly-coloured Orchids.

Dendrobium endocharis.—This is one of Mr. Seden's hybrids, and the result of a cross between *D. aureum* and *D. moniliforme*, its first-named parent being now one of the most notable of *Dendrobiums* in bloom. The flowers are borne on the deciduous stems in pairs, and have a surprising delicacy of appearance; the sepals and petals white, and the lip relieved with a distinct mauve-coloured base. It is altogether a beautiful flower, and its delicious fragrance, as sweet and powerful as that of Violets, adds to its charms.

FLOWER GARDEN.

A COTTAGE GARDEN.

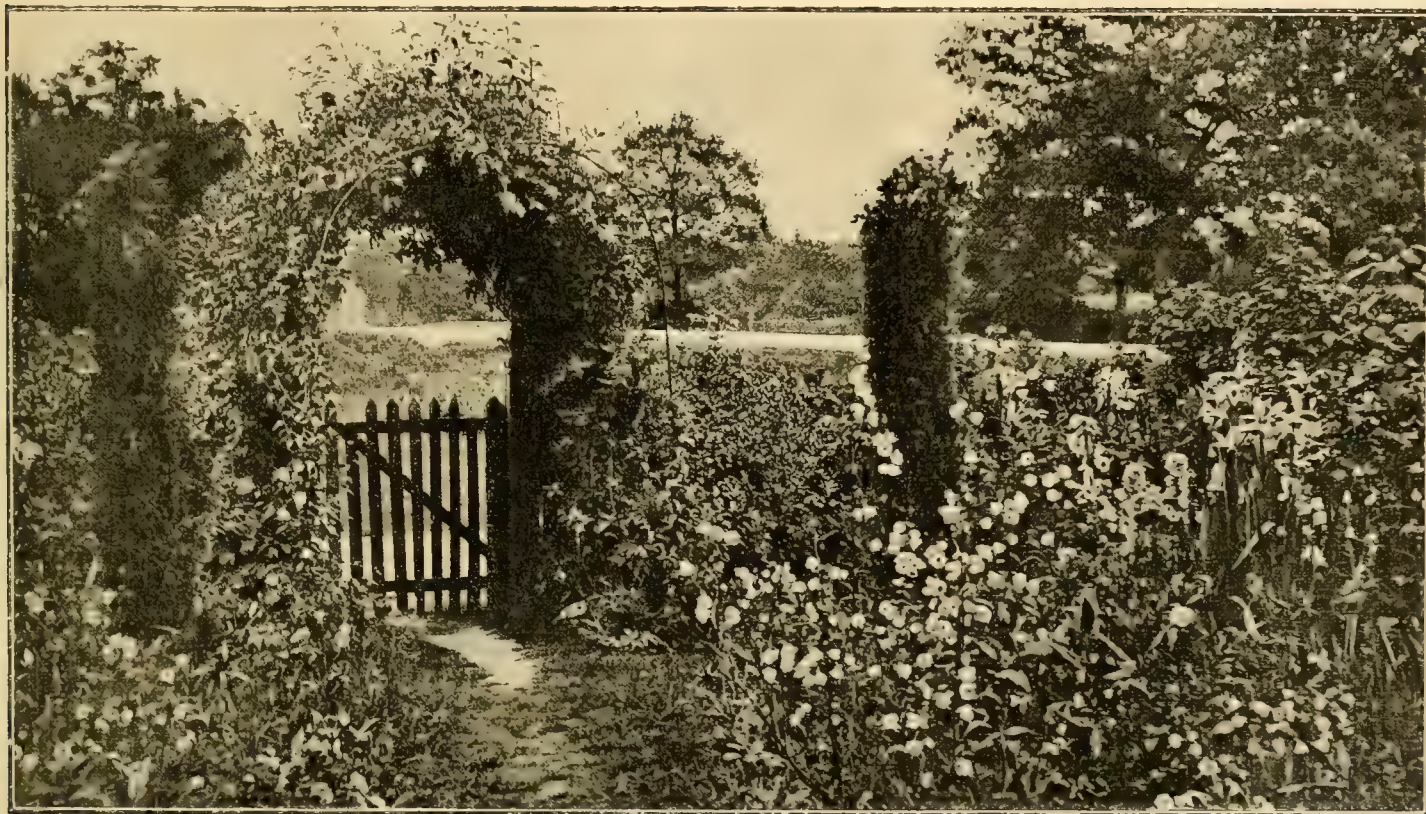
HAPPILY, such a wayside garden as that here engraved is not uncommon in our southern counties, though few can show such a wealth of flowers as crowds this one in every part. The pathway from the road to the cottage has its masses of Bellflowers, Larkspurs, and Giant Iris, while other parts have regiments of white Lilies and seas of French Poppies, and many other good hardy flowers. It is the dwelling of an artist, who understands the value of good flowers in simple masses and of not wasting labour in needless over-trimness. The groups of flowers run one into the other with that

or August, according to the weather. There they remain all the winter and flower during the following summer. They grow into large plants in a heavy soil in one of the most exposed parts of Oxford, and carry heads of bloom as yearling plants that would, I think, astonish even Mr. Murphy. This is not "growing indoors from the seedling state." Nor can a cold frame in the open air be rightly termed "indoors." It is true, my rooted layers of Carnations of the past season are in pots in a cold frame on a north aspect, but the lights are always tilted 3 inches or 4 inches in the coldest weather, so as to admit a free circulation of air, and the soil about the roots becomes frozen as hard as it does in the open ground. What I do is the practice of other Carnation growers. There is no "coddling" in this, nor are the plants made tender thereby; they are protected from rain—that is all. I could show Mr. Murphy scarlet, crimson, and

varieties of bizarre and flaked Carnations doing as well in the open ground as could be desired, and producing fine, free heads of bloom. Carnations and Picotees can no more be expected to grow in an ungenial soil than any other plant. When I plant out in spring I have to take out the soil in my garden and replace it with a good yellow loam, and then the plants do well; but unless I did this, half of them would be dead by July, simply because the ordinary soil is stony and altogether unsuited to this class of plant. Why cannot Mr. Murphy be content to grow Carnations in his own way, leaving myself and other growers of the flowers to grow ours in our own way without insinuating that thereby our plants are made "tender and coddled?"

R. DEAN.

** We do not think there is any advantage in discussing this further. Most of the florists have been in the habit of growing their plants under con-



Cottage garden at Mr. Hammond Jones's.

happy look of being there by their own choice rather than by intentional design. J.

CARNATIONS.

I BEG to say in the most emphatic manner that I do deny Mr. W. J. Murphy's statement that "the tendency is to grow the best bizarres, flakes, &c., indoors from the seedling state, so that in this way what is naturally a perfectly hardy flower becomes more or less tender and coddled," because it tends to leave an impression upon the minds of your readers that "the best bizarres, flakes, &c." are wintered in greenhouses. What other construction can be put upon the term "indoors?" It is against this incorrect impression I protest. One of the largest raisers of seedling Carnations and Picotees in the United Kingdom is probably Mr. E. S. Dodwell, of Oxford. In early spring he sows the seed in drills in a raised cold frame, and they are twice transplanted into other cold frames, so as to get the seedling plants as large as possible previous to planting them out in the open ground in July

pink bizarres, and representatives of all the divisions of flakes as hardy in constitution and as vigorous in growth as I imagine any are in county Kilkenny. Look how many of the older Carnations and Picotees of years ago exist, and grow as vigorously as when first sent out. Take S. B. Admiral Curzon, sent out in 1845; S. B. Mars, sent out in 1873; C. B. Lord Milton, sent out in 1836; P. F. Mayor of Nottingham, sent out in 1857; P. F. Squire Meynell, sent out about 1833; S. F. Sportsman, 1855; R. F. James Merryweather, 1869. Picotee Red E. John Smith, 1864; Red E. Mrs. Dodwell, 1854; P. E. Mary, 1866; P. E. Mrs. Summers, 1866; Rose E. Edith d'Ombraïn, 1873; Rose E. Purity, 1868. Now these varieties have been grown year after year from layers, and yet they are generally as good in constitution as when first sent out. I am opposed to Mr. Murphy leaving false impressions on the minds of the readers of THE GARDEN, and thus it is I have called in question a statement he made evidently for lack of more accurate information. I may add that I have seen in different parts of the country where the soil suits them beds of the finer

ditions that are not likely to lead people into the belief that the Carnation is perfectly hardy. We once remember seeing Mr. Dodwell's Carnations in bloom in a very comfortable greenhouse. There is not the slightest objection to the plants being grown in that way; but we have over 1500 healthy layers, in a cold soil, fully exposed, and up to the present time have not lost one. Those who have seen most of our flower gardens about London and elsewhere in England must have seen how little has been made of the Carnation as a garden plant. Certainly there are soils that do not suit it, and there it should not be grown. In other soils, however, it thrives in an extraordinary degree, even growing into bushes. In a larger number of cases the soil, if not specially favourable, is quite suitable for the ordinary culture of the Carnation, and layers winter well if saved from rabbits and hares. —ED.

Iris reticulata in pots.—With just a little assistance this Iris can be had in flower by Christmas, at which time the beautiful rich purple-coloured

blossoms make a goodly show, and from their distinct character at once attract attention. The temperature only of a greenhouse is necessary to have it in flower by the end of the year; whereas the more commonly grown bulbs, such as Tulips, Hyacinths, Narcissi, and such like, all require a good deal more heat to have them in bloom at that time. Imported bulbs flower well, and about half-a-dozen in a 5-inch pot make a fine display. After flowering they may be hardened off and then planted out.—T.

THE GLADIOLUS IN 1887.

IN resuming my notes, I would say that my mind has been considerably relieved with regard to one point on which I expressed a doubt—the formation of the large, fleshy roots from the new bulb, which I thought might be attributed to the corms being left so long in the ground—for I sent one of the bulbs before it was cleared off to Mr. Burrell, a very close observer and a good grower, and he assures me by saying that if the bulb be sound the pushing forth of these roots will be no detriment, and that if I had lifted the corms in August I should have found them then, and that in fact as soon as the new corm is formed it begins to push out these roots for its own maintenance, so that as I am quite satisfied in other respects with the condition of my roots, I shall continue to carry out the plan of leaving them longer in the ground than I have been accustomed to do.

Circumstances prevented me from being at either of the exhibitions when Gladioli were shown in the metropolis, the Crystal Palace and the Aquarium. I regretted especially not being present at the Palace, for besides seeing the fine collections of Mr. Campbell and Mr. Burrell, I missed the opportunity of a pleasant "crack" with some of my Scotch friends. This disappointment was to some extent lessened by the fact that I had paid a visit to Mr. Campbell at Gourrock during the summer and seen his beds, and I am very much surprised to find what he can do with his collection; he grows about 10,000 bulbs, and although this may seem to many an enormous quantity, yet when an exhibitor has to put up 150 spikes, and it is borne in mind that the varieties bloom at such different periods, it is by no means excessive; all exhibitors know how difficult it is to get plants or cut flowers just up to the mark at the time wanted. As I was not present, I can pronounce no opinion on the merits of the various exhibits, and can only imagine from what I have seen before, that while Mr. Campbell's had the longest spikes, Mr. Burrell's had more colour and substance; the fault that I find with all the Scotch growers is that they shade so much, with the result that their flowers are very much bleached; indeed, some that I have seen were hardly to be recognised, so much had the colouring been eliminated. Neither did I see those of Mr. Smith, of Paisley, exhibited at South Kensington, and which received so much praise; but I can well believe that they merited all that was said in their favour, by the specimens of his culture I saw at Edinburgh last year. I do not forget one spike of Mabel which he had there, although it had the same defect through overshadowing—a deficiency of the delicate colouring which that flower exhibits in ordinary circumstances; and, however long and symmetrical a spike may be, I think that some of its value is taken off when it is deficient in colour. I have no doubt that the greater light which we have in the south does away with the necessity of so much shading; where it can be used in moderation it is a great help to them, as preserving them from the influence of weather, heavy, driving rains and wind.

In writing of the new varieties sent out in the autumn of 1886, I confine myself to those which come from Souchet. I have tried Berger's more than once, but never found them to be worth anything, and as our demands now are more exacting than they used to be, we are wont to criticise more sharply as to shape, length of spike, and substance. There may be occasionally a variety, such as Ali, which, although it fails to satisfy our requirements on these heads, yet for the quaintness of its colouring must be retained. Nor are we tolerant now of

flowers which show large gaps in the spikes between the individual blooms, nor of those which only open three or four blooms at a time. Again, small flowers will not be recognised. Although I think that size is about the last element to be taken into consideration, still it is an element; and while I think a large and somewhat flabby flower is to be rejected, yet, on the other hand, I do not like to see too small a flower on a stand. They ought all to be much on the same model, although varying in colour. Thus, beautiful as Meyerbeer is, it must give place soon to Grand Rouge, which is very much like it; while Norma, although very lovely, is too small for our present standard; while Madame Desportes, although still one of the purest whites we have, is unfortunately a delicate kind.

As far as I can judge, the best of all the new varieties of 1886 are—

Enchantresse.—This Mr. Campbell describes as a head and shoulders above all the new varieties; the flowers are very large (described in the French catalogues as *énorme*), pale satiny lilac on a white ground, with violet-red line on one or two of the divisions; plant tall and altogether fine.

Dictateur.—Long, compact spike, ivory white flushed with red in the centre, and colour of petals pale lilac with red-carminé flakes. This is a very late variety, too late to be of any use for exhibition, and only valuable for the garden, and as giving in favourable seasons a late flower.

Fra Diavolo.—A good long spike of closely arranged orange-red flowers, flamed with violet-red on the edges of the petals, large pale yellow spot in centre.

Magicien.—Compact spike of large flowers, the edges of the petals somewhat fringed, centre of flowers passing into pale rose and white.

Magnificus.—Plants tall, grand spike of large flowers, ground cinnamon-red, large white spot with violet border.

Minos.—Long, beautiful spike; large salmon-red flowers, largely flamed and mottled with cerise-red, amaranth bands and centre; superb plant.

Pasteur.—This is a flower somewhat in the style of *Fra Diavolo*, but superior to it; a beautiful rose colour with a slight tint of orange, with large white spot in the centre; the buds as they open are of an intense scarlet colour. This and *Enchantresse* are likely to prove the cream of the set of 1886.

Pollux.—This I have not seen, but as it is described as a dwarf plant I do not suppose it will gain much favour with us; the flowers are described as *assez grandes*, which I take to be an euphemistic form for small; colour lively carmine-red.

Sirius.—A long spike of numerous flowers, bright rose flamed and striped with carmine with a purple spot.

Splendens.—A long spike of cinnabar-red flowers, with pale yellow spot on one or more of the petals.

I have seen some of the French bulbs of this autumn; they are sent over in their usual sound and healthy condition, and I imagine, as has been suggested to me by Mr. Burrell, that they are spawn, and not bulbs grown from the old corms. This would account a good deal for the difference in them. Although some of these are highly priced, yet they do not continue so in the list; thus, *Thérèse de Vilmorin*, a fine variety which came out at 20s. and was last year priced at 12s., has come down this year to 3s. Now is a good time to procure them, and the parcel post gives further facilities for obtaining them. DELTA.

SHORT NOTES.—FLOWER.

Winter flowers.—The Algerian Iris (*I. stylosa*) is permanently planted in a dry sunny south border, and not over-fed; the longer it remains in one spot the better. I am sending you herewith my first bloom in Daffodils, viz., *pallidus præcox*, and the *Megasea*, of which I send you a bloom, will be grand under glass for the next month. The *Hellebores* are beautiful.—W. B. HARTLAND, Cork.

Iris ruthenica.—What has become of this little grassy-leaved, ever-blooming Iris? I have not seen it referred to since a wood engraving appeared in *THE GARDEN* years ago, at which time it was grown at Tooting by Messrs. Barr and Son. Can any correspondent tell us where this pretty little species may now be obtained? and if anyone is more than usually

successful in its culture, it would be most interesting to hear of its likes as to soil, &c. Perhaps Messrs. Barr or Mr. Ware can enlighten us as to its native habitat or culture.—F. W. B.

NOTES FROM SHIREHAMPTON.

IRIS STYLOSA ALBA bloomed in the greenhouse before Christmas; the roots were received from Algiers in September. Seed received at the same time I distributed, and should be glad to hear if it has germinated. I have above six plants from seed sown in October. Slugs are very partial to it. *Iris stylosa* in the garden is full of bud, and at Kings-weston garden both blue and white kinds have been full of bloom, planted against the wall of a warm frame and in rich leaf-mould. I do not believe in the starving treatment of this Iris. Would some one say if they have tried, and with what success, cutting off the old leaves? I have a great quantity of one-year-old seedling *Iris reticulata*; when should they be divided? Some are in a box, some in a border. *Iris fimbriata* is a difficulty with me. It grows very freely, but will not flower. Should it be kept dry in the winter? I divided my plants last May. Looking over Gladioli last week, I found a large number rotten. The frost caught them when dug up at the end of November, and left out for a night; it is a sad lesson. Correspondents speak of cutting big bulbs in two. I take it this should only be done when there are two shoots, and only immediately before planting. *Ixia*, *Sparaxis*, *Babiana*, and *Tritonia* are very forward on a warm border under a light, planted in peat Moss manure and ashes. I have some interesting *Crocus* seedlings, *Imperati* crossed with large white coming up very freely; whereas large white crossed with *Imperati* has hardly come up at all. Another interesting cross is *Crown Imperial Yellow* crossed with *Fritillaria Meleagris*. These are shooting up strongly—eighteen months old. Tree *Pæonies* in pots are making some large buds, but many buds drop off, and so often the stock (*officinalis*) makes a strong growth and the graft does nothing. Ought one to cut off all the growth made by the stock of *officinalis*? Some Tree *Pæonies* from Japan out of doors are evidently grafted on Moutan roots, and these also throw up shoots; but I do not mean to cut them off unless otherwise advised.

Sunnyhill, Shirehampton.

C. O. MILES.

FLOWER GARDEN NOTES.

WHILST avoiding a strict calendrical form of writing, it is my intention that the notes under this heading shall mainly be of a seasonable description, in which form they will probably prove helpful to readers as reminders of work to be done at certain times. The words "flower gardening" will be interpreted in the widest sense, and no branch of it shall have a monopoly of attention. I begin with

CHRISTMAS ROSES (*Helleborus*).—We have the common (and best) white variety in fine flower, but of course in warmth. I have two sets of plants that are forced in alternate years. The plants now flowering will, as soon as the bloom is over, be hardened off and planted out in rich soil, and on a partially shaded border; an easterly aspect is best. They will remain here till November, 1889, when they will be lifted with good balls of soil attached and having been potted and placed in warmth will be in bloom in about three weeks. The plant that were forced last year and then planted out are now throwing up their flowers freely in the open border, and as they are protected by handlights from severe frost they will afford a long succession of white flowers at a season when they are scarce. It should be added that the plants are best increased by division at the time the forced crowns are planted out. If split up at the time of lifting for forcing, at least two-thirds of the flowers would be sacrificed.

SUMMER-FLOWERING CHRYSANTHEMUMS.—Whilst admitting that to have *Chrysanthemum* flowers in August seems thoroughly unseasonable, I think, from the experience of the last two summers, that it is desirable to have them for flowering during that and the following month in

the open air. Early in September, 1886, I went on a visit to an old friend of mine, Mr. Turton, gardener to Mr. John Hargreaves, Maiden Erlegh, Reading, and on entering the kitchen garden the grand display this section of *Chrysanthemums* made in the herbaceous borders caused me to exclaim, "How magnificent! I must really grow these plants largely; give me cuttings and tell me when you strike them and when you plant out." My wish was complied with, and the result was that last August and September our herbaceous flower-beds and borders were even more gay with flowers than they are when the collections of herbaceous plants are in perfection. I need hardly say that I intend to plant them more extensively. This is the season for their propagation, and here it should be added that, though old plants left in the borders flower very freely, the flowers are so small in comparison with those produced from spring-struck plants, that never from choice would I allow an old plant to stand a second season. Put in cuttings now, or as soon as they can be had; pot off as soon as well rooted, and grow them on until in 5-inch pots, from which plant them out in May. As soon as established in the ground pinch out the points, then leave the plants to take care of themselves in every respect, except to water them if the weather is dry. You may then expect your reward in the form of a beautiful display of flowers in August and September. The following are the best of the varieties we grew last year: *La Petite Marie*, small flowers, but produced in great abundance, the plant having a dwarf, sturdy, branching habit, which makes it very suitable for front parts of borders; *Lyon*, which has the flowers large, reflexed, and rosy purple in colour, extra good. *Mlle. Jolivart*—This variety is what I term the most refined of all the summer-flowered varieties. The flowers are medium-sized and pure white, with very close, wide petals, deeply reflexed; they continue a very long time in perfection, and die off with a beautiful rosy tinge, so changed, in fact, that anyone who had seen the flower in the height of its beauty and did not see it again till nearly over would declare it to be another variety. *Nanum* is another excellent dwarf white variety, small, but pretty, and is most useful for cutting for glasses or table decoration. *Mme. Desgrange*, a yellowish white-flowered Japanese variety, and the sport from it, sometimes called *G. Wermig*, but better known as golden *Mme. Desgrange*; the flowers, being a bright canary yellow, are both invaluable for autumn flowering in the open air. I do not exaggerate when I say that from about the last week in August to the second week of October we cut dozens of spikes on two or three days of each week, and yet at the end of the season the plants showed but little signs of the severe cutting they had undergone. *Précocité*, *Golden Fleece*, and *Mr. W. Piercy* complete the list of those I can strongly recommend out of the large numbers we had on trial last autumn.

SHRUB-PRUNING.—We have recently been frozen out, and it is well for some branches of the work of a garden that bad weather does occur sometimes, or work that ought to be done would probably never get done. Of course, where an unlimited staff of hands can be employed, the superintendent-in-chief need never have qualms of conscience in respect of the neglect of any kind of work. Taking advantage of the recent dry frosty days, we have been able to get through a large amount of work. Some old *Hollies* that have not been trimmed for three years required a large amount of cutting to make them shapely, and after pruning the longest of the main branches the pruning shears were used to take out the points of others, and so induce a thicker growth. On more formal and regularly pruned specimens that occupy prominent positions on the pleasure ground, we never allow shears to be used, but a knife only, and if the work is more tedious it gives greater pleasure. It is the same in respect of *Portugal Laurels*, of which we have many good round-headed specimens, and some immense bushes on the outskirts of the ground. These we have been heading down rather severely, because they were getting naked at the bottom. *Rhododendrons* grow anyhow and everywhere in the soil of this district, and need annual curtailment to keep

them in form and within their allotted spaces. When time permits, we prune these immediately after they have done flowering, but what we are unable to get done are left until such an occasion as this. As to the season for shrub-pruning, I have come to the conclusion that it may be done all the year round. I do not say that there is not a best time, as for most kinds there undoubtedly is, but, having pruned all the shrubs we have at all times of the year as opportunity offered without the least perceptible signs of injury to any, I can confidently assert that such work may be done all the year round.

A PERMANENT FOLIAGE BED.—The bed in question was arranged without a thought that it would ever be worthy of this designation. Its position is a slope facing east, and the place it covers was previously occupied by a large *Larch*, which becoming decrepit was cut down, and as it was only possible to take out the uppermost part of the roots lest a certain embankment should become unsafe, it was decided to place good soil over the roots and connect it with the said slope or embankment, on the level of which were, and still are, *Hollies*. The entire space was planted with evergreen shrubs, upright, bushy, and trailing. The upright, or standards, in the arrangement are the *Silver-sprayed Lawson Cypress* and its dark green congener, *C. erecta viridis*, *Retinospora squarrosa*, and *Retinospora plumosa aurea*. The bush forms are *Tree Box* (green and variegated), *Pernettya mucronata*, *Retinospora filifera*, and *Berberis aquifolia*. The undergrowth, or plants used for covering the entire slope, are the green and variegated *Periwinkles* (*Vincas*), *Cotoneasters* and Japanese *Honeysuckles*, the whole presenting at this time of year as perfect a harmony of colour as the most fastidious colour artist could wish to see. *Cotoneasters* and *Pernettyas* are well covered with berries, and the foliage of the *Berberis* is a shining coppery bronze; these high colours give character to the entire arrangement, as they appear so much brighter by the setting of deep greens, greys, and whitish yellows of the other plants. The entire arrangement, accidental though it was, is worthy to rank on a level with the best summer foliage bed that was ever designed. W. W.

TARDY GERMINATION OF SEEDS.

THE irregular and uncertain manner in which many kinds of seeds germinate is often the cause of much loss. Seed-pans that would by the exercise of more patience yield a quantity of young plants are through lack of that virtue consigned to the rubbish heap. It has often puzzled me why seeds gathered at the same time and grown under identical circumstances should exhibit such diversity of germinative power. Last summer I sowed some boxes with hybrid *Columbines*, and from the appearance of the first young plant quite two months elapsed before all the seeds germinated. Had I removed the boxes to a more airy situation and allowed the soil to get dry on the surface when a sprinkling of plants appeared, I should only have hundreds where there are now thousands. This I should probably have done had I entertained any doubt as to the quality of the seed, but it was home-grown, sown as soon as ripe, and had the appearance of being perfectly good and mature. I therefore concluded that if they did not come up, it would be my own fault. *Primroses* exhibited much irregularity in this respect. In their case the young plants continue to show themselves for a month or six weeks after the appearance of the first plant. Two-thirds of the crop will be lost if the soil is allowed to become dry during that time. I generally sow my *Primrose* seed in the open ground, as, requiring a number of plants, I cannot give it frame room. The plan that I have adopted, and that I find answers well, is to cover up rather thickly during the daytime with old mats, and as soon as the young plants begin to appear take them off at night. This keeps them from becoming drawn, and the soil is kept from getting dry. All seeds that are of irregular germination are best kept in a north frame, as then more light and air can be given and the surface soil can be maintained in a constantly moist condition. The difficulty lies in giving sufficient air to keep the

young plants that have come up from spoiling whilst maintaining conditions favourable to the unchecked swelling of the seeds that have to germinate. One way out of it consists in taking out the young plants as they appear and carefully pricking them off into other receptacles. This, however, disturbs the soil, and with a little management the necessity for doing so may be avoided.

A rather exceptional case of slow germination, and one that forcibly illustrates the necessity for patience in seed-sowing, has lately come under my notice. In the spring I sowed several pans of alpine *Auriculas*. They were plunged in fermenting material, and had every care. A couple of months later a few plants appeared, after which no more came up during the summer and autumn. I did not remove the pans, and as the frame was occupied with plants that required daily attention, they were kept moist. Very much to my surprise, I see that the young plants are coming through, and I should not wonder if I get a crop after all. It certainly does seem curious that seeds that have lain inert all through the growing months should start into life during the coldest period of the year.

My impression is that the changes that precede germination are in the case of many seeds, especially those of a hard nature, affected most naturally and surely during the winter months. I believe that many things would be got up with more certainty were the seeds sown at the close of the autumn, and allowed to remain quite cool until they choose to come up. A correspondent lately stated that *M. Correvon*, of Geneva, sows the majority of alpine seeds at the beginning of the winter, having found by experience that he is most successful in this way. J. C. B.

Freesia culture.—In reference to "J. C. C.'s" notes on these doing badly, I may add that I had some here which remained in the pots and never made a leaf for twelve months, although I thought the bulbs had been well ripened the previous season. Last autumn I shook the bulbs out and potted them along with the others, and this winter I can see no difference in them, all being alike grand, some of the spikes having three or four branches on them.—JOHN CROOK.

ROSE GARDEN.

RAISING SEEDLING ROSES.

THE following notes, from the *Rural New Yorker*, relative to the raising of seedling *Roses* may prove interesting to our readers:—

There is no mystery attached to the raising and management of seedling *Roses*. The heps must be thoroughly ripe, and to become ripe takes from three to four months, according to the species from which it is intended to raise them. When the heps are ripe—which can be told by the outside getting deeply coloured either red or yellow—gather them and place them in a box or pot of soil, keeping them where they will not get too wet or too dry, and where they will not be attacked by rats or mice. Where seed is saved from any tender kinds, such as *Teas*, *Bourbons*, and *Noisettes* and their hybrids, they must have more heat and protection than those raised from Hybrid *Perpetuals*, *Damask*, or other hardy kinds. A greenhouse or other structure is actually necessary for tender kinds. Supposing the seed to be ripe in September, bury it until the 1st of January, then unearth and rub out the seeds from the pulp, being careful to separate each seed. Pick out all seeds that are plump and full grown, discarding the rest. Prepare a sandy soil without using any manure or decayed vegetable matter. The former is likely to be poisonous, and the latter to breed fungi. In shallow boxes or pots provide ample drainage, using broken pots, charcoal, or other material of a porous nature.

On this place a layer of Moss, then fill up with soil to within a quarter of an inch of the top. On this place the seeds about an inch apart; then fill up the pot or box with soil, press down the whole quite firmly, give a soaking of water, and place in a temperature of 65° to 80°, shading from the direct

rays of the sun. In about three weeks the first seedlings are likely to appear; the last to come up may be in eight or ten months, or even longer, so that any seed which is particularly choice should be watched until it has grown or is dead. As soon as the seedlings have fully developed the two cotyledons or seed-leaves and the first leaf proper are discernible, then carefully transplant each into $2\frac{1}{2}$ -inch pots, using the same kind of soil as recommended above, being very careful not to allow the soil to touch the seed-leaves in so doing. Water carefully and place in a position where the sun cannot strike them for a few days. After they begin to grow they should be placed in the light, and where a circulation of air can be had without draughts. As the seedlings grow they will require repotting from time to time; many of them will show flowers before they are 2 inches high. The buds should be allowed to grow so as to show colour, and then be pinched off so as to encourage strength. The strongest may be allowed to flower when three or four months old, and where any new character or desirable colouring is shown, the plant should be marked to keep.

If double flowers are desired, do not throw away any seedling that shows three or four rows of petals until after the first season, or until the plant has sufficient strength to show its full character. Those engaged in the raising of seedlings for profit always have on hand suitable stocks to bud or graft the seedlings on. Without the aid of stocks the lovely Puritan Rose could not have been distributed for at least five years yet. Seed saved in large quantities from hardy kinds for sowing outdoors can be stored in pots and buried in the ground until spring. Then it should be cleaned and sowed in beds in a shady place, and the same treatment should be accorded to it as to any other hardy plant from seed. This applies, of course, to seed where saved without artificial impregnation, or where the chances of any improvement are small.—JOHN THORPE, *Queens Co., N.Y.*

— The subject of raising seedling Roses is one of vast extent and of very great interest, and for those having the time to devote to it I know of no more enjoyable occupation. But to attain any success the operator must possess a genuine love of flowers, for there are many disappointments to encounter before meeting with genuine success. Another point necessary to the operation is a fair knowledge of the families of Roses, so that in choosing parents for crossing, those having distinctive features should in all cases be preferred, as what is wanted is something distinct from our present varieties. We have an almost infinite number of Hybrid Perpetuals and Teas in almost every shade of colour possible to attain, but in other families of the Rose a wide field is open for improvement, and I would advise those who wish to try the experiment to choose suitable plants and sorts with distinctive features. Having done this, and presuming that everything is ready, if the operation is to be carried on in the open ground without the aid of a greenhouse, the plants should be planted in autumn, and generally a slight protection during winter pays. This, of course, is for hardy varieties; then in spring, as soon as the buds are about half grown, disbud the plants to be operated on, leaving only one bud to each strong shoot, and choose buds of male and female parents in as nearly the same stage of development as possible, so that they will open as nearly as possible at the same time. As soon as the flowers begin to show colour examine them carefully, and as soon as fairly developed the stamens of the female parent should all be carefully removed before the pollen is ripe.

This is best done the day previous or in the very early morning. To avoid injury from insects, I prefer to cut away the pistils of the flowers as soon as they are fertilised, but experience will soon teach the operator the best way of performing this operation. One thing should be borne in mind—that it is necessary to do this on a fine day; morning is the best time. If successfully done, in due time the hep will begin to swell; all that can be done till it is ripe is to keep the plant healthy and not allow it to flower too freely. Let the hep or seed-

pod get thoroughly ripe before gathering. This will generally be by the first or second week in October.

As soon as gathered the heps should be buried in a pot of moist sand with glass over them to keep out mice, &c. The best place I have found to keep them is in the earth, from 18 inches to 24 inches deep, on the south side of some building.

As soon as possible in March, or the 1st of April at the latest, prepare a place in a cold frame in about the same way as for early seeds, such as Lettuce, Radishes, &c. Break the pods up and sow the seeds thinly in drills, covering them with about half an inch of fine soil, making the whole firm by treading with the feet after sowing, and then raking slightly. Keep the frame free of weeds and water as required. Keep the sash on the frame at night and during all cold storms, but give air freely during fair weather, and if warm showers come pull the sash off altogether. The seedlings will generally begin to appear in six to eight weeks, but often some will not germinate for two to four weeks longer. As soon as they are well out of the ground more air should be given, till, by the middle of June, the sash can be kept off altogether.

If the seed has been sown very thinly—say 5 inches to 6 inches apart, and the rows 9 inches to 10 inches—it is better to leave them in the seed bed all the summer; but by autumn—early October—a piece of rich ground should be prepared and the plants be very carefully lifted and transplanted into it, allowing each sufficient room to develop. Many of the worthless plants will bloom the first summer. Pull these out and destroy them at once. Any having some particular attraction might be planted for further trial, even if they are not of sterling merit. The second season many others will bloom, and with the increased vigour of the plants it will be easy to decide if the bloom has any merit over that of existing kinds. If not, root them up at once and destroy them. Do not let the idea carry you away that because they are your seedlings they must be kept, even if not really an improvement on existing kinds. One thing you can be sure of—that by patience and perseverance you will get something good in the long run, and then the pleasure you will feel in your prize will more than repay you for your trouble and waiting.

The above remarks are only applicable to hardy kinds.

The Tea varieties really require a greenhouse to protect them, and the fertilisation of this class is much better and more easily done under glass than in the open air. Where a greenhouse is at command the whole subject can be simplified, because the seed can be sown three or four months earlier and many of the plants will bloom the first season. Some years ago I raised a large batch of seedlings from Tea varieties and every plant bloomed the first summer. They were sown in December in ordinary greenhouse temperature; but many of the Hybrid Perpetual class will generally take longer to bloom; so also do the Bourbon and Noisette classes. JOHN MAY, *Summit N.J.*

— I should have liked to have seen the *Rural's* hybrids of *Rosa rugosa*. I have tried a lot of crosses with these varieties, but have not as yet succeeded in procuring anything satisfactory. There are several varieties of *rugosa*, but none so beautiful to my mind as *rugosa rubra* and *alba*, single. My experience on the subject of cultivating Roses would require a large volume. My success has been obtained by being very careful in the selection of the parents of each variety, just the same as a successful breeder of animals chooses nothing but good, robust and healthy stock to cross with.—HENRY BENNETT, *Shepperton, Walton-on-Thames, England.*

— The experience I have is rather limited, as I have not grown Roses from seed in this country, except in a very small way, but in France (Paris) we used to take the seed-pods from the plants after a good frost. This was done to give them a long season to ripen, and mainly to soften or freeze the outside part or flesh of the seeds, for then the seeds will separate much better. Then mix the

seeds in a box or barrel with sand. Keep it in a cellar free from frost, and let the sand be kept moderately moist, so that the seeds are able to swell. Let them be kept in this way till early in spring. When the ground is in a state to be worked prepare a bed for the seed. Sow them with the sand broadcast, and cover them with about 1 inch of soil of not too compact a nature, so that it keeps open and does not make a hard crust. The seedlings will then take their own way if the bed is kept free from weeds, and the first summer they will make nice plants from 1 foot to 2 feet high.

After the first summer we transplanted them into nursery rows, 2 feet apart, and about $1\frac{1}{2}$ feet apart in the row, and there let them stand till they came into bloom, when those of no value may be discarded, while those with any claim to novelty may be propagated in the usual way. This is the way we used to do it in France, where Roses stand without protection and are not winter-killed, but in our climate I would advise to take the seedlings up in November and keep them in a cold frame for the winter, and then transplant them as above, and I think the result would be the same. The foregoing is the mode of raising chance seedlings. Where artificial fecundation is used to get crosses between certain varieties, and the seedlings of such seed are raised under glass, that is entirely a different method, and I never have been in a position to practise it.—THEODORE BOCK, *Hamilton, O.*

China Roses for autumn blooming.—Are China Roses sufficiently appreciated for autumn flowering? They are not only remarkably free, but wonderfully persistent, and, I might add, also very showy. They are well suited for beds on lawns, or planted out in groups on any suitable spot, such as the edges of croquet lawns, where in congenial soil they furnish great masses of flowers. The common Blush China makes a capital hedge, and indeed it is pretty under all circumstances. *Cramoisi Supérieure* is a beautiful variety, of a rich crimson colour, full and very effective, and makes an excellent bouquet Rose. Then there is the old crimson, of a deep bright shade, darker than the preceding, and very free and good. Quite a gem is *Armosa*, pale rose, very free and fully double—a charming variety for cutting from. *Ducher* is pure white, of large size, and double. And, lastly, comes *Fabvier*, brilliant scarlet, semi-double, but fine in colour and very free. I think that as autumn bloomers these China Roses are unsurpassed by those of any other section, and they well deserve a place in the garden.—R. D.

SHORT NOTES.—ROSES.

Mme. Gabrielle Luizet.—This Rose is largely forced by a Philadelphia grower, who considers it a very valuable variety for winter flowers.—*American Garden.*

Rose Etoile de Lyon.—French rosarians have discovered that this variety blooms far more satisfactorily when budded on *Rosa polyantha*. Young plants on *polyantha* stocks, forced slowly in a cool house, will give a great quantity of flowers of remarkable beauty.

Pond leaf-soil.—I strongly advise "A. K." in *THE GARDEN*, Jan. 7 (p. 22), to ignore the dictum of "An Experienced Gardener," and utilise the whole of the leaf clearings from his pond. If he proposes to employ the material upon grass land, let it remain for yet a month in stack, although one turning with liberal mixings of soot will materially help it to decay. If to be used on arable ground, and the stuff is fairly free of water, get it on the land as early as possible, dress liberally, and bury it speedily. The soil will very soon begin to decompose the leaves, and the crop will utilise the dressing both freely and rapidly. Nothing which is of vegetable production and can be utilised as manure should ever be ignored in the cultivation of land. I have always made it the rule to save for such purpose everything which will decay either out of or in the soil if it can be dug in. It is of little consequence that the leaves

have for some time been immersed in water, because such immersion very often helps to preserve that which the air would soon decay. All who have utilised the clearings out of ditches and ponds can testify that the material has some manurial value, and in careful hands is never wasted. It is not often, however, that anyone is privileged to abstract hundreds of loads of leaves from a pond, and be able to stack them ready for use as desired. I should regard such a bulk of matter for our stiff soil here as most useful. If leaves are heated and then fermented they lose much of their nutritive properties, and yet the resulting soil is found highly manurial, equally should a quantity of leaves taken from a pond prove to have exceeding value, and to neglect to use them would be sad waste.—A. D.

STOVE AND GREENHOUSE.

PITCHER PLANTS AROUND LONDON.

I HAVE recently visited the establishments of Messrs. Veitch, of Chelsea; Mr. Williams, of Holloway; Mr. Bull, of Chelsea; and Mr. James, of Norwood, to see the remarkable examples of these singular and showy plants, which are so well managed in these nurseries. The first species of this genus (which, by the way, is the only one in the Order) introduced to this country was *N. distillatoria*, a fine, bold-growing plant with large pitchers. This species came under my care when a lad, and it was grown upon the roof of an Orchid house, and used to produce pitchers freely. It was thought that these plants were difficult to grow, and the early writers say that these plants were managed at the Messrs. Loddiges' nursery at Hackney better than anywhere. In 1849 the Messrs. Loddiges had five kinds in their collection, viz.: *ampullacea*, *distillatoria*, *Rafflesiana*, *lævis*, and a kind called *Loddigesii*, which I do not know. Until quite recently *Nepenthes* were considered difficult to grow and propagate, but both ideas are now pretty well exploded. I am not aware of any of these plants having been raised from seed in this country until about 1862-3, at which time I obtained a batch of *N. zeylanica* seed from Ceylon, and succeeded in raising a large number of plants, from amongst which one or two varieties were obtained, the one called *zeylanica rubra* being the most distinct. Soon after that time the Messrs. Veitch, of Chelsea, took the family in hand, and have produced a large number of splendid hybrids, besides introducing from abroad some very grand forms, and their stoves at Chelsea at the present time are a perfect marvel to look at, the wonderful specimens suspended in baskets being furnished at the end of every leaf with large and highly-coloured pitchers. Mr. Williams, of Holloway, has also devoted considerable time and space to these plants, and has introduced several very fine forms to cultivation, and the plants as seen in his nursery quite recently were brilliant in the extreme, bearing many hundreds of their highly-coloured pitchers. The *Nepenthes* in a state of nature are principally found in the islands of the Malayan Archipelago and those in the Indian Ocean, Borneo being apparently their headquarters; in this island, on the Mountain of Kina Balou, they appear to abound, and they grow at considerable elevations. They also extend to the extremity of the Malay Peninsula, to Cochin-China, Ceylon, and Mr. Williams has introduced one species, *N. Kennedyana*, with blood-red pitchers, from the Cape York district of North Australia.

Nepenthes succeed either planted out in shallow borders, in pots, or in baskets. I

prefer growing them in pots, and plunging the pots into a basket of *Sphagnum*; the soil should consist of about equal parts of fibrous peat, chopped *Sphagnum* Moss, a few small nodules of charcoal, and some sharp sand. The plants should be hung up quite close to the glass, and the temperature of the house at no time in the year should fall below about 68° or 70°. They enjoy an abundant supply of water to the roots, and also in the air; this latter must be maintained regularly, or the chances of success are very few. The roots of *Nepenthes* are very fragile, being composed of black fibrous masses, and are particularly liable to injury from a careless workman during the season of top-dressing or repotting; this must be avoided, or the plants will show signs of distress for a long time after the operation. These plants are



Nepenthes bicalcarata.

especially adapted for growing in a house devoted to East Indian Orchids, as their stems could be trained upon the roof at such a distance as to produce a shade, and thus obviate to a great extent the use of artificial shading material, whilst the highly coloured and singular pitchers would always be a source of pleasure and delight. To maintain these pitchers in beauty and quantity, however, the points of the shoots must be frequently stopped in order to allow of the development of lateral growths, as it is upon these the stout, broadly-winged pitchers are produced; but where the stems are allowed to grow to a considerable length without being stopped a wonderful change takes place. The pitchers are more sparingly produced, and the shape is entirely different; they lose the broad ciliated wings in front, and usually become narrow at the base. In addition to the

introduced kinds and the hybrid forms obtained in this country, our American friends have paid considerable attention to *Nepenthes*, and have enriched our gardens with superb varieties, and in that country as well as at home they are found to be plants of very easy culture, always provided they have an ample supply of moisture to their roots and in the atmosphere, and an abundance of heat. They thrive well suspended above an ordinary collection of stove plants or Ferns, and are withal so beautiful, that I consider no stove in the country should be destitute of some few examples of them.

The following are a few of the kinds which are just now exceptionally fine in Messrs. Veitch's establishment: *N. Mastersiana*, undoubtedly the finest and most showy form that has yet been obtained, is a Veitchian hybrid raised between *N. sanguinea* and *N. distillatoria*. It is robust in habit, and produces its pitchers very freely, which are about 9 inches long, stout and cylindrical, and of a deep vinous-red colour. *N. cincta* has been raised from seeds imported from Borneo, but is supposed to be a natural hybrid between *N. Northiana* and *N. albobmarginata*. The pitcher is about 9 inches long, flask-shaped, slightly stoutest at the base, narrowly winged and ciliated in front; ground colour yellowish green, clouded with crimson and blotched with deep purple; the rim of the mouth is oblique, somewhat angular, and strongly ribbed, whilst just below the rim there is a narrow band of white. *N. Northiana* is a bold and grand species introduced from Borneo, the pitcher when mature being as much as 16 inches long. It is flask-shaped, slightly swollen at the base, and ornamented in front with two fringed wings; the mouth is very large and oblique, and surrounded by a broad ribbed margin; ground colour greenish red, boldly spotted and blotched with crimson; the lid large, spotted with red. *N. Courtii* is a handsome hybrid, with flask-shaped pitchers, the ground colour of which is deep green profusely blotched and clouded with crimson. *N. Rajah* is a rare and noble species, named in honour of Rajah Brooke. When of full size the pitcher is 1 foot long and 6 inches broad, winged and ciliated in front, the broad reflexed margin of the mouth being angularly lobed and strongly ribbed; whilst the lid, of a dull green colour, is 10 inches long and 8 inches broad, the whole surface of the pitcher being clothed with long ferruginous hairs. This wonderful species is a native of Borneo, where it is found on the north coast, and also on the mountain called Kina Balou, at an elevation of 500 feet. *N. Morganii* is an elegant hybrid of American origin; the plant is of a somewhat dwarf habit, and the flask-like pitcher is about 8 inches long; when young the colour is green, marbled and blotched with bright red, but with age it becomes wholly deep red. A peculiarity of this form lies in the operculum, which retains its green colour throughout. *N. bicalcarata*, an illustration of which is here given, is a Bornean species of great beauty and distinctiveness, and is a bold grower; the pitcher is broad, being about 5 inches long and 4 inches wide at the base; it is obliquely ribbed and winged in front; the colour is bright reddish crimson, the mouth green, whilst just at the junction of the lid are two long, green, pendent, curved, spur-like processes, which give rise to its name and render it very distinct. *N. Curtisii*, one of the most recent of the introductions from Borneo, is an extremely beautiful kind with trumpet-shaped pitchers, the colour of which is pale green, profusely mottled and blotched with purple. Besides the above were grand examples of such kinds as *Rafflesiana*, *Hookeriana*, *Chelsoni*, *intermedia*, *Ratcliffiana*, *Stewarti*, *Sedeni*, *Domini*, &c.

In Mr. Williams' nursery at Holloway there are many hundreds of handsome pitchers, their bright colours just now rendering them very ornamental. Of those already noted at Messrs. Veitch's, we observed here the rare *N. Rajah* and *Northiana*, *Rafflesiana*, *Hookeriana*, and fine examples of the noble *N. Mastersiana* in several varieties, but I selected a few distinct kinds, which are well

deserving a place besides those already mentioned, for although the following kinds are not, as a rule, so large, their brilliant colours amply compensate for want of size. The following kinds are deserving of all praise: *N. albo-marginata*.—This is a Bornean species, and was originally found by Mr. Hugh (now Sir Hugh) Low growing on maritime rocks near the mouth of the Lokstan and Sanjong-poe Rivers. It is a somewhat dwarf species, the pitcher being cylindrical in shape, slightly swollen at the base. When young it is green, suffused with a tinge of pink, which, however, with time passes into deep crimson-red. The peculiar white band which surrounds the top of the pitcher just below the rim, and which gives rise to its specific name, is always constant in every stage of its growth. *N. Outramiana* is an exceedingly pretty hybrid, producing its pitchers very freely; these are flask-shaped, stoutest at the base, narrowly winged and ciliated in front, about 5 inches long; ground colour yellowish green, profusely blotched and spotted with deep red, sometimes wholly deep red; the mouth strongly ribbed and alternately banded with green and crimson. *N. Henryana*, another handsome form with a pitcher about 7 inches long, but much swollen from below the middle; the ground colour is reddish purple, marbled and flaked with green dots; the throat is pale green, spotted with purple, and the strongly ribbed mouth is deep crimson, suffused with a shade of violet. It is a very highly coloured and showy kind. *N. Kennedyana*.—This is a species received by Mr. Williams through his collector, Mr. Goldie, from North Australia, where it grows about Cape York; its pitchers are about 5 inches long, somewhat cylindrical, swollen below the middle and again contracted at the base, narrowly winged and ciliated in front, colour reddish crimson; the rim of the mouth narrow, very finely ribbed; whilst the throat is suffused with a lilac hue. *N. robusta*, the result of a cross between *Hookeriana* and *phyllanthophora*, produces handsome pitchers distinct in shape, and about midway in size between its parents; the pitchers are Pear-shaped, ground colour dark green, profusely streaked and blotched with reddish crimson. *N. Williamsi* has pitchers about 5 inches long; the ground colour is green, but this is almost entirely obscured by the marblings and spottings of deep red. It is said to produce pitchers very abundantly in quite a small state. *N. atrosanguinea*, an extremely beautiful form, bears pitchers about 6 inches long, and stout, cylindrical in shape, inflated towards the base, broadly winged, and ciliated in front; ground colour reddish crimson, marbled and spotted with yellow; rim of mouth closely ribbed, some of these being blackish purple and others red. *N. Dormanniana*, a fine bold variety with pitchers 6 inches long, dark crimson, marbled with greenish yellow. Other fine forms specially notable were *N. Findlayana*, *Ratcliffiana*, *Hibberdi*, *coccinea*, &c.

In Mr. James's nursery at South Norwood Nephthes are exceedingly well done, although the quantity grown is much smaller than at the establishments of Messrs. Veitch and Mr. Williams. Here I noted some extra fine forms of *N. Mastersiana* in several varieties well pitchered, *N. Rafflesiana*, *N. Hookeriana*, and the rare *N. Northiana*, and the curious *N. ampullacea vittata*, which had a cluster of several dozen pitchers upon the small lateral shoots at the base of the stem. In this place I am told it is the custom to grow the plants in a compost of peat and loam, which, judging by the result, is quite suitable. *N. Rafflesiana insignis* of Mr. William Bull appears to be a very large and richly-coloured form; the pitchers are upwards of 9 inches long and much dilated at the base, broadly winged and ciliated in front; the green ground colour is profusely marbled and blotched with purplish crimson and brown, rendering it a very showy variety. W. H. G.

Jasminum hirsutum. You speak of figuring the scarlet Spurge (*Euphorbia jacquiniæflora*), and a very worthy subject it is. I wish, however, to direct your attention to *Jasminum hirsutum*, which I think is an excellent companion to it, as with a little management it may be had in flower at the

same time. To show you that it will bloom in mid-winter, I send you a spray of flower from a plant that has not been grown with any particular care. My plant has not had skilful culture, so that the flowers are not so good as they would be, but you will be able to judge of its merits. It is a stove plant, but does better in the cool end of such a structure than when exposed to more heat, and, except that large plants are more effective than small ones, it is as well adapted for small houses as those of large size. The plants commence to flower when not more than 6 inches high. The tops of half ripened shoots strike very freely in the propagating pit, and with liberal culture large plants may be obtained in twelve months. While in active growth the young shoots may be stopped to induce a bushy growth, but the less stopping they have the longer the flower-spikes are. Medium-sized specimens are best obtained by giving the plants a rest as soon as they go out of flower, keeping the roots moderately dry, and placing the plants in an intermediate temperature until the end of March. They should then be pruned back rather hard and returned to the stove again. As soon as the young growth is about 2 inches long, the plants should be shifted into pots two sizes larger, as it is a strong-rooting subject. Give the plants, while making growth, the most airy part of the stove, and place a thin shade on the glass. When untrained the plants bear larger and a greater quantity of flowers. If, after the growth has extended from 1 foot to 18 inches long, the plants are placed in a cool house, and where they can get more air, the result is much more satisfactory than when the plants are kept in a high temperature until they come into flower.—J. C. C.

BROMELIACEOUS PLANTS.

THE Bromeliad, or Pine-apple, family cannot be called a popular class of plants in English gardens, for what reasons one cannot imagine. Possibly they may be expensive to buy and difficult to grow; still they are far cheaper than Orchids, and do not require so much cultural skill. That they are very beautiful no one can deny who has seen some of the finest kinds in flower, and as a goodly number of them bloom in midwinter the bright colour they display is very welcome. One can get an idea of their beauty from some of those now in flower in Kew Gardens, in which is probably the richest collection extant. The all-absorbing interest bestowed now-a-days on Orchids no doubt accounts for the neglect of Bromeliads, tropical and sub-tropical bulbs, and many other beautiful classes of plants, but it is satisfactory to know that in such a garden as Kew, which is not, or at any rate should not be, influenced by a passing fashion, all important classes of plants are preserved, and no undue attention is paid to one class more than another. The Bromeliad collection may be found in the stove adjoining the Victoria Water Lily house, and for weeks past it has been enlivened by some species in flower. Of particular interest are some in bloom at the present moment belonging to the genus *Billbergia*. *B. Sanderiana* is quite a new species recently introduced. It is like some of the older kinds in growth, the leaves being broadly beset on their margins with black spines, and arranged in the usual vasisform manner. The flower-spike would be tall if it were erect, but it hangs over the side of the leaf vase. It has long papery bracts of a clear rose-pink; while the long flowers, which arrange themselves in a loose cluster at the end of the spike, are pale yellow, tipped with blue-purple. Nor is the splendour of the new *B. Sanderiana* exceptional. There is *B. nutans* with flowers much the same, but with longer foliage. Another somewhat similar is named *B. Worleyana*, it being a hybrid, having *B. nutans* as one of its parents. The noble *B. vittata*, which has a tall vase-like cluster of leaves of olive-green, transversely banded with silvery markings, was in bloom a few days since. The flower-spikes droop over the side of the vase, and are adorned with crimson bracts, with flowers of indigo-blue and red colour. Some of the *Pitcairnia*s are also very graceful, their leafage being long and Grass-like and their spikes slender. In flower are

P. staminea, with long deep red flowers depending from a spike 2 feet high. Another of more modest growth, named *P. muscosa*, has showy scarlet flowers. The favourite old *Æchmea fulgens* has clusters of scarlet crab's-eye-like flowers. *Æ. Weilbachi*, whose sepals, chameleon-like, turn from blue to purple, purple to bronze, and then to sooty black, has long been in bloom; and so has the Parrot *Tillandsia* (*T. psittacina*), arrayed in scarlet and gold. Every day sees some new addition to the flowering plants, so that those interested in the family will be sure to see some in bloom for some time to come.

W. G.

Euonymus in the conservatory.—Variegated *Euonymus* are by no means made so much of as they might be, considering the brightness of the foliage and the vigorous constitution of the plants. Their merits for the adornment of the garden are fully recognised; but it is as pot plants, or planted out in the conservatory border, that they should be more often grown. They are remarkably cheerful at this season; and a good place to find evidence of their utility for this mode of culture is in the temperate house at Kew. There the *Euonymus* is planted out in the borders with *Camellias*, *Acacias*, and such like subjects; and they give much needed variety from the greenness of other plants. It is during the winter, when flowers are scarce, that we should make the most of such useful things as the variegated *Euonymus*. The varieties usually grown are *E. japonicus aureus*, very effective, especially when in the form of a large bush; *E. latifolius albus*, broad leaves, finely variegated; and *E. radicans variegatus*, a bushy, low-growing variety, excellent for planting as a margin to the border.

Pavonia Makoyana.—Though more generally regarded as a summer-blooming plant than as one that flowers at this season, *P. Makoyana* may be often had in bloom in midwinter, and though the flowers cannot be called showy they are very interesting, differing as they do so widely from those of any other stove shrubs. *P. Makoyana* is an erect-growing shrub with seldom more than one stem, which is clothed with dark green, ovate leaves, and terminated by a corymb of blossoms. The individual flowers are borne on rather long, erect stalks, and consist of bright rosy red bracts, with the calyx and corolla of a purplish black hue. The stamens are collected in a cluster at the mouth of the flower, and the bright blue anthers are very conspicuous. Single flowers are also often produced in the axils of the leaves on the upper part of the stem. Another species (*P. Wioti*) has the bracteoles that surround the blossoms more cut up than in the case of *P. Makoyana*, while the flower is not of so dark a hue. The foliage also is of a lighter green. Both are plants of easy propagation and culture, for, as in the case of their allies the *Abutilons*, cuttings strike readily.—H. P.

Scillas in bloom.—Some pots of these in full flower are remarkably bright and cheerful, and, what is more, they stand out quite distinct in colour from any other bulbs that are forced into bloom at this season. *Scillas* are readily amenable to this mode of treatment; indeed, conditions such as are favourable to the development of the *Duc Van Thol Tulips* (now so much seen) will suit them perfectly. If removed into a cool structure as soon as the earliest blossoms expand, they will last a long time in beauty. After the flowers are past the bulbs should not be turned outside to shift for themselves, but placed in a frame till the most severe frosts are over, for though hardy enough when grown naturally, the delicate leaves that have been developed in heat will, as a matter of course, suffer when exposed to cold and cutting winds. These bulbs may in the spring be simply turned out of their pots without disturbing the roots and planted anywhere in the herbaceous border, on the edges of shrubberies, or in the wild garden. Where favourably situated, these *Scillas* will flower well the first season after being planted. The relative merits of the *Scilla* and the *Chionodoxa* have been often discussed, but, apart from the question which is the more beautiful, I find that in the open ground the sturdy habit of the *Scilla* enables it to

weather the cold winds of early spring better than the weaker stems of the *Chionodoxa*.—H. P.

ERICAS.

SEEING that there is not a month in the whole year in which several varieties of Heaths may not be had in flower, it is somewhat strange that they should be so little appreciated by the flower-loving public as they are at the present time. I am afraid this is caused through the mistaken idea that they are very difficult to manage. Except that they require very careful attention in watering, there is no class of hard-wooded plants so easy to manage. I am satisfied that, when failure has occurred, it has been brought about by doing too much to them instead of too little. As compared to many other hard-wooded plants, they are comparatively hardy. Any coddling, such as keeping the house closed or an undue amount of artificial heat, is sure to end in failure. Many an amateur who grows a great many other plants, and who is often troubled as to how to treat them, might cultivate a collection of Heaths with much less labour, and always have a few flowers to show his friends. There cannot be a prettier plant than a well-flowered example of *E. ventricosa coccinea* minor in the months of May and June. It is of neat habit, and every shoot terminates with a bunch of flowers. There are many other varieties equally as attractive. The following sorts, named in the order in which they flower, will be in bloom during the autumn and winter: *Gracilis*, *autumnalis*, *hyemalis*, *melanthera*, and *Wilmorea*. To flower during the spring and summer, the following will make a useful selection: *Æmula*, *oblata*, *Paxtoni*, *ventricosa*, *magnifica*, *jasminiflora alba*, *tricolor* *Eppsi*, *Cavendishi*, *Wilsoni*, *profusa*, and *Parmenteriana*.

The most suitable soil is good dark brown peat-well beaten with a spade. For every peck of peat three half-pints of coarse silver sand should be added. The soil must be used when moderately moist. Clean pots and plenty of drainage are also necessary. One large crock and a few smaller ones should be carefully placed in the bottom, and these will prove as efficient as double the quantity carelessly thrown in.

There should be two distinct periods in the year for repotting the plants. Those that flower during the autumn and winter should be attended to early in April, and those that bloom during the spring and summer should be shifted in September. *Ericas* do not like to be frequently disturbed at the roots, nor do they require much pot room after they reach pots 6 inches in diameter. All but a few of the most vigorous growers can stand two years in the same pot if the drainage is kept right. From this it will be seen that they do not require very large shifts. One size larger pot will invariably suffice for the most vigorous plant. Careful potting is essential. The soil must be worked down by the side of the pot and rammed moderately firm. Space an inch in depth should be allowed for the water in pots 8 inches in diameter, and so on in proportion. To grow Heaths in a thoroughly satisfactory manner, they require a span-roof house, where they can be provided with all the conditions they require. There may be stated in a few words: Plenty of air, plenty of light (except in very hot weather, when a thin shade on the glass is useful), and only just enough fire heat to keep out frost. In mild weather the ventilators must be freely opened, not for an hour or two in the middle of the day only, but in the summer and early autumn months from morning until late in the evening. If Heaths are kept long in a confined air, mildew attacks them and causes the foliage to drop off, and, in consequence, the general health of the plant is impaired. As I have already indicated, the regulation of the water supply to the roots is the most important point in the management. Owing to a rather free use of sand in the soil the latter often appears, and is dry just on the top, while it is sufficiently moist below. The smaller the pots are the oftener the plants will want water. With regard to giving the plants stimulants in any form, I do not advise their use, except by those who thoroughly understand what

they are about. In incompetent hands any of the concentrated manures, if used in excess, will do great mischief. It is only necessary now to say that some of the varieties will require the assistance of a few sticks and ties to keep them in good shape, but as few sticks should be used as possible.

Cotthelstone.

J. C. C.

ABUTILONS IN BLOOM.

OF late years a much dwarfer race of *Abutilons* has been obtained than that which was previously grown, and where small structures have to be kept gay during the winter, plants of this dwarf section are extremely useful. The readiness with which they can be increased, and the short time they take to attain flowering size, are all points in their favour. If used for the decoration of the dwelling house they are apt to suffer, when they may at once be thrown away, and others substituted for them. Apart from their value for flowering in pots, the more vigorous of the *Abutilons* make first-rate pillar plants, as if liberally treated they quickly cover a considerable space, and on that account they may be employed for clothing the back wall of a greenhouse if not too much shaded. When in such a position, and the structure in which they are growing is kept at a temperature rather warmer than that of a greenhouse, they may be relied upon to furnish a supply of cut bloom during the winter months. Wherever planted they must be so situated that the syringe can be freely used, as the leaves often become infested with red spider, which, if allowed to make headway, will cause the greater part of the foliage to turn yellow and drop. If trained near the roof this precaution is, during the summer, additionally necessary, as red spider at this season makes rapid headway, and is difficult to eradicate if it once gets a foothold. For this reason a copious supply of water must be given at the roots, as if properly drained it is not easy to overwater a vigorous specimen of the *Abutilon*. Another way of growing *Abutilons* that are required to yield cut blooms during the winter is to plant them out in the summer in a sunny spot, when they will not only flower outside as soon as they are established, but if carefully lifted early in the autumn, and after having been potted kept close for a time until the plants recover, they will in a suitable temperature bloom throughout the winter. Besides propagation by means of cuttings, *Abutilons* ripen seeds, especially if the flowers are artificially fertilised, but cuttings are to be preferred, as plants raised in this manner flower in a small state more freely than seedlings, which also cannot be depended upon to produce as good flowers as the parent.

There are a great number of varieties now in cultivation, far more, indeed, than is required by anyone. A list of a few of the best, as far as they have come under my observation, would include, with white blossoms, *Boule de Neige*, which is either in a small state or in a large specimen the best of its class, and is the most generally cultivated of all *Abutilons*. As white flowers are in so much request at all seasons, and this is, except the centre cluster of stamens, pure in colour, the latter are often removed, and the edges of the petals turned back so as to form an open flower, which at a first glance is difficult to associate with the bell-shaped one of the *Abutilon*. This method of mutilating the blossoms may be often seen, but it is certainly not to be commended, as so treated the blooms altogether lack the grace and elegance of those of a natural shape. Yellow-flowered kinds would include *Cloth of Gold*, of a deep yellow tint, and *Canary Bird*, lighter in colour. Among red flowers mention may be made of *Emperor*, purplish crimson; *Royal Scarlet*, light red; *Lustrous*, rich crimson; *Eclipse*, orange-red; and *Brilliant*, a very dwarf-growing kind with bright red blossoms. Flowers of a pink or lilac shade include among their number *Anna Crozy*, rose, with a lilac shade; *King of Roses*, deep rose; and *Silver Bell*, delicate blush-pink. The best purples are *Purpurea*, deep purple, and the *Premier*, of a lighter hue. Among those with striped flowers the most showy blossoms are borne by a true species, viz., *A. venosum*, a bold,

vigorous-growing kind that will soon mount up to the top of a lofty structure. The large palmate leaves are very handsome, and the flowers, which are profusely borne when the plant has plenty of room in which to develop itself, are large, borne on very long stalks, and of a bright yellow ground colour thickly netted with crimson.

There is a garden variety, *striatum splendidum*, which is, as far as I know, the dwarfest of this class. In this the flowers are orange-veined and reticulated with crimson. Variegated-leaved varieties are represented by *Darwini tessellatum*, a variety of the old brick-red-coloured *Darwini*, in which the leaves are variously marked with cream colour and different shades of green. This is the dwarfest of the greenhouse *Abutilons* with variegated leaves, a couple of taller-growing kinds being *nævium marmoratum* and *Thompsoni*. Of this last there is a double-flowered form, but the blooms are very liable to drop when in the bud state, and, indeed, when they open they are more lumpy and less pleasing than the single flowers. Of quite a different type is *A. vexillarium variegatum*, a slender-growing kind, with long wiry shoots and a profusion of bright-coloured blossoms. The flowers are purplish, but the golden-coloured calyx from whence the blossoms partly protrude forms the most conspicuous part of the inflorescence. In the typical form the leaves are of a bright green colour, but in the variegated variety they are irregularly marbled and mottled with yellow. This *Abutilon* is very pretty when employed as a roof plant, for the pendulous blossoms are then seen to the greatest advantage. It will also survive most winters around London if trained to a wall and protected by a mat during the most severe weather. Another variegated-foliaged kind and one that bears the largest leaves of any is *A. Sellowianum marmoratum*. This has the whole surface of the leaf marbled with a creamy tint, and from its ample foliage it forms a highly ornamental specimen, but to be seen at its best it requires more heat than any of the others; indeed, it does better in an intermediate house than in a cooler structure. The massive heart-shaped dark green leaves of *A. insigne*, with their conspicuous network of veins, are very handsome, while the large purplish blossoms are quite distinct from those of any other kind. T.

SHORT NOTES.—STOVE AND GREENHOUSE.

Philodendron Andreanum.—Numerous as are the members of this genus, the present one is both distinct and beautiful; it is one of the Messrs. Veitch's recent introductions from New Grenada, and requires the stove to develop its beauties. The footstalks are stout and erect, and support a large coriaceous-lanceolate leaf, which attains the length of from 4 feet to 5 feet, and when young is almost scarlet, suffused with brown, changing when mature to bright velvety green colour. The mid-rib is pure white through all its stages, and adds much to the general effect. It is the handsomest variety of the genus.—W. H. G.

Phrynium variegatum.—This is a recent introduction of the Messrs. Veitch, of Chelsea, but its native country does not appear to be disclosed. It is nearly related to the *Marantas*, and its handsome leaves render it a conspicuous object in a stove. The footstalks are about a foot high, the leaf some 9 inches long and nearly 4 inches across; ground colour bright light green, over which is spread in an extremely diversified manner a variegation of creamy white. Like all its congeners, it requires a liberal water supply to its roots, and also a moist atmosphere.—W. H. G.

Erica melanthera.—This is one of the few Heaths in flower at the present time, and though it cannot be called showy, the pretty little pinkish blossoms with their conspicuous black anthers are by no means unattractive. In other respects it stands out as one of the easiest of all greenhouse Heaths to strike from cuttings, and one of the least fastidious in its cultural requirements. A good-sized specimen, laden with its myriads of blossoms, emits a peculiar perfume, which is very pleasing to many people. An established specimen will flower freely year by year without repotting.—H. P.

Plumbago rosea.—There are few stove plants that flower so freely as this old favourite that is seen in all gardens where this class is appreciated. At Wimbledon House it is grown exceedingly well

against the wall of a stove and its shoots are trained to strong wires. By this means the foliage is kept well in, and the flowers, borne on lengthy terminal spikes, stand out boldly, giving a brilliancy of rose colour that few other winter subjects can supply. The plants are not grown in the border, but in pots.

Dwarf Poinsettias.—These are most useful at this season for the plant house, and the wonder is that small specimens between 1 foot and 2 feet high are not more often seen, as having a sturdy habit and good leafage they can be used so well in groups. At Wimbledon House, Mr. Ollerhead has a quantity of plants not much more than a foot in height, and the stems are cut off close to the bottom for cut flowers, as when taken with a good length of stalk, the scarlet bracts remain fresh for a considerable time. The cuttings are struck in August, and the plants grown on in a warm pit, but not kept in too high a temperature, which only promotes a weakly, leggy growth.

Scabious in pots.—The Scabious may be readily grown in pots, though its adaptability for this mode of culture is not generally recognised. It is during Christmas and the new year that the flowers are most valuable, as their delicate colouring and neat, full shape make them invaluable for bouquets or any choice arrangements. To have good bushy plants, well furnished with the light green tender leafage, sow the seed at the end of spring, as is the practice with Mr. Roberts at Gunnersbury Park. Pot off the seedlings when necessary, and keep them in a cool house, the last shift being into 5-inch pots. They are grown with the Carnations, and the neat shapely plants give a finish to a group. In a batch of seedlings there will be several shades of colour, some pure white, others various depths of lilac.

WORK IN PLANT HOUSES.

BERRY-BEARING SOLANUMS.—Plants that are raised from seed show great differences as regards the quantity of berries they produce. Of plants raised from the best selected seed, a limited number usually bear a much larger quantity of berries than the remainder. On this account it is advisable to grow the stock from cuttings rather than depend on seedlings, selecting the freest fruiting plants from which to take the cuttings. One of the most important matters in the cultivation of Solanums is to get them struck in good time, so that the plants will flower early. Those that ripened their crop of berries early in the autumn will be the most likely to now furnish cuttings, especially if the plants have been placed for a time in a house where a little warmth has been kept up. In this case young shoots an inch or two long will have been made, and these will give suitable cuttings. Strip off a few of the lower leaves from the cuttings, and put them, an inch or two apart, in pots filled with sand. Give a good watering as soon as they are inserted, and cover with propagating glasses, or put them in a frame where a brisk heat is available. They will root in two or three weeks, when gradually admit air for a week, after which dispense with the covering altogether. Move them singly as soon as enough roots have formed into small pots filled with fresh-sifted loam, to which add a liberal quantity of leaf mould and some sand, putting a bit of Sphagnum, or fibrous turfy matter, in the bottom for drainage. For newly-struck cuttings of quick-growing things like Solanums, that soon require larger pots, it is better to drain with material of this description than with crocks, as when they are again potted there is no necessity for disturbing the roots by removing the drainage. After potting keep the little plants for a time where they will have a temperature similar to that in which they were struck; as soon as they begin to grow pinch out the tops; it is necessary to attend to this early, or the plants will not make bushy specimens. *S. capsicastrum*, though not so much grown as the erect-habited variety, is, nevertheless, equally deserving of cultivation, being much more elegant.

OLD PLANTS OF SOLANUMS.—Old plants should now be cut close in, shortening them back to within 6 inches of the bottom, after which give them a little heat to induce fresh growth. So treated, they will flower and set a crop of berries early in spring

that will ripen before those on plants raised from cuttings.

ARDISIA CRENULATA.—This handsome berry-bearing plant is not so much grown as it used to be, yet, taking into account the effective appearance it has, it is of great value. The two forms of this *Ardisia*, which respectively bear red or white berries, require similar treatment. Both are worth growing, the colour of the berries affording a pleasing contrast. The plants are best raised from seed, which should be sown during the present month. Drain an ordinary seed pan and fill it with sifted peat, to which add some sand. Press the material down a little, and make the surface smooth. On this sow the seeds an inch or so apart, covering them with about a quarter of an inch of the soil, and again press smooth. Stand the pan in brisk heat, and the seed will germinate in the course of the spring. When the little plants are 2 inches high, move them singly into small pots drained and filled with soil of a like description to that in which the seed was sown. Grow them on in a stove or intermediate temperature, giving them plenty of light, with a little shade in bright weather. The plants should not be stopped, as they look best when confined to a single stem.

DIPLADENIAS.—Plants that were cut in and re-potted in autumn will now have made some root progress; consequently they will bear a little more water, but care must be taken that the soil is much drier before water is given than most plants require. This is important, and inattention to it is the only cause that I can assign for so few succeeding. Amongst the large number of *Dipladenias* that I grew during many years, and that I have seen in the hands of others, I never knew a case of death from any other cause than was traceable to giving water before the soil was dry enough for the roots to bear it. Whether *Dipladenias* are required as decorative plants in the stove, for the production of flowers for cutting, or for exhibition, when well grown, they stand unequalled, especially when the length of time they can be had in bloom—six months out of the twelve—is taken into account. The shoots will now begin to grow more freely, and will require a little attention frequently in training them to the strings or wires as the case may be.

DIPLADENIA BOLIVIENSIS.—Too much can scarcely be said in favour of the flowers of this *Dipladenia* for using in bouquets or for arranging in small stands. When well managed it will keep on flowering for eight months in the year, and grown with sufficient heat the plant will begin to bloom towards the end of winter. This species does best when planted out, giving it a good-sized bed and plenty of head room. It will then cover as much space as a *Stephanotis*; where it is the intention to grow this kind in the way described, a bed should now be made ready for planting it in. In the preparation of this nothing should remain undone to ensure the material keeping in good condition; 6 inches of broken bricks, shingle, or anything of a like description that happens to be available should be put in the bottom, and on this place a thin layer of turfy peat. The soil should be good brown fibrous peat, chopped or pulled in pieces by the hand, and not made too fine. To this may be added about one-seventh of broken crocks, sandstone, or charcoal, and some sand. The roots will fill a space 4 feet by 4 feet, the soil of the bed may be 10 inches or 12 inches thick, and it will be well to make only one-half at first, adding the remainder in the course of a year or so, when the roots are found to have occupied the first portion. The plant to be turned out should be of good size and with plenty of roots. In a warm house the growth will shortly begin to move freely, previous to which the planting out should take place. The roots ought to be disentangled, taking care not to injure them, and spread them out in the new soil. Do not give any water for two or three weeks after planting, and only a limited quantity must be used at a time until the roots are running freely.

EPIPHYLLUM TRUNCATUM.—More plants should now be put in heat, but they should not be hurried into bloom, or the flowers, which are natu-

rally soft and fleshy in texture, will be of comparatively little use for cutting, owing to their very quickly flagging. The plants should have an abundance of light whilst the flowers are coming on. Though these *Epiphyllums* are usually grafted on the *Pereskia* stock, they nevertheless do well on their own roots. In this way the plants form low spreading bushes suitable for growing in hanging baskets, and they make beautiful objects for conservatory decoration when in bloom. If cuttings, consisting of good-sized branching shoots, are now put in, they will soon strike. Plants that are out of bloom will afford good cuttings, as the latter should be put in before the young growth has begun to move. Put the cuttings singly in small pots, drained and filled with a mixture of equal parts sand and loam, or sand and peat; the plants will grow in either. Stand them in a warm house, but do not confine them under propagating glasses or in frames, unless the atmosphere is so dry as to cause them to shrivel. In this case they may be partially confined. Do not give water as long as there is some moisture in the soil, as if too wet they will decay. T. B.

GARDEN FLORA.

PLATE 631.

GERMAN FLAGS.

(WITH A COLOURED PLATE OF THE GREAT PURPLE FLAG, *IRIS PALLIDA*.)

THE section *Pogoniris* to which the subject of the accompanying coloured plate belongs is the largest and most important group of this highly ornamental genus. To my mind, the *Iris* or Flag, as it is now usually termed, is very useful to gardeners for decoration both indoors and out; indeed, there are few genera in the whole range of hardy plants that play such an important part in the early summer garden. With *I. stylosa* (syn., *ungiculata*), that most delicate and charming of all the *Irises*, they begin blooming in the open air in November, continuing with *reticulata* and its varieties, &c., until the great army of *Pogon* and *Apogon* come, and continue to give us pleasure until the summer is well-nigh over. To the florist, however, we are again and specially largely indebted for the immense variety we have in this genus to choose from, not only with the Spanish and so-called English kinds, which are almost legion, but also with *pallida*, *neglecta*, *variegata*, and many others; indeed, to such an extent has hybridisation been developed, that the lines or specific marks of the botanist are every year becoming less marked. The vast improvement, however, effected in this way raises the *Iris* to a high place amongst the popular flowers of to-day, a position they richly deserve. They are all perfectly hardy out of doors, and now so abundant as to be within the means of the most humble amateur, and anyone possessing a few yards of garden ground may include a selection which in point of beauty, intricacy of markings, and delicacy of tint are little inferior to many of our *Orchids*. The cultivation of the *Irises*, generally speaking, is very easy. If there is any choice of soil to be made, a sandy one, well drained and fully exposed to the sun, should be chosen, i.e., for the germanica section. The soil can hardly be too dry, and in proof of this, I need only mention that *Irises* are found frequently on the Continent growing and flowering profusely on old thatched roofs and the tops of walls. Not long ago I saw roots of *I. pallida* that had once flourished bravely on the tops of old walls in Asterabad, Persia. I have also seen the *Flags* throwing up vigorous flower-spikes in a very heavy soil. The German *Irises*,

* Drawn for THE GARDEN at Woodcote, Wimbledon, by Miss E. Lowe, June 13, 1887, and printed by G. Severeys.



THE GREAT PURPLE FLAG. (IRIS PALLIDA.)

too, are a class of plants specially suited for uncultivated spots in the garden, and if planted judiciously in company with other suitable subjects, such as Meadow Sweet, Bindweed, &c., a very beautiful and simple picture is formed. Irises are easily increased by division, though they can be raised in abundance from seeds. This latter is a very interesting occupation, as seedlings vary in such a remarkable degree. Those not mentioned in detail in the following notes are *aphylla*, *lurida*, *hybrida*, &c.

FLORENTINE FLAG (*I. florentina*).—This is one of the old species, cultivated by Gerard about 1596, and figured in the *Botanical Magazine*, tab. 671. It was called white Flower-de-luce, or Flower-de-luce of Florence, by the old writers, and is certainly one of the grandest of the white-flowered Irises. Its large delicate flowers, which last a considerable time for an Iris, mark it at once as an acquisition even in large collections. I much doubt if there are any botanical characters to separate it from *I. germanica*, but as a garden plant its distinct flowers sufficiently warrant a separate name where colour is of so much importance. The flowers are nearly 6 inches deep, faintly tinged with blue, the falls veined with yellow, and green at the base, with an orange-yellow beard. The leaves are broad, of a rich dark green. A native of Southern Europe, flowering during May and June. The variety *albicans* is almost pure white, with the other characters of the above. *Flavescens* is a nearly allied species.

THE COMMON GERMAN FLAG (*I. germanica*).—This is almost too common in gardens to require more than a passing comment, were it not for the fact that it is one of the few plants that does well in the dull smoky London square. Even under such unfavourable conditions as the above, this plant thrives and flowers freely. *I. nepalensis* is a most charming form from India where it is cultivated, and from whence it was sent by Wallich under the above name. The flowers are from 5 inches to 6 inches long from the tip of the standards to the lower part of the falls, the former of a rich dark violet-purple, the latter intense violet, striped white and purple at the base, with yellow and reddish markings. A most beautiful paint or colour, we are told, is made from the flowers by bruising them in a mortar. It flowers during May and June, and may be increased very quickly. As in the case of *I. pallida*, there are several garden forms, few, however, of which are a great advance, unless it be one called *De Bergi*, which has intense violet-purple (almost black) flowers. They flourish in ordinary garden, dry gravelly soil, or sandy banks, for which they are well suited, and if attended to occasionally with water give a handsome return. A small selection of the garden varieties will suffice, but if possible two or three of each type should be chosen so as to ensure a better variety.

I. NEGLECTA, next to *I. germanica*, is amongst the commonest in cultivation. It is one of the tall-growing species, and it has given rise to numerous garden varieties which may be seen classed under this name in all leading catalogues. Its flowers are, however, small for the size of the plant, and rarely measure more than 2½ inches across, though its variable markings, &c., entitle it to a place in the collection. The standards are of a pale blue, with darker shading, and the much reflexed falls are of a deep blue, veined with purplish red; the crest or beard is bright yellow, and very striking. Its native country is unknown.

THE GREAT PURPLE FLAG (*I. pallida*).—Perhaps not even excepting *I. aurea*, *ochroleuca*, and others of the tall-growing kinds, this is the most gigantic and beautiful Iris in general cultivation. Its large, pale mauve or purple flowers never fail to attract admiration, and it does so well on moist soils that, though fairly common in large collections, one rarely ever sees an unsightly specimen. Another feature of this plant is the perfume of its flowers, which more nearly resembles that of Elder flowers than anything I can suggest. In a good position, and when really doing well, its strong spikes not uncommonly reach 4 feet in height, each one producing in succession from eight to twelve of its

large blossoms, beginning early in June. In the *Botanical Magazine*, tab. 685, it is stated to have been known in all the nurseries around London under the name of Dalmatian Iris. It is also called pale Turkey Iris, and must have been one of the first in cultivation, as it was in Gerard's collection in 1596, though curiously enough entirely overlooked by Linnaeus, or for some reason not specifically mentioned. Clusius is said to have received it from Constantinople. *I. Ciengalti* has by many been erroneously included under this species, and although the two have many points in common, the former never varies from its sturdy habit, narrower leaves, and smaller flowers. It may be that forms somewhat intermediate have been brought about by the cross-fertilisation of *pallida* with other nearly allied plants; but these forms or hybrids always retain their leaves through the winter, while *I. Ciengalti* loses its leaves entirely. The most beautiful of these hybrid forms are catalogued under *I. pallida*, varying in the depth of colour of the flowers, &c., but all are really charming, and almost indispensable for grouping, &c. *Sicula*, *Tinæi*, *australis*, *cucullata*, *Mandralisca*, *Junonia*, &c., are classed as botanical varieties.

SQUALID OR BROWN-FLOWERED FLAG (*I. squalens*), though not so striking as many of the others, is still useful as a variety, and as it thrives well in ordinary soil, it should certainly be found in every collection of Irises. The flower-stalks are generally three-branched, each producing two or three flowers; the standards are purplish red on the upper part, and yellow near the base, while the falls are of a deep violet-purple, with a purple beard. It is very nearly allied to

SAMBUCINA (the Elder-scented Flag), which is, perhaps, the most distinct of the group, so far as flowers go. Parkinson describes the colour of the standard as a smoky purplish or dirty pink, tinged with dull yellow towards the base; while the falls are purple, with deeper purple veins, and a short yellow crest or beard. It grows from 2 feet to 3 feet, rarely more. It flowers at the end of May and June, and was cultivated by Miller in 1748. Not very far from the above is the

DINGY FLAG (*I. lurida*), figured in the *Botanical Magazine* (tabs. 669 and 986). Its flowers are produced in April, somewhat similar in their markings, but much brighter than the above. It is, however, kept as a distinct species by botanists, and the distinct name gives us no cause for complaint. It is a native of Central Europe, and was cultivated by Philip Miller in 1758. Its flowers are totally devoid of perfume.

THE VARIEGATED FLAG (*I. variegata*).—Another charming old species figured in the first volume of the *Botanical Magazine* (tab. 16), and at that time considered inferior to few in point of beauty. It was cultivated by Gerard in 1597, and called by him the variable Flower-de-luce, the latter name being taken up by Parkinson in his "Paradisus." It rarely exceeds more than a foot in height, and on this account we find it one of the most useful plants for embellishing the rockery. It is easily accommodated, flowering freely even in somewhat shady positions, and producing such an abundance of bloom as to doubly enhance it for this variety of work. The standards are about 2 inches long and proportionately broad, of a rich bright yellow, dotted with red towards the base; the falls pale yellow, striped red, and almost entirely of the latter colour towards the tips. It flowers with us in May and June, and although extremely free, it rarely, if ever, ripens seed in this country. Like most of the others, however, it can be increased to almost any extent by division of the rhizomes. A native of Eastern Central Europe, and well worthy of a place in the garden. One of the most distinctive features of *I. variegata* is its dying down in winter, and this fact Parkinson, in the above work, does not fail to notice. Many hybrids have been obtained between this species and *pallida*, the best of which are named and catalogued, the majority of them, however, having the strong fragrance of the latter parent, though the other features favour *I. variegata*.

D. K.

FRUIT GARDEN.

W. COLEMAN.

STOCK V. SCION.

A SHORT time ago a question from a correspondent led me to touch upon the selection of suitable stocks for stone fruit trees, Peaches especially. To the ordinary observer the wood, the foliage, and the flowers, large or small, of the Peach and Nectarine are exactly alike, and it is only by their fruit that they can be distinguished; and yet so sensitive are they, if one may use the term, and so resentful withal after the skilful manipulator has succeeded in making buds and scions grow, and grow well, that they in some cases positively refuse to produce full or good crops of fruit under the most scientific management. In others, although the two or three sorts of Plums used for stocks vary very little, a mistake in the selection for some particular variety of Peach results in the failure of every bud inserted; whilst another variety will produce cent. per cent. of maidens of the finest quality, and this upon kindred stocks on the same quarter. To the majority of buyers of fruit trees these vagaries are unknown, but the nurseryman is well acquainted with the fact; and although a clever propagator will convert roots and leaves, as well as buds and cuttings, into rooted plants, some, I am told, positively refuse to insert the buds of certain varieties of Peaches upon certain sorts of stocks, because they know they will not suit them.

If Peaches and Nectarines, which are so closely allied, have their likes and dislikes in the matter of the two or three sorts of stocks invariably used, how can we expect Apples and Pears to turn out satisfactorily when any member of the *Pyrus* family that will grow from a pip or cutting is pressed into the propagator's service? If the Englishman wishes his Apples and Pears to attain the dimensions of forest trees, he works them on the Crab or the wild Pear, and the Frenchman, on a warmer soil than our own, buds his Peaches on the Almond; but what the fruit grower wants is a stock which, whilst keeping pace with the scion at the junction and producing a clean, fertile growth, will give the first size and the highest quality to the fruit. From the Quince and the Paradise we obtain our largest Pears and Apples, up to the full standard in point of quality; but, this said, the result which follows the use of seedling stocks must be pronounced a mere bagatelle. Before we can have trees we must have stocks, and when it is known that well-ripened Apple pips grow as freely as Peas, it is not surprising that seeds from the commonest Apples and Pears go to the production of nearly all the free stocks which in due time find their way into our orchards. This being so, with proof positive before me that a good variety of stock exerts an improving influence on the fruit, I would strongly urge all raisers of stocks for Apples and Pears to reduce their haphazard mode to a system. There is hardly a garden in the country which does not produce some particular kind of Apple or Pear in perfection; in many they may be counted by the dozen; and what, I should like to know, would be easier than saving the seeds of the best sorts for nursery purposes? Take, for instance, the old, hardy, and excellent Apples, Normanton Wonder, or Mère de Ménage, as the seed-parents of stocks for culinary Apples; the hardiest and best of the Pearmain, including Claygate, for dessert sorts, and I strongly suspect that a great improvement in size, colour, and quality would be perceptible in the first generation. Already we have made considerable progress,

not only in the management of our Apple and Pear trees, but also in weeding out inferior sorts; but until we give up going to the cider mill for our main stock of pips, the fruit from a number of trees of any one kind worked upon chance stocks will vary in many ways, and, most important of all, in quality.

SEEDLINGS.—The pips of Apples and Pears, I have just observed, germinate very freely, and, treated as the rosarian treats the Brier, the seedling are fit for working in about three years. These, then, should be sown annually either in pots, boxes, cold frames, or on raised beds in the open air. The experimentalist who wishes to give this method a trial on a small scale might cast the decaying fruit, together with the cores from the kitchen, into separate receptacles handy to his fruit room, and he might even go the length of keeping his stocks under name or number, whilst the grower on an extensive scale, to whom time is money, might throw them into sections only. When the pot system of raising seedlings is adopted, say of Blenheim Orange, King of the Pippins, &c., the best time to sow is as soon as the season of the particular varieties is over and the seeds have been washed out. This, however, on a large scale in the open air would hardly answer, as mice and rats have a peculiar liking for the tannin contained in the pips; therefore they should be preserved in dry sand and sown broadcast on beds in March or April. If they make fair progress, the seedlings will be fit for planting out early in the following autumn, and at the end of the second they should be taken up, sized, and again transplanted. By this means the best would always be kept to the front, whilst the inferior might come on for succession or be destroyed.

Pear Easter Beurre.—Some excellent Easter Beurré Pears have been sent us by Mr. J. Crook, of Farnborough Grange. There can be no doubt that this is one of the best Pears in the world, but we will not let it into our list of standard sorts, because it does not ripen well generally in England, and even those that Mr. Crook kindly sends us have not the flavour of those ripened in France.

—Mr. Garcia informs us that very fine samples of Easter Beurré Pears have lately come to our market from California—1½ lbs. each in weight and perfectly grown. What is the use of English gardeners trying to grow Easter Beurré in the face of cultivation like this? That a Pear is first-rate in France or America is no proof that it will grow and ripen in our climate. The enormous number of Pears raised by the French and Belgians are only worth growing to find out which of them come to perfect condition in our country—like Doyenné du Comice. What we want is to find Pears perfect here. Easter Beurré may be grown in England sometimes, but seldom good. So of the true Duchesse, which comes from the west of France in such fine quality.

Apple Cornish Gilliflower.—According to what one reads, the character of this Apple must vary a good deal in different places. With us in Somerset the cropping qualities are all that could be desired when the tree is grown in the form of a bush, as it bears both regularly and well, but it is only second-rate in quality, the flesh being too firm. Whether it is owing to our strong soil, or not, I cannot say, but the flavour is never first-rate, even when the fruits are kept until the beginning of April. The longer it is kept the better flavoured it is, but of late years we have used it as a cooking Apple.—J. C. C.

Pear Winter Nelis in Scotland.—This is our best and most constant bearing winter Pear, and for quality is preferred to any other variety at this season. I enclose a few fruits, that you may compare the flavour with those received from the more southern parts of the country. The tree from which these were gathered is against a south-east wall, and is grafted upon the strong growing

Beurré d'Amanlis. This was done to infuse greater vigour and to increase the size of the fruit, but does not appear to have done either, as the branches and spurs have the same weakly appearance, and the fruit buds are produced as abundantly as when single grafted.—JAMES DAY, *Galloway House, Garboston, N.B.*

—If this Pear will not grow with Mr. Douglas, it grows uncommonly well with Mr. Crook, of Farnborough; but how do we know when we are told that a Pear does not do in a particular district that it has had a fair trial? It is well known that some Pears will not grow on the Quince stock, and there is no fruit known, perhaps, on which soils have such an influence. A Pear of the highest quality in our country, like Winter Nelis, should not be given up because it does not do on any particular stock. It ought to be tried in different ways. When we have established the fact that a Pear will ripen over a large area in England it is a very important consideration. A great many of the finest Pears known will not do this, and, therefore, we may be sure we can give them up for the most part—like Duchesse d'Angoulême and Easter Beurré.

THE CAUSE OF SHANKING IN GRAPES.

This disease has long been a source of agitation to many minds. It is not found among Grapes grown in the open air, and this circumstance narrows the question somewhat, as it proves that the cause must be sought for in the management of the interior of the vinery, or in the border containing the roots. Shanking is owing to unripe wood, says one cultivator; it is caused by having the roots in a sour, pasty soil, says another; it is due to over-cropping, says a third; you do not give sufficient nourishment, cries a fourth; you pinch the growth of your Vines too much; extension is the only rational course to pursue, shouts a fifth; and so on through the whole of the ups and downs of Vine culture. Now, there is no doubt, I think, that all the causes given above may have something to do with special cases of shanking. We know that unripe wood is indirectly a cause of shanking, but in tracing things to their source, we naturally ask the question, what is the cause of the wood not ripening? In nine cases out of ten we might safely assign it to the roots being in a cold, pasty border. But the question may be asked, why should Vine borders be pasty and sour? And if truthful, the answer would probably be, over-manuring. A plot of land with its surface constantly sealed up all the year round with a heavy coat of manure must in the nature of things get sour in the course of time, no matter how well drained; and therefore, I should say, one of the chief causes of shanking is the heavily-manured border. This is often the beginning. First, there is the gross, unripe wood, with the large, long-stalked loose bunches, and then the next season or the one after shanking sets in, and the only remedy is to lift out the roots, remove all the sour, pasty soil, make a new border of fresh open soil, and profit by the lesson taught. Close pinching in summer by lowering the vitality of the Vines may, in some instances, be an indirect cause of shanking, and, on the other hand, I have met with cases where dryness at the root had led to the footstalks of the berries giving way at the critical moment. Shanking always appears just when stoning is about finished and the Grapes commence their last swelling. A close observer can detect a limpness in the footstalks of the berries of those Grapes which are failing in their work, and the berries will be found soft and flabby when touched. At this stage of the growth of the crop there is a heavy demand made upon the roots, and if these are in a border which is too dry, or if the energies of the roots are crippled through being surrounded by a medium that is too cold and wet for healthy action, the result will be pretty much the same, and a failure to supply proper nourishment to the bunches leads to a shrivelling up of the ducts or channels; and although the berries may hang on the bunch, they never colour or flavour properly. In some cases, if noticed in time, a dressing of lime may avert the evil, and in the case of Vines which are being overfed, the initiated may read in the gross wood

and flabby foliage what is going on, and should take steps to correct the evils whilst there is yet time before the full mischief has been done. When shanking is caused by poverty, it is a very easy matter to stop it. I remember a case of a range of vineries some years ago where the situation was high and dry on a gravel subsoil. The Vines made splendid wood, showed good bunches, but always shanked. The gardener came to the conclusion that the Vines lacked nourishment, and he gave them liquid manure made from guano and various artificials, and mulched in summer, and the shanking gradually disappeared. But this treatment would have no beneficial effect upon Vines in a sour, over-manured border. The remedy in this case must be a removal of the sour soil and replacing it with better stuff, enriching it with bone-meal and artificial manure, and helping its porosity with lime rubbish and crushed charcoal. Wood ashes or the bottom of the heaps where charcoal has been burned have a beneficial effect upon Vines, and tend to correct any undue acidity of the materials composing the border. E. H.

NOTES ON LATE PEARS.

WINTER NELIS.—With reference to the length of time this Pear keeps, I find that it and Glou Morceau are alike. This season I had good ripe fruit at the end of November, and still have it in prime condition. If I were only allowed to grow one kind I should select this one. I am not speaking of appearance or size, as I think that, whatever is grown, flavour should be the first consideration. I have never known this Pear, wherever grown, to be of bad flavour. I know a large garden not far from here where many sorts are grown, and out of a very few good enough to send to the proprietor's table the above kind is always of first-rate quality. I grow it here on south and east walls. On the south wall the fruits are the clearest and come into use first, while those on the east wall are larger and greener, and I can perceive no difference in flavour.

We have an old tree that has been planted many years on a north aspect, but never fruited satisfactorily, until about six years ago I trained the shoots over the top of the wall on to the south side, where, although quite exposed, these shoots have never failed to produce good crops of fruit. Grown as a bush, I find that Winter Nelis is not satisfactory. Although generally a small Pear, yet when the trees are in good condition and well thinned the fruits come of a good average size. Everyone who has room enough to grow a Pear on a wall should have a tree of this grand kind.

The variety Prince Consort grown as a cordon on a south wall is only second-rate. Beurré d'Aremberg grown in the same way I also find only of second quality. Ne Plus Meuris grown as an espalier comes of good size, but the fruit has the fault of dropping off the trees before the proper time, and in consequence is only fit for stewing. I have tried various methods to prevent this dropping, but have never succeeded as I should wish. This season I frequently watered the trees during the summer, and in this way was able to keep the fruit on much longer. The result of this treatment has been that some of the fruit which hung the longest have ripened and are of good flavour. I shall be glad if any reader will tell me the cause of this, as it is very annoying to lose a crop in this way.

Zephirin Gregoire as a bush is here disappointing, although I have found it to do well as a bush in the cold part of Norfolk. Josephine de Malines grown here as a bush is good and very free-bearing; on a south wall it is of poor flavour. The tree is of straggling habit; the fruit, of average size, is of good flavour, but not equal to that of Winter Nelis. It remains in use from December to the end of February.

Nouvelle Fulvie grown as a bush attains a good size, and the tree grows well. The fruit is not good enough to be classed in the front rank, as it is apt to decay at the core. I think it would be good on a wall, and I intend trying it in that way.

Bergamotte d'Esperen, growing on a west wall, is large and clear in the skin, while on an east wall it

is not so large, but in neither aspect is the flavour good. We have three bush trees, and when grown in this manner the fruits are rough-looking and much smaller than those from wall trees. They are often apt to crack, but however small they may be the flavour is always good. The tree is a good bearer, and the fruits keep a long time after being ripe. I have kept good fruits of it as late as the end of March. My late employer would often come into the fruit room and ask me to let him have the fruit off bush trees in preference to those from the walls, remarking that he valued fruit for its flavour, and not for its looks.

Of Easter Beurré, we have never been able to ripen fruit until this season. This year it promises to be of good flavour. This is a very good Pear when it ripens well. It does well at Frimley Park (about a mile from here) on a south wall. This Pear used to be good in a large garden in the neighbourhood of Sherborne. I have samples before me from Worcestershire and Dorsetshire, but none are so good as those from Frimley Park.

Beurré Rance on west wall here is seldom good enough to send to table. It is large in size, grows well, but is not to be depended on. During the last two seasons I put the fruits about Christmas-time in a warm place, the temperature of which ranges from 50° to 55°, and many of them ripened sufficiently to be fit for table. I have never found this Pear good, except when living at Venn Hall, Sherborne, some twenty years ago. It was growing on an east wall. The fruit was allowed to hang as long as possible on the tree, and was then taken into a warm fruit room, where it ripened and was highly appreciated during February and March. If this Pear could be depended on to ripen well it would be most valuable.

Of Beurré de Jonghe, I have a cordon tree from which I have gathered during the last two seasons a few fruits which ripened and proved of good flavour. It also promises this year to be of good quality.

Olivier de Serres I have placed last on my list of Pears, but by no means least. As a very late Pear, that is, February and March, this, as far as my observations goes, is the very best, and if I were asked which late Pear I should plant I should select this one. I have fruited it during the last seven years, and each year it has produced good fruit, and during that time it has never been of inferior quality. It ripens gradually and keeps a long time when ripe. It is below medium size, of roundish shape, skin greenish yellow, very russetty, the flesh juicy and melting and sweet. I never remove it from the cold room, and it always ripens perfectly. Here the growth is rather weak. I have several other late kinds here on trial, but not having proved them, I cannot speak as to their qualities.

The twelve sorts which I consider the best after eleven seasons' experience, selected from fifty sorts, are Jargonelle, Bon Chrétien, Mme. Treve, Louise Bonne de Jersey, Fondante d'Automne, Marie Louise, Emile d'Heyst, Doyenné du Comice, Winter Nelis, Glou Morceau, Josephine de Malines, and Olivier de Serres. If more good and desirable kinds are desired the following may be added: Beurré Superfin, Beurré de Jonghe, Bergamotte d'Esperen, Beurré d'Aremberg, Beurré Diel, and Conseiller de la Cour.

JOHN CROOK.

SHORT NOTES.—FRUIT.

Best six Pears.—Mr. Garcia selects as the best six home-grown Pears the Jargonelle, William, Marie Louise, Calebasse (or Doyenné du Comice), Glou Morceau, and Beurré Rance. He sent us some Beurré Rance, and very gritty and bad they were!

Apple Blenheim Orange.—The Rev. R. Hooper, vicar of Upton, has sent us a very fine, highly coloured example of this Apple, grown by Mr. B. Nade, Thorpe Farm, Aston Upthorpe, and says that it was by no means the largest grown this year.

Pear Olivier de Serres, which also comes from Mr. Crook, is not, according to those who judge of flavour by appearance, a very bright specimen—stony-looking and brown, with a curious deep depression; but

it really has something in it in the way of flavour, and we shall be glad to hear how our readers generally find it.

Apple Claygate Pearmain in Scotland.—In reply to your note a short time ago respecting the above, I send a few specimens that were grown upon a pyramid tree, but owing to the drought, they are rather smaller this year than usual. It ripens here about the end of January, and forms a good succession to Cox's Orange and Ribston Pippins. The tree does best in the bush form, as the spreading nature of the branches prevents it making a good pyramid.—J. DAY, *Galloway House, Garlieston, N.B.*

SMALL APPLE TREES IN GARDENS.

ONE can but deplore the almost entire absence in many cottage and villa gardens of small and useful Apple trees. The cottager might reasonably enough plead that he is too poor to buy, and the owner—who too often exacts exorbitant ground-rents and draws from a few acres of house property a very heavy sum per acre, and who does little or nothing to improve it—regards it as no concern of his. Small bush Apple trees are well adapted for gardens of small space, especially those belonging to cottagers and the artisan class. Trees of this character, if worked upon the French Paradise stock, do not take up much room and quickly bear fruit. If the best cropping sorts of good quality are planted, such trees speedily become remunerative. They are easily managed by thinning out the branches when they become too crowded, and doing such pruning as might be necessary during the winter, but sorts that bear freely yearly do to a considerable extent regulate their own growth. Some little pinching back is occasionally necessary during the summer, but care is necessary that the shoots be not pinched too closely back, or they are in danger of becoming a mass of unripened young wood unfit to bear fruit. Should a tree become too gross in its growth, one of the best things to do is to take it up in the autumn and replant it, and the act of doing this will be pretty certain to throw it into bearing. The act of lifting in this way is an easy matter in the case of trees on the French Paradise stock, as they put forth roots near the surface, and, like the Quince, form masses of fibrous roots through being occasionally lifted. Apple culture on these dwarf bushes can be made very interesting to amateurs and cottagers, and becomes a great source of pleasure and recreation.

In cases where gardens and trees alike are small, a commencement might be made by planting trees only 18 inches apart, and when they begin to touch each other each alternate one can be taken out and replanted elsewhere. I remember Mr. John Scott, nurseryman, Crewkerne, once saying that in 1868 he had as many as 1000 trees of this type of various sorts, many of them bearing six to twelve Apples, the trees being close together, and most of them from 1 foot to 1½ feet in height. Mr. Scott said that all the large Apples which are generally strong growers and slow bearers, when grafted on the French Paradise stock bear abundantly in two or three years, and produce fine handsome fruit, better flavoured than when the trees are on the Crab or Doucin stock. Why, the very act of bearing is, in the case of these small trees, Nature's own method of pruning, and when they bear good crops they make but comparatively little growth.

The management of these trees is very easy and simple; that is, if any of them should show an inclination to grow too luxuriantly, all that is necessary is merely to lift them out of the ground, tread the soil down firmly, place the tree on the spot, spread out the fibrous roots carefully, and cover them with a few inches of soil, thus raising the tree on a kind of little mound. The roots will thus work near the surface, and, as a consequence, the wood will be well ripened and a fruitful tree formed. Little pruning is necessary; a few over-luxuriant shoots pinched back slightly once in summer, and a neat and thin regulation of the branches in autumn and winter is all that is required. Too much summer pruning should be avoided for the reason already named, and also because the trees are in danger of becoming too

scrubby, stunted, and ugly. A generous treatment should be followed, not too much pinching or pruning, and the trees should not be cropped too heavily, so as to exhaust unduly their energies.

And as it might be asked, What are the best varieties of Apples for growing in this way? I would reply, generally endeavour to secure such sorts as are suitable for the district in which the cultivator resides. A well-known gardener or nurseryman of the locality would be in a position to give a reply to such an inquiry.

R. D.

HARDY FRUIT: "OUR OWN SELECTION."

WRITING lately to a friend who was anxious to make a sure choice of Apples to plant, we named half-a-dozen of those we had reason to think, beyond all doubt, first in merit. Our friend sent it to a nurseryman reputedly strong in fruit trees, and had a reply stating that most of the kinds named were not in stock. The writer added, however,

We could really do much better for you if you would leave it to our selection.

We believe that a main cause of the state of our fruit gardens is owing to the leaving them to the nurserymen's own selection. Their business is to get rid of their stock; but their business should never be to stock a garden. We know many nurserymen above all suspicion of dishonourable business of any kind—many whose knowledge of fruits is very precious; but the nurseryman's work should be the growth of his stock. Fruit-growing nurseries are usually stocked with many kinds of our hardy fruits, and the temptation to get rid of those that remain on hand is great. Therefore, we say, never trust a grower of young trees to select for you, though his experience of how varieties do in his own district may be useful. The public are to blame for causing nurserymen to issue "fat" catalogues, and to grow a hundred kinds where they ought to have a well-grown stock of twenty-five. If the public ordered only kinds they knew to be worth eating when they had them, they would teach a valuable lesson to the trade. And they would help it too, for the trouble of growing and naming accurately a large number of varieties prevents full attention being given to getting healthy stocks of first-rate essential kinds. Above all things they should, in ordering standard kinds, resent any attempts to send others instead, with or without permission; also trees or plants thrown in to "compensate for carriage!" and insist on all trees being true to their kinds. If people waste their ground with useless trees it should not be through the nurseryman's advice. The grower for private use or for the markets should have his own way in that, as his responsibility is serious. Many crops want but a few months for their perfecting; with poor kinds of fruit trees we lose many years.—*Field.*

Vine borders in autumn.—Experienced growers always see that their Vine borders, particularly where the Grapes are hanging, are in a thoroughly moist condition before the winter is far advanced. Others sometimes allow their borders to become dry enough in autumn to cause the fruit to shrivel before mid-winter. This will be liable to occur this season, as many Vines did not receive sufficient water last summer, and the borders have become so dry throughout that it will take some perseverance in watering to get them thoroughly moistened again. It is a difficult matter to do any harm in a viney by watering the border in good weather, so long as the ventilators can be freely opened; but as the days shorten, and ventilation becomes limited, watering the border must be done with more care. The operation cannot be performed in a close atmosphere without causing a

great deal of moisture to rise and cling to the Grapes, and this causes many of them to decay. October is a bad month for this, and all Vine growers would do well to see that their borders are thoroughly watered before then. By a thorough watering, I mean more than a mere sprinkling on the surface, as, where the borders have become dry, it will take more than one or two waterings to soak them, and before this is fully accomplished they may have to be watered half a dozen times. When I water a very dry border, I give a good quantity to it in the morning, and again in the afternoon, and this is repeated day after day until it has been soaked. If a border is done in this way during September, or in fine weather in October, it may not require more water all the winter, as the leaves will begin to fall off, and there will be no great call for moisture by the Vine. The atmosphere can, therefore, be kept very dry, and this is one of the greatest aids to successful Grape keeping. In an ordinary season, when the rainfall is up to the average, it is always necessary to see that all Vine borders are thoroughly watered before winter; but now, when the rainfall is far below the average everywhere, it is of the utmost importance that the watering of the borders has special attention.—CAMBRIAN, in *Field*.

FRUITS UNDER GLASS.

PEACHES.

NOT many years ago the ripening of really first-class Peaches about the middle of May was considered good work, and gardeners who succeeded deserved more credit than we can lay claim to. Royal George, Noblesse, and Grosse Mignonne, still unbeaten for quality, were the varieties our forefathers depended upon, and in order to have the fruit ripe by the time I have named, the houses were closed for forcing by the end of November. With smoke-floes for giving warmth, and all the winter before them, the management of these trees was no sinecure. But all this has been changed, as we now have light, airy houses, well ventilated upon the best principles, and efficiently heated with hot water. External borders have been superseded by internal arrangements for the roots, but whether this is a great gain for those who use water sparingly is very doubtful, as the prevailing cry now is the dropping of the buds when they ought to be swelling freely. Add to these advantages the introduction of a host of precocious varieties, more or less clingstone and decidedly inferior in quality, which can be started on the 1st of January, with every prospect of their fruit, such as it is, ripening in time for the Queen's birthday. This is quick work, and were it a decided gain upon the past we might congratulate ourselves; but Peaches, like all other fruits, are intended for eating, whilst these small bags of sweet water and fibre have nothing but their earliness to recommend them. But I digress, and having shown that I do not approve of a step backward, I must return to my notes on culture. Waiving the sorts and the time at which the trees were started, I will assume that the roots are established in sound, well-drained internal borders, and fermenting material has been used for producing atmospheric moisture by which the drying influence of fire-heat has been counteracted; that the borders, moreover, are thoroughly moist, and the buds, thanks to a plentiful supply of water, are swelling freely. Started at a minimum temperature of 45°, with a rise of 5° to 10° by day, the progress will be slow, but sure, and many will be inclined to increase it to 50° at night; but, unless the weather is soft and mild and air can be admitted, the safest course will be a night heat of 45° until the flowers begin to open. There are, of course, exceptions to all rules; but patience must be exercised, and whenever a stride is made it should always take place during the hours of daylight. Syringe the trees backwards and forwards once or twice a day according to the state of the external atmosphere, but avoid a sloppy state of the house, and always see that the buds are fairly dry at nightfall. Fire-heat more or less every day being necessary, it should be turned on early in the morning, when air in due course can be admitted, and very often the turning of the fermenting material for setting

warmth as well as moisture at liberty will be found an excellent substitute for the afternoon syringing, when the ventilators for a few hours may be closed. As days increase in length and the sun gains power the buds will push forward rapidly, but before the first flower expands the house must be lightly and repeatedly fumigated. Green-fly may not be in sight, but this must not be an excuse for neglect, as the most promising trees are frequently ruined for the season when a trifle spent in tobacco-paper would carry them safely over the setting process.

Succession houses, recently closed, may range from 40° to 45° at night to 50° by day, always, if possible, with a chink of air. Many people do not think it necessary to give air through the early stages, but buds as well as leaves gain strength under its invigorating influence, and for this reason a circulation, no matter how trifling, should always be insisted upon when the hot-water valves are open also. When these are closed the ventilators may be shut for a short time, when the gardener's best aid—the bed or ridge of fermenting leaves—should be turned over and renovated with a fresh supply from the reserve if necessary. Old trees that have been forced for a number of years, and have never felt the want of water, invariably swell up nine-tenths of their buds, and set an abundance of fruit which requires much thinning. This operation is a very pleasant one, but a moderate set always gives the finest fruit, and as all Peach growers prefer seeing their fruit pointing apex upwards to the sun, it is a good plan, as soon as the buds are safe, to draw the finger down the lower sides of the shoots and to carry away all with which it comes in contact. Another aid to these old and trusty friends will be found in a liberal mulch of good turf and rotten manure in equal parts, with 12 per cent. of bone-dust added. If spread over the whole area of the internal borders and well washed in with tepid water, the surface roots will at once get to work, and the trees will pay for this attention over and over again by the time the fruit is ripe. It is very easy to stimulate fruit trees into grossness of wood and leaf by the use of nitrogenous manures, but for producing short-jointed shoots and helping Peaches—indeed, all stone fruit trees over the stoning process—there is nothing to beat old calcareous turf and genuine bone-dust.

Late houses.—As these will be retarded until the sun gains the victory, there yet remains plenty of time for cleansing and putting the trees in order. Meantime, as it is unwise to put off until to-morrow work that can be done to-day, advantage should be taken of inclement weather for washing and tying in the trees. If not well thinned out in the autumn the knife should now be freely used before the trees are loosened from the trellis, as the overcrowding of late varieties in late houses is a most serious defect, which the hottest and brightest of seasons cannot remedy. From 5 inches to 6 inches apart is not too much, and be it borne in mind that a young shoot should always be tied down upon the top of each old branch, as exposure of these to a burning sun is the most common cause of paralysis, by many called sunstroke. This burning of the stems and branches of Peach trees, not only under glass, but against walls, is far more prevalent than many imagine, and invariably the mischief is done before those who have not bought their experience are aware of it. Prevention being better than cure—in fact, there is no cure—and so simple, the tying and training of young leafy shoots over all exposed parts where practicable, and shading the stems with thin boards, should never be neglected.

FIGS

started about the end of November or early in December will now be breaking into leaf, and the young fruit will be the size of Hazel nuts. This, at least, is the condition of my own trees, and having had so little sun they have not been hurried. Although Figs will stand more heat than Vines, the Muscat excepted, I never make any difference in the two houses until after the fruit is safe, when the Figs are treated to a higher temperature. These particular trees for a great number of years occupied 20-inch pots, and were plunged in a shallow pit filled at the proper time with fermenting

material, but finding them too unwieldy for moving or potting, I burst their bonds with a hammer, packed the roots of each tree in a yard of compost, and trained the shoots to a trellis. As these cubes of compost do not fill more than half the pit, the remainder is filled in with fermenting leaves pure and simple, when the house is closed, and, well checked in their youth, the trees do not break away from their short, stubby growth, which, as everyone knows, is abundantly fruitful. By occasional renovation from the reserve, the bottom-heat is kept about 70°, tepid water in abundance is given, and whilst escaping the danger of dropping, brought about by want of water, by choked drainage, or other pot-culture ills, the young roots soon find their way into a medium that does not readily dry up, and the fruit arrives equally early at maturity. I do not condemn pot culture, quite the reverse, but draw attention to this mode of dealing with over-large pot trees to show that they cannot be too old to be profitable. When the leaves are nearly ripe we clear out the pit, pare off a portion of the turf cube, roots included, build up a new retaining wall of turf, give one good soaking of water, and roast the shoots with sun-heat. When Fig trees at home have pushed into full leaf and the fruit begins to swell freely, good mulching and warm liquid will be necessary; the syringe, too, may be plied twice a day, but not too late in the afternoon, as the foliage should always be fairly dry by nightfall. Thinning, too, must receive attention, but who ever thinks of thinning when the Fig is so wayward and persists in dropping, not a few, but all its finest fruit, just when the most coveted is wanted for the first dish of the season? Leaving on one tree enough for two is not the way to redeem its character. Peaches under such treatment would drop at stoning time, and if Grapes did not drop they would shank and look red when they ought to turn black, and yet the abused Fig is handicapped with a double load to help it forward to a successful finish. If anyone doubts this theory let him give the roots of one tree all they require and thin off the inferior and underside fruit, and not only will those left finish well, but free varieties like Brown Turkey will become perpetual bearers.

Succession houses.—If the second house has not been started no time should be lost in getting the roots into action—first, by watering with water at a temperature of 90°; second, by the introduction of a good body of fermenting leaves; and last, by a liberal use of the syringe. If the bed of leaves is well managed, fire-heat for the first fortnight will hardly be necessary, but when the buds begin to swell and the embryo fruits to push an increased circulation by day will be necessary. Old-established trees may be started at 50° as a minimum, unless the weather is very cold, with a rise of 10° by day, and these figures must be gradually increased until by the time the trees are in leaf the minimum touches 60° and the air temperature is 70°. If syringed twice before 1 p.m., moisture in abundance will be produced, even on fine days, whilst one syringing, supplemented by moisture from the hot leaves, will be ample when the weather is dark and sunless.

CHERRIES.

When the buds in the early house begin to swell freely, the mean temperature may range about 45° by night and 50° to 55° by day always with air. Frequently these figures will be touched and sometimes exceeded, without the aid of fire-heat, but this will not matter, always provided fresh air is admitted, when 5° to 10° higher during the prevalence of sunshine will make up for enforced rest on severe nights when the ventilators are closed. As soon as this stage is reached and days begin to lengthen, the most gentle circulation on the pipes with top and bottom ventilators more or less open and syringing duly attended to, the progress of these excitable subjects will be very rapid, and preparations must be made for a clean bill of health during the time they are in flower. Although green and black aphid may have been annihilated by the winter dressing, the temptation to introduce a few Strawberry or other plants is strong, and with them enemies fatal to the crop may be discovered when it is too late to fumigate. But independently of

this pardonable attempt to utilise space, three mild smokings should always precede the opening of the first flower. Every blossom will then be clean and strong, and there will be no necessity for hurrying forward the fertilising process, as fly cannot possibly become dangerous before the fruit is properly set. The above remarks apply to trained trees growing in internal borders, covered or banked up with a body of fermenting leaves, but trees in pots require precisely the same give-and-take treatment, as undue haste in bad weather is fatal, whilst patience is rewarded with one of the most enchanting sights imaginable when they are in full flower. Many people give preference to pot-trees, which, under good management, will last a lifetime; but being more liable to go wrong, two or three suitable varieties planted out in limited borders and trained under portable or movable roofs, whilst giving less trouble and more reliable results, are fast growing in favour with all good Cherry forcers. Having so often given lists of the best for forcing, repetition appears unnecessary; the same questions, however, year after year keep cropping up, not only in this, but in every other department, and as every calendar writer is supposed to be a walking catalogue, I may as well take the bull by the horns by saying May Duke and Empress Eugénie—an earlier and equally good variety—are indispensable. Early Rivers should not be overlooked. Black Circassian is the best representative of the early blacks; Governor Wood and the good old Elton complete the half dozen, which cannot be beaten. The early, also the large Black Bigarreau and Bigarreau Jaboulay, or Early Lyons, I believe, are equally suitable for the forcing house; but having a great liking for this section so rarely tasted at their best from open walls, I repeat my request, that all who can will give this family a house to themselves for forming a succession. Here, the three I have named should lead the way, and variety being charming, the handsome Bigarreau Napoleon and a few more of the best should be represented. If handsome pyramids on the Mahaleb stock, well furnished with flower-buds, were placed in pots or small tubs, a house of moderate dimensions would accommodate a goodly number of trees, which would lend a charm to any good garden not often realised. Good drainage and hard potting in sound calcareous loam, corrected with old lime rubble and a dash of soot and bone-dust, are first essentials. Fire-heat is not absolutely necessary, but knowing that a damp, stagnant atmosphere in bad weather is unfavourable to setting as well as to the preservation of the fruit when ripe, I would strongly advise the introduction of a flow and return pipe for falling back upon in time of danger.

PLUMS,

like Cherries, can be obtained in all forms, and laden with flower-buds ready for forcing, or coming in late like the Bigarreus. Their treatment in every respect is the same, at least through the early stages, and on this account many gardeners grow the two together. A time, however, comes when the precocious Cherry requires drier treatment than would be good for the Plums, and to accommodate the two no one will regret growing them separately, under the same roof it may be, but with a glass division, with gentle fire heat and an abundance of ventilation. The lists of Plums are much too long, and when those of Apples and Pears have been passed down we hope the practical editor of THE GARDEN will carry his shears into this department. Meantime we must make the best of our position by confining ourselves to a few of the choice sorts especially for pot culture. De Montfort, Kirke's, Jefferson's, and Transparent Gage are good sorts for forcing, if the Plum can be forced, but, like the Camellia, the secret of success is bound up in getting the trees and buds forward in the autumn and starting early. If this point is neglected the Camellia will take its time or cast its buds, and the Plum will refuse to go on to early maturity. The four varieties I have named are excellent for the dessert or for exhibition. Nearly all the Gages are worthy of pot-culture, and two of Rivers's seedlings, the Early and Late Transparent, from the old Transparent Gage, a host in itself, are said to be excellent. The first, as a matter of course, should

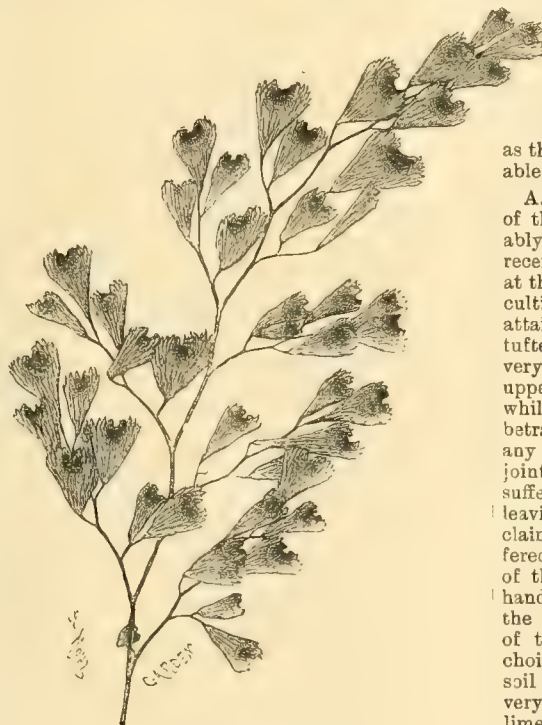
have a place in the early house, the second in the late one, where also Golden Drop should be well represented. Kirke's, Jefferson's, Transparent, the old variety, and Late Rivers, a most delicious Plum, may be duplicated to any extent, as they cannot come in at the wrong time, whilst some of them will hang until they shrivel and become perfect sweetmeats. The enemies to Plums, when in flower, and also when ripe, are a damp, sluggish atmosphere, and last, but equally destructive, the black-bird. If I were confined to one variety, I would plant a house with Golden Drop, giving the trees an inside border and train them to a fixed trellis as we now train Peach trees. W. C.

FERNS.

W. H. GOWER.

ADIANTUM MONOCHLAMYS.

THE accompanying illustration represents a very elegant Japanese Maiden-hair Fern, and was taken from a specimen gathered in that



Adiantum monochlamys.

country by the late Mr. John Gould Veitch. The Messrs. Veitch have raised the plant from spores, and it is now growing in their collection. It grows about 18 inches in height, of which about half is a naked, glossy, chestnut-brown stem; the frond is tripinnate; the pinnæ distant; the upper edges rather rounded, more or less toothed; the texture firm and rather leathery; sori, singly on the pinnæ, being situated in a deep hollow, whilst the colour is pale green. It is a very distinct plant, and worthy of a place in every collection of Ferns.

A. FERGUSON, another handsome Maiden-hair which I recently noted growing in the Messrs. Veitch's fernery, is a beautiful companion plant. It has recently been introduced from Ceylon, where it has not, however, been found in a wild state, but was detected growing in a garden, nothing being known of its history. It appears to grow readily from spores, and retains its true character. The fronds are erect, tripinnate, and about 2 feet in height, and vivid green; pinnules large, irregular in outline, and deeply lobed on the upper edge. It

somewhat resembles the variety of *A. Capillus-Veneris* called Footi.

A. SCHIZOPHYLLUM is also a pretty, neat, and distinct plant, which appears to have been raised in Mr. Williams' nursery at Holloway. The fronds are supported upon slender, jet-black stems, and seldom exceed a foot in height; they are much branched, all the branches being tripinnate; the pinnules are small, somewhat distant, and rounded above, where they are deeply toothed. It is just now a conspicuous feature in the fernery at Holloway.

A. BELLUM is a tufted species, with bipinnate fronds, which seldom exceed 6 inches in height; the pinnules, somewhat large for the size of the fronds, have short stalks, and are irregularly lobed and toothed on the upper edge, and bear two or three rather large sori on each. I recently noted this elegant little plant in the nursery of Mr. Bull, by whom it was introduced from Bermuda.

A. GLAUCOPHYLLUM.—This species is now very handsome in the Victoria Nurseries. It is an elegant plant, and is considerably hardier than either of the previously named kinds, which can be readily understood when I state that it has been found growing in its native country (Mexico) at an elevation of from 6000 to 9000 feet. The fronds are deltoid in outline, usually four times divided; the pinnules stalked and narrow; sori three to four on a pinnule when mature, chestnut-brown and conspicuous. Its fronds are light and graceful and as they last a considerable time when cut, are valuable for table decoration.

A. FRAGILE inhabits limestone rocks in various of the West Indian Islands, and is, I believe, tolerably common in Jamaica, from whence I have received it upon several occasions. If in cultivation at the present time it is rare. It was introduced to cultivation by the late Messrs. Rollisson, but did not attain any dimensions with them. The fronds are tufted, 6 inches to 9 inches high; stems slender, very short; pinnules stalked and rounded on the upper edge; the infertile pinnæ deeply serrated, while the fertile ones are broadly lobed. This plant betrays the careless attendant more quickly than any other Fern I know. Its pinnules appear to be jointed to the slender stipites, so that if the plant suffers from drought the pinnules all fall away, leaving nothing but bare stems, which at once proclaim the neglect from which the plant has suffered. This character will at once prohibit the use of the fronds in a cut state, but when grown into handsome little tufts it is a veritable gem; indeed, the above-named half-dozen small-growing forms of the Maiden-hair Fern are amongst the very choicest of their kind. *A. fragile* does not like much soil about its roots, and requires to be kept in a very equable state of moisture. It thrives well in limestone.

British Ferns at Kew.—The richest bequest that has fallen to the Royal Gardens at Kew since the late Mr. Joad, of Wimbledon, left, a few years ago, his entire collection of plants to the national garden, is that which has recently been made by the late Mr. Carbonell, of Usk, who during his long life made British Ferns his special hobby and study. His complete collection is now at Kew, consisting of some 4000 plants, representing over 1000 named forms! Without doubt, Mr. Carbonell's Fern collection is one of the richest extant, for he seems to have collected every known form, however slightly it differed from the type or similar varieties. One might imagine, from the prodigious number of named kinds, that many of them are alike to all except specialists; but, for all that, we rejoice that at last Kew possesses the material for an open-air fernery which, if properly designed and planted, will become a source of special interest to thousands of visitors. The hardy Fern collection has always been a weak point at Kew, and now we hope that there will be no cheese-paring policy at headquarters, but that a liberal grant will be made for carrying out in a thorough way a new hardy fernery, so that Mr. Carbonell's

priceless collection may be enjoyed by the public. There is a capital site for such a fernery adjoining what was the old rockery. It is a rising knoll, clothed with a few big trees, and if deep cuttings were made in this knoll, so as to form miniature ravines, a most picturesque fernery could be constructed. But we do hope that whatever is done a painful excess of stone will be eschewed, for in Nature most hardy Ferns mingle rather with tree roots than stone. We hear that the plants are grand specimens, so that an immediate effect can be produced. The collection will not only prove of interest to the cultivator who wishes to select the most beautiful sorts, but will also afford solid food for the botanical student who may wish to study the excessive variability of British Ferns.—W. G.

THE ROYAL FERN.

(OSMUNDA REGALIS.)

A NOTE by "O. G." in THE GARDEN, Dec. 31 (p. 612), calls attention to an article in the issue for 17th ult., by "S. G.," on *Osmunda regalis* (p. 565), in which it is stated that this Fern has only been found in three localities in Ireland, a statement on which "O. G." very properly casts a doubt, but his remark does not go nearly far enough. If "S. G." had referred to any standard work on the distribution of Irish plants, such as the "Cybele Hybernica," published by Dr. David Moore (late head of the Botanic Gardens, Glasnevin) and Mr. A. G. More, he would have found that the *Osmunda* is comparatively a common plant, and not a great rarity, as he states. Messrs. Moore and More describe it as "frequent, but avoiding limestone." It is recorded from every one of the twelve districts into which these authors divide Ireland. Anyone who has been at Killarney must have seen it in quantity; and in some parts of county Cork it fringes every ditch, and grows in favourable localities 9 feet or 10 feet high. I have myself gathered it in Wicklow and elsewhere. The spelling of the word Muckross "Mucross" suggests that "S. G.'s" authority must be some very old author, older certainly than Mackay, for he says the plant is common in many places, and mentions county Down, &c.—GREENWOOD PIM.

The thanks of all who are anxious to preserve this magnificent Fern in Wales are due to "S. G.," in THE GARDEN, Dec. 17 (p. 565), for avoiding (purposely, no doubt) naming but one solitary spot in this country where it is known to grow wild, for, however careful we may be, tourists find the plants, drag them up and carry them away, no matter what the season of the year may be. Thus these destroyers soon annihilate large patches of fine plants, to no better end than to show on their return home to their friends a few withered fronds, and to dilate on their own wonderful powers as Fern-collectors. May "S. G." and others long keep such people in ignorance of the habitats of our Royal and other fine Ferns.—A LOVER OF NATIVE PLANTS.

SHORT NOTES.—FERNS.

Lastrea prolifica.—This perfectly hardy Japanese form has been recently introduced, and is a decided acquisition, as it retains its bright green fronds throughout the winter months. I recently noted this species in Mr. Bull's nursery at Chelsea, but cannot say to what size it attains. Its evergreen character should cause it to find favour with the now numerous amateurs who devote a portion of their garden to the cultivation of hardy Ferns.—W. H. G.

Adiantum assimile cristatum.—Few Ferns are more handsome when grown in a hanging basket than the old and well-known *A. assimile*, but the form here noted is strikingly distinct, and even more beautiful under similar conditions. The fronds are both longer and broader than those of the type, gracefully arched, and ornamented at their points with a dense spreading, tasselled crest, whilst the fact of its being a cool house plant will materially add to its popularity. It is one of Mr. Bull's recent introductions from Australia.—W. H. G.

Davallia fijiensis and *D. fijiensis plumosa*.—Grand examples of these two forms, perhaps the most elegant of all the Hare's-foot Ferns, are to

be seen in the choice collection of these plants cultivated in the garden of the Rev. Canon Bridges, at Beddington, in Surrey. In the typical plant the creeping rhizome is somewhat stout and densely clothed with scales, the fronds being from 1 foot to 2 feet long and nearly a foot broad. The variety *plumosa* is a plant of bolder habit, the fronds being longer and broader, gracefully arched throughout their entire length, and deep shining green. These plants were, I believe, introduced to cultivation by Mr. Bull, in whose establishment at Chelsea I recently observed numerous examples in various stages of development. Two more beautiful evergreen Ferns it is scarcely possible to find; there is no peculiar treatment required, both the species and its variety being of robust constitution. They appear to be tolerably common in the Fiji Islands, but have not as yet been found elsewhere.—W. H. G.

FERN FRONDS FOR CUTTING.

THERE is always a brisk demand for the fronds of the Maiden-hair Fern for bouquet-making, and those of *Adiantum cuneatum* are by far the best for this work. A variety of *A. cuneatum* named *compactum* is likely to be useful for filling vases on the table or for brackets in the drawing-room. *A. gracillimum* is light and pretty, but too fragile, and when used round a bouquet does not give green enough, though it might be used in the bouquet amongst flowers with *cuneatum* as a base. *Adiantum Williamsi* is a very free-growing variety, soon developing into a handsome specimen. It is useful for filling vases, but rather too heavy for the bouquetist. One advantage this variety possesses is its great power of reproduction. We can cut and come again without exhausting the plant. The new growth comes delicately tipped with gold dust, hence its name of the Golden Maiden-hair. *Adiantum formosum* is a very vigorous-growing form, and the fronds are lasting in character, and though of no use for market cutting, they are useful for home work. Other Ferns which may easily be grown in quantity for cutting are *Pteris tremula*, *P. serrulata*, and *P. cretica albo-cuneata*. For creating striking effects, fronds of *Polypodium aureum* and *Woodwardia radicans* are useful. The most important matter in connection with the introduction of Fern fronds for cutting is their durability. National sentiment (a very powerful factor in such cases) is in favour of *Adiantum cuneatum* being used on all important occasions. To obtain the necessary firmness and durability, the plants must be grown in the light, even if some sacrifice has to be made of the greenness of colour; therefore, the house for Ferns for cutting must be light. Shade will be necessary in hot weather, but the plants must be grown near the glass. In growing *Adiantums* for their fronds I find a considerable advantage in having them in wire baskets suspended in the full light near the glass. They require a little more attention in watering, but the baskets can be taken down and dipped in a tank or tub, and such a soaking will last a couple of days or longer in winter.

E. H.

Odontosoria tenuifolia.—This is an extremely elegant Fern, yet not seen so often in ferneries as its merits deserve. It appears to be a common plant throughout the greater portion of India, where in the Himalayas it grows up to about 5000 feet above the sea-level. It is also found in the Malay Islands, the Philippines, Java, Ceylon, Fiji and Sandwich Islands, Madagascar, China, Hong-Kong, and Japan. With such a wide distribution, it is therefore not surprising that there are considerable numbers of distinct forms. In the normal condition of the species the rhizome is somewhat short and creeping, fronds from 18 inches to 2 feet long, and from 4 inches to 6 inches broad, the pinnae being much cut up into narrow segments. In a variety which I have

before me from China the fronds do not exceed 6 inches in height, 3 inches wide, the pinnae being broad and rounded on the upper edge; this I take to be the variety *chinensis*. In examples of this Fern from Nagasaki, in Japan, I have the normal form saving stature, and it seldom appears to grow more than a foot in height. The Fiji Island form is a very handsome one, the pinnae being very long and narrow, but undoubtedly the handsomest form yet seen is that being distributed by the Messrs. Veitch, of Chelsea, under the name of *Davallia tenuifolia Veitchi*. The fronds in this variety are longer than in the normal form, and instead of being erect are beautifully arched, or, in fact, may be said to be drooping; the pinnae are also much longer, and the pinnae are much divided and slender, giving the whole frond the appearance of a delicate, lively green, lace-like screen. Its native country I have never heard; the only form I have seen approaching it came from Hong-Kong. The variety *Veitchi* is, beyond doubt, the most graceful Fern for growing in a hanging basket which has ever been brought into notice, and as such I wish to recommend it. It is a stove Fern, and should be planted so that the short creeping rhizome is not buried beneath the surface. The soil this species thrives well in is rough peat, turfy loam, and sharp sand in about equal parts.—W. H. G.

KITCHEN GARDEN.

WHERE TOMATOES SUCCEED.

NEARLY every gardener is supposed to grow as many Tomatoes as possible, and if the supply is never-ending, so much the better. In very few instances, however, has any extra provision been made for the cultivation of Tomatoes, and consequently many and varied schemes are tried. It does not follow that all alike succeed in setting and ripening heavy crops of fruit, but if the attempt is made in an intelligent manner a failure rarely results. Although appreciated at all times, I think that the fruits ripened early in the summer are most valued. The Tomato is not amenable to hard forcing, an important fact not yet fully realised, and a uniformly high temperature, or such say as Melons and Cucumbers revel in, is liable to induce plenty of growth, but fails to develop and set good clusters of fruit. Many healthy plants fail to set good crops in the autumn and early winter months, owing to the temperature of the house being kept at least 10° too high. They will set readily enough in a light house, where the temperature ranges from 50° at night to 60° by day, a little top air being given whenever the weather permits. Those who can maintain these temperatures during the spring months will find them suit the Tomatoes much better than hard forcing. This fact was fully brought home to me somewhat recently. The bulk of the fruit was at one time grown and ripened in old houses in bad repair, a high temperature being out of the question. When the roof was reglazed the heat could be kept in, and the higher temperature resulting quite spoilt the set on our earliest plants, till it occurred to me that less heat and more air would mend matters. I can now set the first cluster of fruit within 15 inches of the soil or pot.

Stout seedlings are the best to start with, and these may be quickly raised at the present time. If the seed is sown thinly in pans or pots of light soil it germinates quickly on a mild hotbed, and if stood on a shelf near the glass, still in gentle heat, the plants soon become sufficiently sturdy for potting off singly into small pots. In these they become tall and spindly; whereas, if one plant was sunk up to the seed leaves into the centre of a 5-inch pot filled with good light soil, or two against the sides of a 6-inch pot and set on a mild hotbed till re-established and then transferred to a shelf near the glass in a warm house, they become remarkably sturdy and soon arrive at a bearing state. What to do with these plants is the next consideration, and to a certain extent most cultivators have to decide this point for themselves. Some will do well to pot

them deeply into 10-inch pots, or even two or three sizes larger, and fruit them on the front or back wall of the pits in forcing houses, or they may be placed in as large pots as any convenient shelf will hold, and be trained up wires or strings taken along the back roof of a three-quarter span-roofed house. I have done well with them in these positions, and also with plants dotted thinly over beds in forcing houses given up principally to Kidney Beans. In some instances it is possible to devote the principal portion of the roof of a house to them, and in this case Tomato culture is a comparatively simple matter. To give the plants as much hotbed material and rich loamy soil to root in as Cucumbers often receive is not the surest method of securing abundance of fruit. When the plants are treated in a similar way to Cucumbers, that is to say, are allowed considerable head room, the crops being principally obtained from the lateral growth, they are less likely to be spoilt with a too liberal food supply. It is those planted closely, or about 12 inches apart, and confined to one stem that are unfruitful if afforded a very rich diet. Plants rooting in narrow raised beds, enclosed with narrow walls formed with loose bricks, and not allowed to form any side branches, frequently produce very heavy crops of fruit, the clusters being formed throughout the length of the plants. Some people plunge 10-inch pots containing the plants in a bed of good soil, allowing them to root out into this at their leisure. Thus treated, no rank growth is formed, and the plants find plenty of food to enable them to perfect heavy crops of fruit. Plants in pots plunged in the borders, near the back wall of a new or only partially furnished vinery, nearly as thickly as they will stand, will produce very profitable crops without greatly injuring the borders; in fact, it is my belief that Tomatoes dotted all about the border and fastened to strong stakes are much more remunerative than the best managed supernumerary Grape Vines. They must have plenty of light, and very rarely do Tomatoes fruit satisfactorily against the back walls of established vineries. Plants are grown at the ends of various fruit houses in boxes or pots, but I find they do not set very well even in these comparatively light places, too much heat being, perhaps, the principal reason for this. After good crops are set on the plants in pots grown in various light positions in our forcing houses, any of them in the way are transferred to the ends of the early vineries, and here the fruit ripens capitally.

Partially furnished Peach houses, again, are admirably adapted for Tomato growing, and the heaviest and most profitable crops I ever grew or ever saw were obtained between the Peach and Nectarine trees on both the front trellises and back walls. The plants were first established in 12-inch pots and then set on the borders wherever there was space for them to grow. Receiving plenty of water as well as liquid manure frequently, no harm was done to the legitimate occupants of the border with which the Tomato plants and roots soon mingled. Very good crops could also be obtained from plants in pots set on slates and boards and prevented from rooting into the border, but such require liberal top-dressings of loam, solid and liquid manure, and very close attention in the way of watering.

Heated pits, notably those with span-roofs, are largely utilised for Tomato culture with the best of results. The plants are either put out and treated somewhat similarly to Cucumbers and Melons, hurdles, slates, or boards being placed for them to ramble over, or they are taken up to a temporary trellis, this being perhaps the best plan to adopt. If trained thinly over the bed or trellis, lateral growth being laid in only where there is space unoccupied, no difficulty is experienced in setting and ripening abundance of fruit. Should the plants be neglected and allowed to grow unrestricted in any way, they will not long remain fruitful. I have a deep pit, which this season will be principally devoted to Tomato culture. The plants will occupy a narrow border at the bottom, and be trained over hurdles laid in a sloping direction against the back walls. This will admit of the plants being at-

tended to from the inside. I ought, perhaps, to add that when a trellis is placed in a pit the plants do best when planted in a small mound or bed of soil at one end or near the front, and trained on the extension system. Tomatoes do well in pits and frames in succession to early Potatoes. There is now a great variety, or, at any rate, there are numerous so-called distinct varieties to select from, any of which may be successfully grown under glass. The ribbed types, however, are the most reliable, these setting freely sometimes when the smooth round forms fail to do so. The true Dwarf Orangefield is, on the whole, the very best that can be grown, and market growers will find it as profitable as any. The fruits, though rather small, are produced in extra large clusters, while the quality is unsurpassed. A good selection of the large red also proves very profitable, but the quality is inferior to that of the Orangefield. Hackwood Park I can also strongly recommend for culture under glass, and if Mikado, as selected and sent to me from America, does as well under glass as in the open last summer, it, too, is worthy of a trial.

W. IGGULDEN.

KITCHEN GARDEN NOTES.

MANURING, DIGGING AND TRENCHING.—As yet the rainfall has been comparatively light, and but little snow has fallen, while several sharp touches of frost have been experienced. These conditions have been most favourable to the preparation of the ground for this season's crops, and a good start largely contributes to ultimate success. When this kind of work is not pushed forward early in the winter, or whenever the weather and the state of the ground permit, the chances are it will have to be done in very bad weather, and when heavy soils have to be worked in a very moist state much more harm than good is very often the result. It is possible to injure land for years by digging or trampling on it in wet weather, and rather than risk this I would prefer to leave land of a retentive or clayey nature undug till nearer cropping time, or even to let it go undug. Broccoli, Savoy, and other quarters not cleared may yet have the manure wheeled on to them when the ground is hard-frozen. The digging can then be done directly the old stumps are cleared off, and before heavy rains have saturated the ground. No general rules can be laid down, soils varying surprisingly, even in a single district. Thus some are all the better for being dug early and re-dug again after the surface has been pulverised, while others are best let alone till just before they are cropped. The former, if very roughly dug, do not get thoroughly pulverised, and large unworkable clods will be found underneath. They must be either dug and re-dug, or broken up rather more finely than is usually done, thus admitting of either the frosts or drying winds penetrating through the lumps. Some heavy soils, if dug long before they are cropped, are apt to run together like birdlime, and these are very difficult to manage. The lighter, and naturally more finely divided, soils resting usually on a gravelly or well drained sub-soil break down rapidly and fail to retain much of the soluble portion of the manures mixed with them. These are best manured and dug a short time only in advance of cropping. Being left in a comparatively firm state, much of the rain runs off, and consequently the soil, not being saturated, can be got into good condition for seeds and plants at almost any time, even if a wet spring is experienced.

TRENCHING where necessary or advisable should also be pushed forward in dry weather. Breaking the ground two or more spits deep, and at the same time bringing the subsoil to the surface, is very rarely either a wise or a safe proceeding, unless the subsoil has been previously prepared for it. Double digging or bastard trenching is the safest measure, as in this case only a small portion of the subsoil is brought to the surface, and this being subsequently well mixed with the top spit will usually put new life into it. It is the clayey subsoils that are so difficult to bring into good working order, and very

little indeed of this should be brought to the surface at one time. Poor and perhaps newly-broken ground ought to have any rough manure mixed with the bottom spit, and partially decayed manure added to the surface soil. Land, however, that has been heavily manured for years, and perhaps not very closely cropped, will not need any manure; but any kind of decaying vegetable added to the subsoil will tend to improve this in various ways. A great depth of rich soil encourages grossness in vegetables. In all cases the trenching should be done as soon as possible, in order to allow time for the settling of the ground before being cropped. It is the ground intended for Potatoes we would trench. Heavy crops of handsome tubers can be obtained from deeply-worked ground in almost any season, and the ground is left in excellent condition for Strawberries, Cauliflowers, Broccoli, Brussels Sprouts—in fact, almost any vegetable that can be mentioned.

IMPROVING HEAVY LAND.—This is a slow and at times rather difficult undertaking, but the labour and whatever expense may be incurred are not thrown away. Much may be done by working heavy land at the right time as previously pointed out, and a liberal dressing of long stable manure in preference to either cow-yard manure or any rotten and close material may well be given. Straw manure cannot be so easily dug in as that which is more rotten, but, as a rule, it is better than rotten manure. If a good wide trench is kept open no difficulty need be experienced in burying a quantity of it, this serving to keep the land porous. Any quantity of it may be forked into the subsoil, and a repetition of this in the course of three or four years may render this more fit to come to the surface. Leaf-soil, peat, spent tan, burnt garden refuse, dust from the malt-kiln (an excellent fertiliser), both wood and coal ashes, burnt clay, and sandy soil from the rubbish heap are all valuable for lightening land. They should not be dug in, but ought rather to be well forked into the surface. Quicklime is serviceable in various ways, this both improving heavy land and rendering over-rich soil more fertile. This again should be given as a surface-dressing, and forked in when slaked at the rate of one bushel to every three square yards.

HOTBEDS FOR EARLY VEGETABLES.—Hotbeds are of great assistance to the gardener who is supposed to supply his employer's table with early Asparagus, Seakale, Rhubarb, Potatoes, Carrots, Turnips, and salading, and those who can procure plenty of leaves have a decided advantage in this respect. These may be mixed with stable manure in equal quantities, or, better still, two parts of leaves to one of manure, and properly managed will give a fairly brisk, lasting, and sweet heat. If it can be avoided, the leaves should be used as soon as collected; if stored in large heaps they are apt to ferment and otherwise waste their heat. Throw all into a heap together for a few days, and when the centre is found to be quite hot turn it inside out at once, well shaking out and mixing the materials during the operation, and leave it another week or more. If much manure is used it will be necessary to again turn the heap directly the centre is hot and allow it to stand another week before using in order to get rid of the poisonous gases. A fortnight or three weeks spent in the preparation of the heating material is not time wasted, as prematurely formed beds are apt to over-heat, and besides having to wait till they cool, there is the risk of the centre being heated dry or to a white heat. Such beds are of little service, and the material is practically spoilt for any other purpose.

PROTECTION FOR VEGETABLES.—A timely and heavy surfacing of strawy litter is of good service in keeping the frost out of the beds of Parsnips, Seakale, Rhubarb, young Carrots, Asparagus, or any roots that may be wanted for use or forcing during the prevalence of frosty weather. If portions of the plants of late Cauliflowers and early Broccoli have been lifted and bedded in rich soil, these may well be further protected with strawy litter, Bracken, or mats in the event of severe frosts threatening. Lifting invariably reduces the size of the heads, but small ones are preferable to none at all, and we

keep the central pit of a late vinery filled with plants. These are drawn from late breadths of the Autumn Giant Cauliflower, Veitch's Autumn Protecting, and Snow's Winter White Broccoli. The last-named will not be interfered with till February, and none of them are lifted till the heart is beginning to form. Replanted in rich soil, and kept watered, they soon strike root into it, and well pay for the trouble taken. Pits and frames may be utilised in a similar manner. Strong leaves gathered and tucked over advancing hearts will protect them from a moderately severe frost.

SALADING.—We have had Perfect Gem and Early Paris Market Cabbage Lettuces up to the present time, a very little frame protection being needed for these. Mixed with well blanched Endive a good salad is formed, the Lettuce being more crisp and sweet than Endive. We shall now depend principally upon curled and broad-leaved Endives, Chicory, if needed, a little forced Tarragon, and Mustard and Cress. Endives do not keep well in a Mushroom house, but it is there both these and Chicory blanch most readily. Small batches of the former should be drawn from the fruit houses or frames in which they are stored, being first tied up much as Lettuces are frequently treated, and be replanted in the Mushroom house in moist soil. They will blanch thoroughly in a few days, and if of good size equal any produced by the noted French growers. Too often it is badly blanched, tough, and dry. A few strong roots of Chicory similarly treated will yield good cuttings of beautifully blanched, crisp, and pleasantly bitter leaves, and these, in many good judges' estimation, greatly improve a salad. Failing a Mushroom house, the Endive may be blanched where it is stored, either by tying up or covering it with boards, slates, or clean hay; while Chicory roots, if placed in pots and closely covered and set in a forcing house or warm frame, will soon be fit for use. A few clumps of Tarragon lifted and placed in either pots or flat boxes will need but little heat to cause them to grow freely. Gentle heat is needed for the boxes of Mustard and Cress, weekly sowings being usually sufficient.

W. I. M.

Broad Beans.—Although one of the hardiest and the earliest sown of vegetables, the Broad Bean is far from being the most popular; indeed, it may be classed as one of the least popular, for less space is now devoted to Broad Beans than formerly, and market growers too often find even a good crop to be almost unmarketable. Sow as early as we may, it is difficult to get Beans fit to gather earlier than Peas will turn in, and with very few exceptions Peas prove to be by far the most popular of these rival products. It is curious to read even now in one of our most pretentious of seed lists that the first sowing of Broad Beans should be of the Mazagan, and be made in November. Experience has shown that not only is nothing to be gained by such early winter sowings, but also that the Mazagan, when grown, is of very inferior quality. It is also a fact that the Early Dwarf Cluster, or the Seville Longpod, if sown early in February, will rival the Mazagan in earliness and beat it in quality; still, the Seville is not a robust bearer, and if the first sowing be of Johnson's Wonderful or its synonym, a good selection of the Dutch Longpod, the gain in crop may be considerable. Those who prefer the true Broad Windsor Bean served up at table with the skins removed (the best of all ways to serve up these Beans) will find none better than a good selection of the Harlington Windsor. Put into shape by a fair trial, it is found that we have not so very many varieties of Broad Beans after all, and some two or three are ample for all ordinary purposes. A few are grown in most gardens, but generally only one picking is made. No doubt the wondrous increase in varieties of other vegetables, and manifest improvements in them, have done much to deviate the public taste from Broad Beans into other and more acceptable directions.—A. D.

Veitch's Autumn Giant Broccoli.—The self-protecting character of this Broccoli makes it very valuable. The leaves completely hide the heart, which can stand 10° of frost without harm.

Besides this, it succeeds the Giant Autumn Cauliflower admirably. I am now, the end of December, able to take up a supply of plants that have already formed heads, which will continue to furnish all we want for two or three weeks. I have taken care to have them well protected from severe frost. If this Broccoli has one fault, it is that it grows too large. I find it quite as hardy as Snow's Winter Broccoli, and much more reliable.—J. C. C.

TREES AND SHRUBS.

W. GOLDRING.

THE SCARLET HORSE CHESTNUT.

(ÆSCULUS RUBICUNDA.)

IN the early days of June the Scarlet Horse Chestnut is, perhaps, the most admired of all trees, for then it is in full perfection of bloom, and if it happens to be in close association with a Laburnum, or some other shrub or tree that by contrast acts as a foil to its gorgeous array of scarlet bloom, the sight is more effective. One cannot complain that this is a neglected tree; on the contrary, it is one of the com-

group of Horse Chestnuts, for the scarlet variety being of much smaller growth, a tree or two planted on the margin brings the sky-line down in a pleasing way. The Pavias, the close relatives of the Horse Chestnuts, are also useful for the same purpose.

The Scarlet Horse Chestnut (flowers, flowering and fruiting branches of which are represented in the annexed cut) flourishes under the same conditions as the common Horse Chestnut, which requires a deep, free, loamy soil; but while the common Chestnut thrives best if sheltered, the scarlet kind will bear a deal of exposure to winds, being more compact in growth and not so large. The largest trees of the scarlet kind I have seen were not above 40 feet high, the average height being from 20 feet to 30 feet.

The synonyms of *Æsculus rubicunda* are somewhat numerous, but in gardens and nurseries it is either called *Æ. rubicunda* or *Æ. carnea*, which latter, if representing a variety, is not very different. It is also called



The Scarlet Horse Chestnut (*Æsculus rubicunda*); flowers, flowering and fruiting branches.

monest, especially about the London suburbs, where, in company with the Almond, Laburnum, Copper Beech, pink and crimson Thorn, it is as familiar as the Laurel. Being of moderate size, of dense and shady growth, so handsome in bloom and so indifferent to an impure atmosphere, it has become a popular villa garden tree. For the country park and garden, for the town park, garden, street, or square, this tree is alike valuable, for it stands the sweeping winds on a bleak hillside and the smoke and dust of a big town. It is often seen planted by itself in a garden or park, but though it there shows to perfection when glowing with scarlet bloom, I think it also produces a better effect when grouped with other trees of dissimilar growth. The dense, rounded outline of the tree is somewhat too lumpy for it to be called a tree of handsome growth. It looks well when grouped with trees like the Laburnum, the Lombardy Poplar, and Copper Beech, and that is why one often sees such pretty effects in villa gardens when the trees are accidentally—rarely intentionally—grouped. In park-planting it is useful for relieving the heavy appearance of a

Æ. coccinea, *Æ. rosea*, and used to be known as Whitley's Scarlet. From its near relative, *Pavia rubra*, which has also red flowers, it may be distinguished by its larger size and more vigorous growth, by its deeper green leaves, and by its prickly fruit, those of all the Pavias being smooth. It is supposed to be a native of North America, though I believe that there is doubt about the origin of the tree. Some think it but a variety of the common Horse Chestnut. There are numerous forms to be seen in gardens and nurseries differing chiefly in the depth of colour of the flowers, but in the best nurseries only the highest coloured forms are grown.

W. G.

Pruning of shrubs.—I met with one phase of shrub-pruning a year or two since to which Mr. Goldring, in *THE GARDEN*, Dec. 31 (p. 614), makes no reference. Near Reading, in an otherwise very nice garden, I saw this phase exemplified, as every shrub both deciduous and evergreen was cut or clipped to a perfectly round form. Still further, each shrub was individualised, no one being permitted to touch its neighbour. A more deplorable or objectionable example of shrub-pruning I never saw. Happily, the plan is a very rare one. With

respect to the charge made that head gardeners usually ignore shrub-pruning or leave it to garden labourers, I am disposed to think that Mr. Goldring considerably exaggerates. As a rule, I have found gardeners very particular on that head, especially that whilst haphazard cutting and slashing may destroy the whole harmony of the shrubbery, so also may the flowering wood of the best shrubs be removed. That is a system which neither employer nor gardener could long endure. Still further, there can be no doubt but that in dry, cold weather there is considerable charm in shrub-pruning, and it is an occupation which most gardeners appreciate. It is doubtful whether the best pruning is performed when left to be done in bulk during the winter season. It is during the summer rather than an occasional and judicious use of the knife will prove most serviceable in keeping shrubs within reasonable limits.—A. D.

A beautiful shrub for covering a wall is *Forsythia suspensa*. It is a Japanese shrub, which in early summer bears a profusion of bell-like flowers of the clearest yellow. It is slender-stemmed and straggling when grown in the shrubbery, but if placed against a wall, with its shoots loosely nailed to it, the plant will form a mass of gracefully drooping growths, which, when in bloom, will be a mass of yellow. It has a habit of sending out roots from its stems, and very often a plant that has been grown against a wall for years will be found to have parts of its stem and shoots firmly rooted in the joints of the wall. An example of this may be seen on one of the old walls in Kew Gardens. It is a common shrub in nurseries, and can be planted now and onwards till March.—W. G.

Turner's Oak.—*Quercus Turneri* is among the most conspicuous Oaks at the present moment in the arboretum at Kew, on account of its luxuriant evergreen foliage, which is as perfect throughout the winter as that of the common *Q. ilex*. It is of more cheerful aspect than *Q. ilex*, its leaves being of a lighter green, and the head is not so dense. There are two good specimens at Kew, each about 20 feet high, with rounded heads. The leaves are similar in size and form to those of *Q. glandulifera*, or what is known also as *Q. austriaca sempervirens*; but while the foliage of that Oak already wears a shabby look, that of *Q. Turneri* is quite green. The Lucombe and Fulham Oaks are also beginning to turn rusty, so that *Q. Turneri* is a better evergreen than either. It is not much known in nurseries, but Messrs. Lee have it in their Isleworth arboretum, where I saw a tree having the leaf-stalks distinctly reddish. We want more of these fine evergreen Oaks in gardens in winter. Some object to the funereal look of the common evergreen Oak, *Q. ilex*, but there are no evergreen trees known, excepting Conifers, to surpass it for winter effect. *Q. Turneri* is said to be a hybrid between *Q. ilex* and our native Oak, which is not unlikely; but, be that as it may, it is a valuable winter tree, and I should be glad to know if there are any fine trees of it in old gardens.—W. G.

SHORT NOTES.—TREES AND SHRUBS.

The *Cupressus* figured in THE GARDEN (p. 3) as *Cupressus stricta* is synonymous with *C. sempervirens*, the former name having been used by Miller. *Stricta* is also given as a synonym in Gordon's "Pinetum." We insert this to prevent a possible confusion of names.—Ed.

Veronica Traversi.—Allow me to add this to the list in THE GARDEN, Dec. 31 (p. 617), of shrubs for forming ornamental hedges. In Surrey, at any rate, it is perfectly hardy; its close growth, pretty foliage, and flowers made me try it for this purpose in an exposed part of our experimental garden at Oakwood, Wisley, so far with success.—GEORGE F. WILSON.

Viburnum plicatum, having now become much commoner, and consequently cheaper in nurseries than it used to be, ought to be planted in groups of three or four together on the margins of shrubbery in a spot where its glorious masses of snow-white clusters will show themselves. I find it a strong-growing shrub, liking a heavy soil and a fully exposed position. Those nurserymen who believe in only the best things among hardy trees and shrubs have great faith in it, and

are growing it largely. It used to be only grown against a wall, for which it is very suitable, but it flowers quite as freely when growing as a bush, and I should always include it in the choicest selection of shrubs.—W.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

JANUARY 10.

THE first meeting for 1888 was held on Tuesday last in the conservatory at South Kensington, and though this is a dull season for flowers, there were several things of interest, the principal features comprising Primulas and Cyclamens which are now in full perfection. There were a few Orchids and other plants of minor importance. First-class certificates were granted as under:—

ANGRÆCUM SANDERIANUM.—This is a beautiful addition to the *Angræcum* genus now abounding in choice species. It has something of the character of *A. Ellisi*, and in expression the flower may be likened to a small bloom of *Dendrobium bigibbum*, having the same exquisite neatness and compactness. A plant was shown on a block covered with Sphagnum Moss, and the racemes spring from the base of the dull green, thick, leathery leaves, that are fairly abundant. The raceme is about 18 inches in length, and stands out boldly, supporting several flowers of great purity and powerful fragrance; the sepals are narrow, sharply pointed; the petals being rather broader and about the same size as the lip; while the glistening white spur is between 1 inch and 2 inches long. The somewhat loose character of the raceme gives it a desirable elegance, that would be plainly seen if several specimens were suspended in the Orchid house. Shown by Messrs. Sander and Co., St. Albans.

CYPRIPEDIUM TAUTZIANUM.—*Cypripediums* have multiplied exceedingly during the past two or three years, but there are few that can rival this for distinctness. We have here a break away from the monotony of browns and shades of the same, the whole flower having a bright appearance. It is a hybrid between the old *C. barbatum* and *C. niveum*, and it has the lip of *C. niveum* and the foliage of *C. barbatum*. The purplish stem bears a flower of fine proportions; the dorsal sepal showing lines and a suffusion of rose-crimson; the centre tinged with green, and the whole set off by a broad white upper margin. Rich colouring is given by the dull rosy red petals, spotted with deep brown, and edged with short black hairs; the lip and crest also being of the same hue, relieved in the case of the former with a white base, the crest having a centre of the same character. From Mr. Tautz, Studley House, Shepherd's Bush.

OXERA PULCHELLA.—This will be one of the finest new plants of the year, and one that the gardener may well note, as likely to prove exceedingly useful during the winter season. It is nearly related to the *Clerodendrons*, and first received public recognition last year, when it was figured (t. 6938) in *Botanical Magazine*, having been found a comparatively short time previous in New Caledonia. Those who care for warm greenhouse climbers will find in this *Oxera* a veritable gem. It runs freely over the rafter, clothing it with a Camellia-like foliage, and the ivory-white flowers are crowded together in large clusters or bunches that weigh down the flexible stems, and impart elegance to the specimen. Individually, the flowers are like those of a large *Clerodendron*, the corolla being bell-shaped, deeply cut, and proceeding from a smaller calyx, while the stamens protrude some little distance from the main body of the blooms; these have considerable substance, and even when much handled do not fall off. From Mr. F. Ross, gardener to Sir G. Macleay, Pendell Court, Bletchingley.

PRIMULA MISS EVA FISH.—The double varieties of *Primula* are being improved, a more robust habit and greater freedom of flowering being now noticeable. This is a noteworthy addition, as the flowers, besides their full double form, are of a peculiar and distinct colouring, being of a mauve shade with a

thin white marginal line. From Messrs. Cannell and Sons, Swanley.

RHODODENDRON PRIMROSE.—Here we have another departure, by the crossing of certain species and varieties, so as to infuse a more bushy Azalea-like habit into the plant. Out of about half a dozen plants shown this, which was selected for a certificate, is a cross between the Sumatran species, *R. Teysmanni*, and the hybrid *R. Maiden's Blush*. The flowers are somewhat like those of *R. Teysmanni* in colour, and it is noticeable that the species in almost every instance has infused its colour into the variety. Here the flowers, which are rich primrose in colour with a shade of buff, are of fine form, and not reflexed, as in those of *R. Teysmanni*. Another feature is the broad, deep green Camellia-like foliage. If a race of bushy-habited *Rhododendrons* can be promoted, it will popularise the plants considerably. Shown by Messrs. Veitch, Chelsea.

LÆLIA ANCEPS SCHROEDERÆ.—We have several excellent forms of this Mexican Orchid, and another that must be recorded is this, from the collection of Baron Schroeder, The Dell, Egham. Flowers were exhibited that display the form of a good *L. anceps*, but the colour is very rich. The sepals are of rosy tint, petals deeper, and shading to a still darker hue at the tips. The upper portion of the lip is rich crimson, intensified with a yellow crest, and purple pencilling in the throat.

PHALÆNOPSIS F. L. AMES.—This has for its parentage *P. amabilis* (Blu.) or *P. grandiflora* (Lind.), and *P. intermedia* Portei, and is a very pretty and distinct hybrid. A plant was shown, the raceme carrying three or four expanded flowers with several in bud. The sepals and petals are white, while colouring is given by the lip, the upper portion of which has a flush of rose on a white ground, but on the lower half this rose colour is laid on a ground of yellowish hue. The lateral lobes are suffused and pencilled with rose, the base having spottings of purple that give rich beauty to the flower. From Messrs. Veitch.

MEDLAR THE ROYAL.—Medlars are never likely to become popular fruits, as their appearance is against them, and comparatively few appreciate the mealy, soft flesh. This is one grown by Mr. Rivers, of Sawbridgeworth, and was the best out of a number tried. The fruits are larger than those of the ordinary type, a little less acid—a disadvantage—and borne freely. They make capital jelly, and for this Medlars are to be recommended, as they require to be quickly used, owing to their tendency to become mouldy. Mr. Rivers advises the fruits to be kept in quite a cool place if not wanted for immediate use.

Cyclamens were a feature of the meeting, and a handsome group was put up by H. Page and Sons, Grove Nursery, Teddington, who cultivate this winter flower very successfully. The plants were full of flowers, which displayed various shades of pink, whites being numerous, and occasionally there were varieties of deep crimson hue. They were also of robust habit, and the stems vigorous and sturdy. That an advance is being made in respect to the Cyclamen is evident. A silver-gilt Banksian medal was awarded.

Messrs. Cannell and Sons, of Swanley, made a fine display with double and single-flowered Primulas. The whole of the plants were of excellent habit, and the trusses shown well above the leaves. Amongst the single varieties noteworthy were King of the Primulas, deep crimson, fine pip; Improvement, similar colour; The Queen, a handsome variety, blush, wavy edges, and of good substance; White Perfection, clear white; Princess Beatrice, pale mauve, pretty white edge; Swanley Giant, purple-magenta; Cannell's White Plain Leaf, pure white; and Princess of Wales, blush. Of the double forms the best were Miss Eva Fish, previously noted; Marchioness of Exeter, white, with a trace of blush; Earl Beaconsfield, deep rose-pink; and the old double white. A silver-gilt medal was awarded. Mr. James, of Farnham Royal, showed blooms of his fine strain of Chinese Primula.

Messrs. Veitch and Sons, of Chelsea, showed several Javanese *Rhododendrons* that will be the

progenitors of a new race; the object in view being to obtain a more bushy habit. This is being done by the crossing of various species and varieties likely to produce the wished for result. The new forms shown were Little Beauty, a cross between R. Malayanum and H. Monarch; the flowers are of the same character as those of the species, but larger, brighter, and borne far more freely; Eclatant, produced by crossing R. Curtisi with R. Princess Alexandra, the flowers deep crimson; and R. Primrose, already mentioned. A seedling shown was from R. jasminiflorum and R. Curtisi, the colour very deep.

Orchids were few, but possessed considerable interest. *Cypripediums* predominated, and four interesting hybrids came from Mr. F. G. Tautz, Studley House, Shepherd's Bush. *C. pleuroneuron* has a dorsal sepal banded with green, the petals rich red and the lip narrow, reddish at the apex, yellowish at the base, and veined with green. *C. concinnum* is a loose flower of the venustum type, and *C. Marshallianum*, the result of a cross with *C. concolor* and *C. venustum*, has a flower like the former, especially in respect to the lip, and the foliage of venustum. The shell-shaped dorsal sepal is flushed with rosy pink dotted with chocolate-crimson, as is found more or less in *C. concolor*; the sepals and petals are broad, of the same hue, and the lip is yellow at the upper margin, and also freely spotted. It is a most distinct flower, but as shown wants regularity of form.

Cypripedium Galatea came from Messrs. Veitch and Sons. It is a hybrid of uncertain parentage, but has something of the insigne character about it. The flower is large; dorsal sepal spotted brown and flushed with green in the centre, and having a broad white upper margin; the petals and lip are both lightly coloured. Mr. A. Smee, The Grange, Wallington, Surrey, sent *Lælia anceps Protherocyanum*, with flowers about the same size as those of any ordinary form of the type, richly coloured, the lip finely striped inside with magenta and purple at the expanded front, the ridge yellow; *Epidendrum polybulbon*, a small-flowered kind, the white lip forming the chief beauty of the flower; and *Odonoglossum Rossi Smeeanum*, like the type, but destitute of the rich brown spottings; the only colour, save the spotless white petals, is in the light brownish sepals. It is no advance on the old *O. Rossi* as shown, but may improve with cultivation. Mr. R. Measures, Flodden Lodge, Camberwell, had *Cypripedium insigne Fostermanni*, with a curiously mottled lip; *C. regale* and *C. apiculatum*, both bold, handsome flowers; and *C. Sallieri*, a fine flower; the dorsal sepal greenish, spotted deep red; the petals and lip light yellowish brown. *Angraecum calligerum* came from Messrs. Low, of Clapton. It is a coarse kind, the leaves stout, and leathery, the thick, deep green raceme carrying a few white flowers; sepals and petals of about equal size; the spur some 3 inches long, and the whole clear white. There were three expanded blossoms. As shown it is not of great beauty, but a better specimen may alter this opinion. A fine specimen of the old *C. insigne* with fifty-one expanded flowers came from Mr. J. Quarterman, gardener to Mr. A. S. Smith, Silvermere, Cobham.

Fruit committee.—The exhibits were very few. The Medlar named The Royal, shown by Mr. Rivers, will be found described in the list of certificated subjects. Messrs. Pearson and Sons, Chilwell, Notts, exhibited fruits of Newton Wonder Apple, which was certificated at the previous meeting and then described. It is a showy variety, and remains for a long time in good condition. A Grape named White Gros Colman, from Mr. J. Roberts, The Gardens, Charleville Forest, Tullamore, Ireland, does not appear to be an acquisition. It has heavily shouldered bunches, but the berries are smaller than those of the type and of rounded form. It was raised from seed of Gros Colman. It would be unfair to give a decided opinion as to its merits, the bunches coming to hand considerably damaged. An improved hearting Kale was sent from Messrs. Hurst, of Houndsditch, and Tomatoes from Mr. E. Newton, Sussex House, Hitchin. The Royal Pearmain Apple came from Mr. Dean, of Bedford, and is described as a

moderate grower and good and constant cropper. A seedling Apple, somewhat resembling Minchal Crab, was shown by Messrs. W. Barron and Sons, The Nurseries, Elvaston. It is highly coloured and of medium size.

A special meeting was held in the East Crush Room of the Albert Hall on Tuesday last to confirm the resolutions passed at the last meeting, which took place on Dec. 12, 1887. Dr. Hogg occupied the chair, and after the reading of the minutes the resolutions were confirmed, the only alteration being that clause 7 of the circular is now added to those of 6 and 8. Mr. Barr and Mr. Herbst made some remarks with reference to the guinea members, holding the opinion that these associates of the society ought to have a voice in its affairs; but as the object of the meeting was merely to confirm resolutions, the matter was referred to the committee appointed to consult with the council.

NATIONAL CHRYSANTHEMUM SOCIETY.

THE January show of this society has become an annual event, and, the encouraging results justify its continuance. This year's exhibition was held, as usual, at the Royal Aquarium, and was a veritable surprise to those who know the difficulty of obtaining flowers as late as this. They were fresh, finely coloured, and, on the whole, of fair form, especially in one or two stands, which would have had no small place in an autumn competition. It is evident that an interest is aroused in the late Chrysanthemums, and their value is unquestionable, as they withstand fogs and other evils that injure the flowers of many other things, especially if they are at all delicate. As time goes on the list of new late kinds will undoubtedly increase, and on this occasion two acquisitions were gained.

There were several classes, and as good prizes were offered, there was an excellent competition. Mr. Joseph Lowe, The Nurseries, Uxbridge, was well to the front in the class for a collection, and he staged several boxes of flowers, which were unusually creditable, and represented considerable variety; grandiflora was well put up, also Lowe's Bronze, a highly coloured bronzy red Japanese, Elaine, Princess of Teck, Thunberg, Ceres, Princess Blanche, good petal, clear fine white, and Lucien Baltet, rich crimson-magenta; Mr. G. Bolas, gardener to Mr. H. Chandos Pole-Gell, Hopton Hall, Wirksworth, was second. For twenty-four blooms, any kinds, Mr. R. F. Jameson, Hesse, near Hull, was first, and in his stand were unusually good flowers of Lord Alcester, John Salter, fine in colour and form, Fleur de Marie, Louis Bonamy, Mlle. A. Brunel, a white flower, Mrs. Heale, Miss Marguerite, and Pink Christine. The second place was occupied by Mr. Sullivan, gardener to Mr. D. B. Chapman, Downshire House, Roehampton, who had capital flowers of Ceres, and Mme. Auguste Tezier, a Japanese variety, of reddish-bronze colour, very pretty. In the class for twelve blooms, Mr. J. Kipling, gardener to Earl of Lytton, Knebworth, was the most successful, his stand containing a richly-coloured flower of Etoile du Midi, very deep crimson; the second was Mr. H. Lister, gardener to Lord Brooke, the Gardens, Easton Lodge, Dunmow, Essex. In the class for twenty-four Japanese kinds, Mr. Sullivan was chief prize-taker, putting up fresh, full, and excellent flowers for the season of the year. Amongst them was the Japanese variety D. B. Chapman, a mass of thread-like florets, forming a full, dense, interesting flower of considerable width; the colour is wholly purple-magenta; Ceres, gloriosa, Mme. Audiguier and Duchess of Albany, yellow-shaded bronze, were noticeable; the second award went to Mr. J. Horsefield, the Gardens, Heytesbury, who had large flowers, but wanting in finish; Carew Underwood, a reddish-salmon Japanese variety, was well shown. Mr. J. Kipling showed well in the class for twelve flowers, and an interesting feature was made by the class for six blooms, in which Messrs. W. and G. Drover, Fareham, were the most successful. The six put up by them would have stood well at a November show, and included

W. G. Drover, a new Japanese kind, described below; gloriosum, bicolor, and Mrs. W. Mencke. A special certificate of merit was granted. Mr. R. Phillips, gardener to Dr. Baker, The Deodars, Meopham, came second. Bouquets of Chrysanthemums were a pleasing feature, as they were tastefully put together. Mr. W. Brown, nurseryman, Richmond, won the first prize, for an elaborate arrangement; Mr. Joseph Lowe, The Nurseries, Uxbridge, was second—the rich brown leaves of the Mahonia made a fine contrast with the flowers, and this foliage is not used often enough for associating with Chrysanthemums. Special prizes were offered by Mr. Owen, of Maidenhead, for twelve blooms of his Golden Gem variety. Mr. F. Weeden, Hillingdon, Uxbridge, showed it in fine form with the foliage. It is appropriately named, being a clear rich yellow, and both neat and full. Mr. A. Ives, gardener to Mr. E. C. Jukes, Hope House, Winchmore Hill, was second, but the blooms were not in character, having a distinct reddish bronze tint.

Amongst a few miscellaneous exhibits were new annual single Chrysanthemums from Mr. J. May, gardener to Captain Le Blanc, Northaw House, Barnet, but their value at this season is not very evident—we prefer them in their natural season; and a sport from Mrs. Carey, named Christmas Beauty, that may prove something good. It was shown by Mr. W. R. Strong, Wissington College, Wokingham.

It would be unwise to depend on Chrysanthemums to make up an exhibition now, so other prizes were offered for Cyclamens, Primulas, and Solanums, &c. For a collection of Cyclamens in pots, Mr. J. May was first with plants full of vigour and well flowered. Mr. A. Carter, gardener to Alderman Evans, Ewell Grove, Ewell, was first for twelve Cyclamens; Mr. W. Kent, gardener to Mr. H. Barry, Bushill House, Winchmore Hill, second. A good class was that for a collection of Primulas, Messrs. H. Cannell and Sons, of Swanley, taking the lead. There were many varieties shown, particulars of which will be found in our report of the Royal Horticultural Society, at whose meeting they were also exhibited; Mr. G. Braid, Winchmore Hill, came second. Mr. A. Carter was first for twelve plants; his examples were well flowered, especially those of the old double white; Mr. A. Newell, gardener to Sir E. Saunders, Fairlawn, Wimbledon Common, was second, putting up single varieties, representing skilful culture. There were two classes for Solanums, one for six and one for twelve plants. In both instances Mr. P. Cornish, gardener to Mr. J. Downing, The Shrubbery, Enfield, secured the first places. The plants were laden with large berries.

The finest exhibit of this section of the exhibition was the group of forced and foliage plants put up by Messrs. Henry Williams and Sons, Fortis Green, Finchley, who were first in the class for these. The Hyacinths were as fine as the majority of those seen in March. The same firm were first for a collection of thirty-six pots of Tulips, the bulbs extremely well flowered and the foliage excellent.

The display of Primulas and Cyclamens made by Messrs. Sutton and Sons, of Reading, was noteworthy, as it occupied considerable space, and the plants were full of flower. Amongst the Cyclamens, Queen of the Dwarfs, White Butterfly, both described below; Giant Rose and Giant Crimson deserve mention as showing the gradual improvement of this gay flower. The Primulas were well grown, and comprised numerous varieties, some of which were awarded certificates. A double blue was noticeable, and the single type was also shown; a real blue is gradually being obtained. A silver-gilt medal was deservedly awarded. First-class certificates were awarded as follows:—

To Messrs. Sutton for Cyclamens Queen of the Dwarfs and White Butterfly; the first has a dense habit and medium-sized white flowers; the last-mentioned has clear white blooms, produced with great freedom; also for Chinese Primula Giant Red, a single variety of good colour, and P. Picotee-edged, a distinct break, white, with broad edge of pink, a pretty flower; Primula Fern-leaf Scarlet, the first Fern-leaved variety in this particular line of colour yet raised, was commended.

To Messrs. Cannell and Sons, Swanley, for *Prima Miss Cannell*, a single variety, with white flowers tinged with rose-pink, and borne in a sturdy truss well above the foliage; and *P. Miss Eva Fish*, which was certificated at South Kensington on the previous Tuesday.

To Mr. John May, Gordon Nursery, Twickenham, for *Cyclamen May Queen*, a robust variety, with large flowers lightly tinted with magenta.

To Messrs. W. and G. Drover, Fareham, for *Chrysanthemum W. G. Drover*, a coarse, large variety, dense, full, and in better condition than seen in the autumn. The petals are broad and rose-pink, making up a showy Japanese exhibition flower.

To Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, for *Chrysanthemum Governor of Guernsey*, a variety of distinct appearance and thorough Japanese character. It was raised from seed in Guernsey, and has medium-sized blooms, full, dense, the petals sharply pointed and of a telling rich yellow colour. It will be strange if this does not find great favour as a late *Chrysanthemum*.

A meeting of the general committee of this society was held on Thursday, the 5th inst., at Anderton's Hotel, Fleet Street. Mr. Sanderson, the president, occupied the chair. After the minutes of the former meeting had been read and confirmed, it was resolved that the annual general meeting be held at Anderton's Hotel on Tuesday, the 31st inst. A list of offers of special prizes was then read and accepted. They were from Messrs. Webb and Sons, Mr. Deverill, Mr. Fidler. The prize from M. Délaux was not accepted until further particulars are received from him. Messrs. Cannell and Sons also made the offer of £20, as they did last year, but, after very much discussion, it was resolved that instead of these prizes being awarded by ballot the exhibits should be judged in the ordinary way. It was also resolved that a meeting of the floral committee be held on the occasion of the January show. The Winchester Society was admitted in affiliation. New Fellows and members were elected, and Mr. Holmes having announced that all details for the January show having been perfected, it was hoped that every effort on the part of the members would be made to ensure a satisfactory display.

NOTES OF THE WEEK.

THE plant figured last week under the name of *Zephyranthes Atamaseo* is *Z. carinata*. On a future occasion Mr. Moon will draw us both species on the same plate, and thus make better known two beautiful plants.

MR. DENMAN, of Catherine Street, has sent us several flowers of the beautiful *Deutsche Perle Azalea*, now in great request.

Pine-apple *Salvia* (*S. rutilans*) is a familiar greenhouse plant that makes a great show of scarlet flowers during the winter season. Just now it is very good at Pendell Court, Bletchingley.

A new public park.—We learn that 14 acres of ground have been given in Myatt's Fields, Camberwell, for the purposes of a public park. The new park will, it is believed, be bounded by Knatchbull Road, Burton Road, and Flodden Road.

A new Butterfly Orchid in the shape of a pure white *Phalenopsis Schilleriana*, or *vestalis*, is, we learn from Messrs. H. Low and Co., now in flower in their Clapton nursery. This must be an interesting novelty.

Lilies of the Valley.—Mr. W. Allan, of Gunton Park, Norwich, has forwarded flowers of the beautiful white Hoop-petticoat Daffodil (*N. monophyllus*), *Iris reticulata*, and Lilies of the Valley. The Wallflower-like fragrance of the *Iris* was most powerful, and especially agreeable at this season. Both the Berlin and Dutch varieties of the Lily of the Valley were sent, and the Berlin type has the advantage. It makes a shorter, stronger growth, and the bells are rather larger, but the Dutch has longer spikes.

***Galanthus corcyrensis*.**—Unless for earliness of blooming, the plant now in flower at Kew under the above name differs extremely little from the

typical *G. nivalis*. It may be briefly described as follows: Leaves two, about the same length and breadth as those of the type, but with a white line broader than the midrib on the upper surface. The flower is that of the ordinary *G. nivalis*, though perhaps a trifle smaller. If this be the natural time of flowering it is certainly an acquisition, as very few of the other kinds are as yet little more than showing themselves above ground.—K.

***Dendrobium Fytchianum*.**—Mr. Frederick Bedford, Straffan House Gardens, Co. Kildare, has sent us a spike of *Dendrobium Fytchianum* carrying nineteen flowers, and mentions "It is a pretty small-growing species, not often met with." We quite agree with these remarks. This *Dendro* has frail and beautiful flowers of exquisite whiteness, relieved only by the tiny mauvy rose-coloured lateral lobes of the lip. It is a species that those who require choice flowers for cutting should make a point of growing; it comes from Moulmein. The spike sent is evidently from a plant that has been well grown, as about ten flowers in a raceme is the usual number.

The Strawberry tree (*Benthamia fragifera*).—Devonshire is not the only county in which the Strawberry tree is hardy. It is equally so in the south of Hampshire, as there is a fine specimen in my nursery nearly 20 feet high and bushy, which has been growing in poor clayey soil in an exposed situation without any protection for upwards of fifty years. It has borne many bushels of its peculiar Strawberry-looking fruits, the seeds from which have readily vegetated and supplied numberless plants. Camellias, too, are quite hardy here. Six fine specimens, which were planted near to and at the same time as the *Benthamia*, are still quite healthy and growing luxuriantly.—W. H. ROGERS, Southampton.

Lælia anceps is the Orchid of the season, and there are few kinds that give such a surprising depth of vivid colours. At Gunnersbury Park there are two excellent forms, one of the plants bearing several spikes; while at the Chelsea nursery of Messrs. Veitch there is a basket filled with this Mexican species, approaching more the variety *Barkeriana* in colour. At the same place the true *L. Dawsoni* is showing a small spike, and this impresses us with its purity and sweetness. It opens greenish at first, but this changes to a clear white, relieved only by the radiating purplish lilac lines on the inside of the lateral lobes of the lip, and the rosy purple of the expanded front; there is also a yellow ridge near the column. At South Kensington on Tuesday last a fine form of *L. anceps* was certificated, as will be seen by reference to the report.

***Angræcum sesquipedale*.**—There are several plants of this noble species now flowering at the Chelsea nursery of Messrs. Veitch, and it is also the principal attraction in many Orchid houses at the present time. It is an extraordinary plant, grotesque as regards the expression of the flowers, but withal beautiful and interesting, displaying distinct and handsome characters. It is one of the introductions of the Rev. W. Ellis from Madagascar, and he found it thriving on trees. In colour the flowers are ivory white, of considerable width, and furnished with a tail about 12 inches in length, while they are borne at the rate of one to four on the sturdy peduncles. In close proximity to London, the flowers do not attain the beauty they are capable of in the country, as smoke, dust, and dirt, besides other evils inseparable from London, have to be battled with. The destruction to Orchid flowers by London fogs is enormous in such places as Chelsea.

The Chorozeas are among the more important of what are called New Holland plants, which a generation ago were largely grown. Fancy such a beautiful genus as *Chorozea* being banished from the average garden of to-day. A collection of well-grown plants of them in bloom is one of the prettiest sights in the way of flowers that one could wish for in January, and what dainty little coat or dress bouquets could be made with their bright flowers and prickly leaves like those of a miniature Holly. At Kew one may see just now several kinds in flower in the temperate plant house. The prettiest kinds

are *C. varium* and its variety *Chandleri*, which has its Pea-like flowers coloured orange and purple-scarlet. Another, called *C. flavum*, apparently a variety of *C. varium*, also has flowers of clear yellow. *C. cordatum* has red and yellow flowers, and one called *C. elegans*, though with tiny flowers, is an exquisite little plant. The specimens are smothered with blooms, which will last a long time. The flowering shoots are not tied in rigidly, which so often spoils half the beauty of New Holland plants, but are allowed to go free. The *Chorozeas* are not so difficult to grow and flower well as some other hard-wooded plants which are well known to test the skill of the gardener. The culture of New Holland plants is, we fear, a lost art, although some people think it probable that hard-wooded plants will again come into fashion.

A new plant for which we may predict a great future is *Oxera pulchella*. This was the most interesting exhibit at the meeting of the Royal Horticultural Society on Tuesday last, and will be found described in the report. It is a magnificent acquisition, flowering, as it does, at this season, and has the appearance of a thoroughly useful subject for climbing over a greenhouse rafter. There will be no patient waiting for the plant to attain a respectable size, as we learn from Mr. Ross that the specimen from which the large clusters of bloom were gathered was, about two years ago, a mere cutting, and first tried in a cool house with *Lapagerias*, but it failed to grow satisfactorily. All was changed, however, when it was transferred to a warm house, where it soon rambled over the rafter, giving an abundance of ivory-white *Clerodendron*-like flowers. We hope to give a coloured plate of this beautiful *Oxera*.

Eucharis blooms in mid-winter.—I enclose a photograph of *E. amazonica*, which was taken on December 22, 1887. The plant carried thirteen spikes and twenty-two open flowers. I also have another, at present in full flower, bearing fifteen spikes. The plants are grown in 10-inch pots, also a few in 4, 5, and 6-inch pots, a single bulb in each. These are just coming into flower, and are found very useful for house decoration. I grow *Eucharis Sanderi* and *Eurycles Cunninghami*, but they do not succeed nearly so well as the old kind. The plants I have now flowering with me bloomed in the early spring of 1887, and a few odd spikes appeared through the summer. There are from three to seven flowers on each spike. I also enclose you a flower-spike of one of the large plants, also one of the smallest bulbs in flower, taken from a 4-inch pot.—JOHN THOMSON, Dennis Hall.

* * With this title came flowers of *E. amazonica* cut from an old specimen and a small bulb that had been grown in a 4-inch pot. The flowers were large and plentiful. Growing the *Eucharis* in small pots is evidently a good way.—ED.

THE following table shows the amount of rain we had here during 1887:—

	Inches.		Inches.
January ...	2.04	August ...	1.25
February ...	0.71	September ...	3.09
March ...	1.53	October ...	1.48
April ...	1.32	November ...	2.26
May ...	2.50	December ...	1.53
June ...	0.66		
July ...	1.27		19.64

—W. INGRAM, Belvoir.

"T."—The publisher of THE GARDEN can supply the book, post free, for 6s. 3d.

Names of plants.—*J. Ashford*.—1, *Eucalyptus* sp.; 2, *Cedrogyne cristata*; 3, *Correa spectabilis*; 4, *Phormium tenax variegatum*; 5, *Aspidistra lurida*; 6, *Dicksonia antarctica*.—*F. J. H.*—Next week.—*W. M. Mc.*—Apparently a *Fittonia*; send better specimen.—*T. Brown*.—Flowers were too much smashed to identify.

Names of fruits.—*Ashford*.—Small Apple, Claygate Pearmain; large, Winter Hawthornden.—*Ardee*.—Apples, 1, Adam's Pearmain; 2, Beauty of Kent; 3, Scarlet Russet; 5, Yorkshire Beauty. Pears, 1, Easter Beurré; 2, Beurré Rance.—*C. H.*—1, Walham Abbey Seedling; 2, Minchal Crab; 4, not known.—*W. K.*—Apple, Winter Strawberry.—*Learner*.—1, New Hawthornden; 4, Adam's Pearmain; 7, Northern Greening; others next week.

WOODS & FORESTS.

THE ALDER.

IN view of the vast tracts of barren marshy ground, which in their present condition are yielding little or nothing to the owners of such, in Great Britain and Ireland, the question may well be asked, Can nothing be done to reclaim such and render them both profitable and useful? It has sometimes been suggested to plant these places; at other times we are told that they are incapable of producing timber trees of a proper size to pay the expense incurred in the planting and yield a profitable return. No doubt there are a few species of trees unsuitable for planting in marshy ground, but happily there are several other varieties that can be planted with success, and one of the best is the common Alder. This hardy native tree not only grows, but thrives in such ground, and attains a useful size in a comparatively short time, and as its wood is keenly sought after and commands a ready sale, I can confidently recommend it to the notice of the planter. Although the Alder grows in marshy ground where few other trees can exist, yet to grow it successfully the ground should be drained as well as circumstances will allow. Some places of this description are liable to be inundated by water for a considerable time during winter. Such land, however, I have planted successfully during March and April, and when once the Alder gets established the annual flooding with water appears not to hurt the trees in the least. This class of ground varies so much in character, that the mode of drainage must be settled in detail on the spot. In cases where there is a good outlet, a single drain cut at the most advantageous spot will sometimes dry a considerable area, while at other times the drains require to be cut at a distance apart of 6, 9, 12, and 18 feet, the depth of these to be regulated in a great measure by the depth of soil above the water line.

The soil excavated here should be spread over the surface, which will improve the texture of the ground and add a little to its depth. Ground prepared in this way may be either planted or the seeds sown broadcast upon the surface. The Alder is so hardy, that self-sown seeds soon make fine trees. When once the trees are thoroughly established they make rapid progress, and in order to attain success the trees should be grown rather thickly. The planter's object should always be to produce fine clean wood, free of knots or blemish of any kind that would lessen its value in the market. I have sometimes found certain classes of home-grown timber to be rather a drug in the market at any price, but in all my experience I have never found any difficulty in selling a lot of really good Alder at a fairly remunerative price. Some forty years ago I have known Alder sold at 12s. per ton, the purchaser to fell, prepare, and take delivery of the trees at his own expense, but the value of good wood has risen since that time considerably. In recent years I have sold Alder wood at 10d. and 1s. per cubic foot. Sometimes I have sold it at 20s. per ton, the trees to be cut and prepared at the proprietor's expense. If we deduct 1s. 6d. per ton for felling and cross-cutting the trees into the required lengths, we have 18s. 6d. in favour of the proprietor as the value of his timber. The weight per cubic foot of timber varies a little, according to the age of the trees and the soil on which they were produced, but, as a general rule, I have found that it takes from 23 cubic feet to 25 cubic feet of Alder to weigh a ton.

Although the Alder is highly suitable for planting in marshy ground, yet it is by no means confined to such, and can be grown to a profitable size on ground of ordinary texture, especially such as is of a damp character. I have grown some very fine Alder upon damp clay soil resting upon a cold clay subsoil, and as such land had failed to give a profitable return by tillage it was planted with Alder and Oak, both of which grew remarkably well, the former, however, giving by far the quickest and best return.

The inferior, useless class of ground capable of growing the Alder to a profitable size, and the facility with which it can be established at small cost, either by sowing the seeds or planting, ought to induce landed proprietors to plant these barren bog lands with it.

Trees, unlike many other crops that can be produced in one season, require in many cases nearly a lifetime to attain maturity; consequently many foreign States, impelled by wise counsel, are taking time by the forelock and planting extensively in order to keep up the supplies. Notwithstanding the great fuss which we have often heard regarding German schools of forestry and the extension of their woodlands, it would appear that they cannot supply their own demands, as may be gathered from *Kemp's Mercantile Gazette*. The new law which will shortly come into force for the preservation of forests in Russia has caused great activity for the time being in the timber trade. Extensive orders have been received from Germany and England. On the same subject the *St. Petersburg Gazette* declares that the exports in the coming season will attain colossal dimensions. The expected export duty on wood, prepared and unprepared, has also led to the Russian merchants concluding as many contracts as possible with foreign firms. All these facts point to a probable rise in the price of timber before long, and there can be no doubt, when foreign supplies begin to get exhausted, or even curtailed to any great extent, that prices will rise. This ought to stimulate owners of waste lands in this country to extend their forest ground as much as possible, with the view of obtaining a good and profitable return for the capital thus spent.

J. B. WEBSTER.

PRINCE ALBERT'S FIR.

(ABIES ALBERTIANA.)

THE noblest specimen of this handsome and hardy Fir in the British Islands is, no doubt, one of the many trees at Hafodunos, in North Wales, the beautifully situated estate of Mr. Sandbach. When measured by the surveyors of the Ordnance Survey in the spring of 1878 it was 56½ feet in height, with girth of stem at 2 feet, 5 feet, and 10 feet from the ground of 48½ inches, 47 inches, and 44 inches.

Responding to a kind invitation from the owner, who is well known as one of the most enthusiastic arboriculturists in the country, I, a few days ago, took the measurements of the above tree, and found them as follows: height 66 feet, girth of stem at a yard from the ground 6 feet, diameter of spread of branches 36 feet. It is, in truth, a noble specimen, perfect in every respect, and with foliage of the richest and freshest description, the lower branches sweeping the greensward, and being as lithe and yielding as could well be desired. The bole, although well covered with branches, is as straight as an arrow, and of gradual taper throughout its entire length—not carrot-shaped, as we often find in ill-grown specimens of this noble Conifer.

Twice has the walk which runs hard by the side of this beautiful specimen—a specimen that is highly prized and duly tended in every way by its worthy owner—been shifted further from the tree, but again the lower branches have outgrown the

prescribed boundary, and another change in the line of walk is contemplated.

The position occupied by this fine tree is by no means a sheltered one, it being partially exposed on all sides; while it may surprise not a few tree-lovers to know that the altitude at which it is growing so luxuriantly is between 700 feet and 800 feet. A good and rich clayey loam, not stiff and plastic, but tending rather to a gravelly soil, and resting at no great depth on a rotten whinstone rock, may be said to be the soil of which the park is principally composed. An interesting feature of the tree is the great number of cones it produces annually, and with which it was well covered at the time of my visit. Mr. Sandbach pointed out a number of young trees that had been raised from this parent plant, and these looked robust and healthy, and with a greater inclination to form but a single leading shoot than is usually the case in home-raised plants. Now, it is very questionable if a larger and finer specimen of *Abies Albertiana* than that just described is to be found in this country, and it would be interesting to have in THE GARDEN the measurements of some of the larger ones.

When we consider that it is only thirty-six years since this tree was introduced by Jeffery, through the Oregon Association of Edinburgh, and by whom, if I remember rightly, seeds were given to Mr. Sandbach, who raised the fine tree alluded to, it must be admitted that the growth has been very rapid, seeing that the tree is planted at nearly 800 feet altitude in one of the most beautiful of Welsh mountain valleys.

At the Caernies, in Perthshire, there are some magnificent specimens of this Fir, and these are growing, two of the largest, at least, at fully 600 feet altitude, and in poor, moory soil resting on a stifiish clay. These are, no doubt, the largest specimens of Prince Albert's Fir in Scotland, and were raised by that enthusiastic arboriculturist, Mr. George Patton, from the first importation of seeds, which arrived in 1851. Perthshire would seem to be famous for the production of noble specimens of the tree in question, for both at Abercainey and Moncrieffe House there are numerous trees of large proportions, and which are now making rapid growth. On the Churchill estate, in the north of Ireland, this beautiful Fir grows with great rapidity, one specimen in particular, growing in clayey loam, having attained the height of 30 feet in thirteen years. Many other examples of the rapid growth of *Abies Albertiana* might be adduced, but enough have, perhaps, been given to clearly show that, under ordinary conditions as to soil and exposure, it is a tree well suited for planting within the limits generally of tree growth in this country.

The giant *Arbor-vitæ* (*Thuja gigantea*) is well known to be a tree of very rapid growth, yet I took particular note, not a week ago, of one instance at least in the chalky soil of mid-Kent in which the Albert Fir had nearly kept pace with it for a period of ten years. I do not here refer to a single specimen of each, for there were fully half a hundred, and all planted under almost similar conditions. In Scotland, at Culcreuch, in Stirlingshire, this tree has been known to grow in one season more than 7 feet; but such is the exception, and not the rule.

Although some of the finest specimens of this tree in Britain are growing in deep loamy soil, yet, in the choice of such, it is certainly far from particular, for on referring to my note-book I find that it succeeds admirably on deep, well-prepared peat bog, decayed vegetable refuse, rather stiffish clayey loam (as in the case of the Hafodunos specimen), and alluvial deposit. The timber of *Abies Albertiana*, as exhibited at the late Forestry Exhibition in Edinburgh, was certainly of excellent quality, and thanks are due to the Right Hon. J. Inglis, of Glen-corse, and his intelligent forester for the practical way in which they tested the wood by using it for fencing posts. One of those exhibited had been in the ground for five years, and yet appeared but little the worse; indeed, to all appearance it seemed quite as sound as if it had been placed in the soil only a month before. In its native country—principally the coast of British Columbia—it attains a height of 200 feet, but the usual size is 150 feet. A. D. W.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

FRUIT GARDEN.

W. COLEMAN.

POMOLOGICAL PROGRESS.

It is gratifying to find that the Apple and Pear question is now engaging the attention of horticulturists from Land's End to John o' Groats, but very wide of the mark fall some of the shots which the best friends of the grower and consumer have in view. Extremes, we are told, sometimes meet, but how this meeting is to benefit the Apple-growing community it is difficult to imagine, especially when every variety yet named as being the best has been written off as doubtful or unprofitable in certain parts of the country. All, I believe, agree in saying Cox's Orange and Blenheim Pippin are two of the best all-round Apples grown, but all cannot grow them, a fair proof, as I have always asserted, that soil quite as much as climate has a great deal to do with success or failure. The one-Apple man, our well-known friend, Mr. Waterer, succeeds to his heart's content with Cox's Orange Pippin on the peat, and desires no other. The best Mr. Baines has seen was grown in the bleakest part of Yorkshire; in this locality it grows and fruits well on the marl; but one variety—no matter how well it may do or over how wide an area it may succeed—is not enough; we must have early and late sorts to lead up to and follow this splendid variety. The same may be said of Blenheim Orange, and if Mr. Jefferies is correct, its varieties vary considerably in shape not only in the same locality, but in the same orchard, but do they vary in their season of ripening? If they do not, all we have to do is to select the best, work them on good stocks, and trust to other sorts for prolonging the season. Assuming that Mr. Waterer could grow the Blenheim as well as he grows Cox's Orange Pippin, a fortune possibly might be made, but filling his pocket with gold would not keep our markets and private houses supplied from September to May, and this continuous flow of the best, and none but the best, being the point at issue, the one-Apple end of the extreme must be pronounced faulty. A correspondent writing upon market Apples breaks ground, which may be of infinite value to the London growers, but of very little use to the private gardener or amateur who wishes to have good fruit as early and late as possible—who wishes, in fact, to have his shelves furnished eight months out of the twelve instead of empty for that length of time. With all these facts before us we can only arrive at the conclusion that a selection of a matter of two dozen sorts for any one neighbourhood is a very fair come-down to start with; indeed, the more this question is turned over and discussed the more it becomes apparent that a very important step will have been made when we have condemned all the varieties of Apples and Pears which, at the best, are inferior or second-rate throughout the kingdom. Growers for market can take care of themselves; growers for ornament have plenty of choice, but private individuals still cling to varieties innumerable. This difficulty got over, nurserymen will soon exclude from their lists varieties which few planters require or inquire for, but so long as the public persist

in ordering second and third-rate sorts, so long will these gentlemen keep up the supply, and who can blame them? Fat lists well pared down, no class will be more thankful for than the "trade," but the public must take the initiative, and as yet I fail to see how they can better strengthen the hand of the editor of THE GARDEN in his difficult task of selecting a given number of Apples and Pears than by enumerating a few, if only half a dozen, which stand first in different localities. The names alone of the sorts they have thoroughly tested will not suffice; each contributor should give the variety of stock upon which the trees are worked, the soil and subsoil, altitude and shelter, and last, but not least, as far as possible the writer's name and address should take the place of initials. I lately read a paragraph in a trade paper to the effect that many employers do not allow their gardeners to rush into print; hence the necessity for initials. But this matter of competition with our colonists is an employer's question, and gardeners are the men who must not only work it out, but educate the agent and the tenant. Nine-tenths of the landed proprietors whose interests are at stake know this, and appreciate each man's best endeavour, and the tenth might be convinced if this important subject were approached, discussed, and explained in a common-sense manner.

RE-GRAFTING FRUIT TREES.

THE re-grafting of fruit trees and Vines, whether for the purpose of converting a barren tree into a fruitful one, or that of introducing some new variety, is such an interesting operation, and one usually attended with such good results, that the wonder is that any barren trees should exist in our gardens, or that worthless varieties should, year after year, continue to occupy valuable space, and receive as much attention as is bestowed on those which yearly produce crops of good fruit.

I think the reluctance to head down and re-graft a worthless or inferior tree arises from a dislike to see bare spaces on a well-filled wall, or a break in an even row of trees. I know it requires some amount of determination to decide upon a change of this kind, but in a few years' time, when the re-grafted tree begins to bear crops of superior fruit, we wonder why we delayed the operation so long. On a high south wall in the gardens here there was a fine horizontal-trained tree of Dr. Trouseau Pear. It was the largest and most healthy-looking tree on the wall, and yearly produced good crops of fruit, and although it is not a bad sort with us, it ripened at a time when other superior kinds were plentiful, and consequently was not often used. I grudged the tree the valuable space it occupied, and decided to have something better in its place.

Four years ago all the branches were cut off to within 1 foot of the main stem and re-grafted with Doyenné du Comice and Louise Bonne of Jersey alternately, commencing with the top tier. All the grafts but one took and the first year grew well; the second year they made good growth, but not too strong; and the third season Louise Bonne of Jersey carried a nice lot of fruit, large, and of beautiful colour and good flavour; and last year we had a fine crop. Doyenné du Comice has not fruited much yet, but is now bristling with fruit-buds, and I expect the re-grafted tree will this year fill the space occupied by the original one. The above illustrates how soon by the process of grafting a good variety can be substituted for a bad one. Old or neglected trees may often be renovated in a short time by re-grafting them with another variety.

It is surprising the growth grafts will sometimes make on an old stock if the roots are in good condition; in two or three years' time a dilapidated tree with long spurs and weak growth can be replaced by clean, fruitful wood. It is well when cutting off the branches for grafting not to cut in too hard. On horizontal-trained trees a foot should be left next the main stem to graft on, and all the

spurs, which will greatly assist the circulation of the sap, and if desired may be allowed to carry a few fruits. On bushes and standards the more branches left for grafting the sooner a good head will be formed. Weak or slow-growing sorts are much improved by grafting them on stocks of free growth. About five years ago I bought three trees of Loddington Seedling Apple. They were small, and I do not think they have doubled in size since, but from grafts taken from them I re-grafted two bush trees of Brownlee's Russet, which are now 8 feet high and 6 feet through, all fruit-bearing wood. On another sort I have grafted Margil, a good dessert Apple, but of slow growth, and it is now growing and bearing as freely as Cox's Orange Pippin. Besides the above varieties of Apples, Golden Noble, Stirling Castle, Boston Russet, and others of similar habit of growth are improved; and Winter Nelis, Doyenné du Comice, Beurré Superfin, Marie Louise, &c., amongst Pears.

Grafting is not so difficult as many people imagine; on the other hand, it is a simple operation, and if two or three essential points are duly observed, success is almost certain. The best time for grafting is just as the buds are bursting, as the sap is then well in motion. The scions should be kept in an almost dormant state until wanted, by nearly burying them in the soil in a cool place. Another important point is a perfect fit; the scion should be cut to the exact size of the space to receive it and firmly bound in. The freshly-cut surface of the stock and over the scion should be covered with a thin coating of grafting-wax and the whole covered with clay. Clay is not necessary when wax is used, but it no doubt preserves the scion from drying winds, and should be used by those not experienced in the art.

Of late years grafting has been extensively practised, in vineries especially, by growers for sale. Since the kinds of Grapes which used to be grown have been superseded by those having large berries and handsome appearance, market growers have either had to root out and re-plant their Vines, or graft with the popular varieties. The latter mode has often been adopted with good results and a saving of time. With the private grower such radical changes are not necessary; he may want to introduce some new kind into his established vinery, or replace one which does not give satisfaction. A ready means of accomplishing this is afforded by grafting. There are several methods of grafting suitable for the Vine. The one I have succeeded best with is inarching in a green state. The rod or rods intended to be grafted should be cut down to a well-placed spur near the bottom of the trellis when the other Vines are pruned. When growth commences, shoots should be selected and trained to the trellis. When about 3 feet or 4 feet long they will be sufficiently firm for the operation to be performed.

Young Vines in pots should be started at the same time as the vinery, and will have made about the same length of growth. All that remains to be done now is to arrange the pot Vine in a convenient place where it can easily be brought into contact with the green shoot on the stock at a point where the wood of each is of nearly the same size. With a sharp knife cut a piece from each shoot about 3 inches long and not quite half-way through, and fit them evenly and neatly together, bind with soft matting firmly, but not so tightly as to bruise the shoots. A union will soon take place, and as the graft grows, gradually shorten the other shoot to near the union, but do not sever the Vine from the pot until the wood is ripe. During the first year strong canes, which may be fruited the next, will be formed. A variety which does not succeed can, by adopting the above method, soon be replaced by another without disturbing the border or the other Vines in the house.—ARTHUR BARKER, *Hindlip*.

— Now that attention is being directed to our orchards, and especially to the many worthless varieties that are allowed to cumber the ground year after year, to no good purpose, it may be well to remind owners that the readiest way to improve them is by re-grafting with some of the really good sorts that are known to succeed in their locality. It

is too soon to perform the operation of grafting, but it is not a day too soon to cut the grafts and lay them in by the heels in a cool, moist position, so as to have them ready directly the sap begins to move. Above all, it is the best time to get the stocks headed down to just above where it is intended to graft them. I would strongly advise all those who would wish to make large heads of fruitful wood in the shortest time to adopt the plan that is largely practised in Kent, viz., to cut the branches off at a good distance from the bole of the tree, or where the branches are about the size of a man's wrist. Although it takes a little more time, it well repays the labour, as small branches heal over much quicker than large ones, and if a hundred grafts are put on the cut-back branches of a large tree a good crop of fruit may be obtained in about three years. I have seen whole orchards of worthless sorts treated in this way and grafted with Stone's Apple (a great favourite in the Maidstone district), and the crops produced have been extraordinary. This variety being of large size and fit for market early in the season, is one that suits market growers that do not store any fruit, but clear everything off hand as soon as possible.—J. GROOM, *Gosport*.

Early maturity of Pears.—I observe that some of your correspondents have recorded the early ripening of Pears. It has been, and is still, the case with our Pears at Belvoir. The quality of the fruits has generally been excellent. A hot, dry season evidently hastens the ripening process. The summer drought of 1887 was excessive in this district—only 19·64 inches of rain having fallen—and the development of the fruit was checked; but with rain a fresh growth took place, and I feared deterioration of quality in consequence, but such was not the case. The late sorts most sensibly affected by the hot season of 1887 were Josephine de Malines, which ripened early in December; Knight's Monarch, which was fit for use at the same time, and Easter Beurré, which has anticipated its season of maturity by two months. Knight's Monarch proved with me the best mid-winter Pear. It has the great merit of keeping after it attains perfect ripeness. In my opinion it equals in quality the finest winter Pine-apple, but here it must be grown on a wall.—W. INGRAM, *Belvoir*.

Too many Pears.—We regret not being able to agree with Mr. Wildsmith as to the great number of Pears suitable for different districts. We believe this idea is partly to blame for the poor show of fruit one generally sees. It is too often quickly assumed that a kind which will not grow in a given district is of no value. A great number of Pears certainly do not come to perfection in our climate, and their character elsewhere is valueless to us. When Pears, such as Winter Nelis, Doyenné du Comice, or Josephine de Malines, are found to do generally well in England, it is a precious certificate for the wise gardener. In planting such a Pear he knows it is one which suits our climate. We say nothing about the soil and the district, but the gardener should not be easily beaten. The usual way is, in consequence of the great number grown, to try a few trees of even fine kinds, and it may be a particular fruit is not on the right stock or under the conditions that suit it. It is well known that thousands of Pears have been sent out on the Quince not at all suited for it. To be trying a lot of Pears not known to be good in the country is a costly mistake.

Apples, no division needed.—In reference to our remarks last week, in which we stated that the division of Apples into cooking and dessert is a bad and needless one, the opinion is based on various experiments with Apples of high-class quality which are perfectly good to eat when raw and also delicious when cooked. Therefore, why grow sour and inferior varieties when first-rate Apples, which yield their own sugar, may be easily grown? Our test of a good cooking Apple is one that will cook without any addition; for example, Blenheim at its best is good as an eating and cooking Apple. Good Blenheims make a delicious dish without any addition of sugar, &c. That is a

good point, because the addition of sugar and other things makes the dish less wholesome. Since writing last week we have had some Newtown Pippins simply pared and cored and put in a stone-ware pipkin, without any water or addition whatever, and stewed by the fire. The result was a delicious dish, the right degree of sweetness, with a pleasant high flavour. Why should not this be the highest test of an Apple that it should be at once a cooking and eating Apple? There are certainly some kinds of Apples which lack sugar that are high in quality, but quite enough kinds could be raised to give us a class of Apples good in all ways. Having two so-called Apples is one of the causes of cramming the garden with more kinds than we want. Not one of the ordinary cooking Apples, no matter how enriched with sugar or other things, is so delicate or good as certain classes of Apples, hitherto commonly called dessert, cooked in the simplest way.

NOTE ON A FEW PEARS IN KENT IN 1887.

PITMASTON DUCHESS ripened perfectly, and was as good a Pear as one could wish to eat. Great care was taken of the fruit, and the care was well repaid.

BEURRE SUPERFIN.—I find this a very good Pear when I get a good specimen, but the fruit is often specked with little black spots, and in that case, shrivels and is tasteless.

EMILE D'HEYST.—I have found this Pear very prolific; the fruit varies very much without any apparent reason. Fruit gathered on the same day, equally ripened on the sunny side of the tree, will vary wonderfully in quality when brought to table, though all may present exactly the same appearance to the eye. When the fruit grows in bunches, the bunches must be thinned, or the individual fruits will be small. Emile d'Heyst is a good Pear, and somewhat resembles Marie Louise.

BEURRE BACHELIER.—Mr. George Bunyard, from whom I bought this Pear, mentions it in his catalogue as a green fruit ripe in November. To-day, Jan. 5, 1888, only two out of forty of these Pears are ripe, and they are bright yellow. In appearance they are very fine; one weighs 10 ozs., the other a little less. They are sugary, but resemble an inferior Glou Morceau, which is, as far as my experience goes, rather a flavourless fruit when grown in England.

L'INCONNUE (Van Mons).—This Pear was left on the tree till it was falling, or ready to fall, but in spite of all care it shrivels and does not ripen properly. I hope that I may succeed better with it another year under somewhat different treatment after gathering. I picked last year seventy-nine fruits from a pyramid planted in November, 1885. As far as I can judge about it in its present imperfect condition, this Pear does not show promise of very high flavour, though it is very sweet.

OLIVIER DE SERRES.—I have 20 fruits off a two-year-old tree. They are quite plump and healthy, and look like ripening satisfactorily. They had a purple tinge when gathered, but are now turning slightly yellow.

H. M. ROGERS.

Rusthall Elms, near Tunbridge Wells.

White Gros Colman Grape.—The samples of this Grape, which Mr. Roberts, of Charleville Forest, Tullamore, Ireland, exhibited at South Kensington on Tuesday, the 10th, had very considerably suffered in the journey, and were much rubbed and bruised. Still further, the berries were greenish, and bore an unfinished appearance. Generally, the bunches resembled medium-sized ones of Foster's Seedling as usually seen in the summer, but lacking the hue of colour when that well-known kind is thoroughly ripe. The White Colman may be more easily cul-

tivated, but it looked very inferior to well-kept Muscat of Alexandria. If the White Colman really has merit, it was adversely affected by the sample sent to South Kensington on Tuesday, and Mr. Roberts would do well to get some grower of capacity over here to try it, and have its late-keeping as well as its other assumed qualities fairly tested. Possibly the climate of Ireland fails to do the Grape justice. The berries are of medium size.—A. D.

WATER FOR FRUIT TREES.

I PROMISED to give some striking examples of the success of orchards on the lowland prairies of Illinois. In company with another in the summer and autumn of 1884 I made a series of excursions about portions of Champaign County, to examine into the state of the Apple orchards. In the neighbourhood and a few miles east of Tolo no we found an orchard, mostly of the Snow Apple, planted from twenty-five to thirty years, the condition of which was remarkably healthy and vigorous. The fruit was large, fair, and plentiful, the foliage abundant and high coloured, and the growth made during the season exceptionally strong. The land had been prepared by throwing it into ridges, perhaps 18 inches high, and the trees were set on these about 30 feet apart. The site was a very low one, the soil a deep, black, prairie loam, and though the summer and autumn had been by no means wet, water had stood long enough between the ridges to kill the surface grass and vegetation. In fact, if the tree roots did not touch the water level during the growth of the season they were within a few inches of it. I may add that the development had been so strong that the branches interlaced and made a dense shade, to the almost entire exclusion of the sun's rays.

Another trip took us to the east side of the county, along the banks of the salt fork of the Vermillion creek of the Wabash. This section was settled about sixty years ago, the first farm being improved along the creek and the orchards planted there, and nearly under the shadows of the primeval gigantic forest growth. These old orchards were almost obliterated and a majority of the trees were decayed and gone, but those which did remain were in every case situated in the lowest portion of the orchard, or were along a draw, or had a depression which had been a mud hole or a hog-wallow for years under or near it. Along this creek there is a heavy growth of black Walnut, blue Ash, red Elm, Burr Oak, Sugar Maple and similar timbers rarely found except on a deep, moist soil, with an undergrowth of Papaw and Red Bud, shrubs equally exigent of high living. That the Apple, like these varieties of timber trees, should grow largest and bear best on a deep, rich soil, absolutely saturated with water for six months in the year and sufficiently moist for all purposes the other six, seems to be logical and reasonable.

Outside of the Illinois prairie country I have found in the Apple the same love for a copious water supply. In Colorado, at Fort Collins, where all fruit is grown by irrigation, I saw the Apple vigorous and fruitful, and at Wheat Ridge, near Denver, very remarkably so. There, in two or three orchards, I saw the Ben Davis and Duchess trees of ten or twelve years of age in a state of fruitfulness, health, and vigour; fruit large, fair, and highly coloured; foliage green and strong; growth for the year remarkable, superior to anything I had ever before come in contact with. Between the trees were ditches along which water was allowed to run freely whenever the ground was dry. But what need to multiply examples? The truth-seeker in this matter has but to observe closely to find sufficient proof to satisfy himself.

Not long since Mr. Rodney Welch, the agricultural editor of the *Chicago Times*, accepted the fact that the Apple required for its best development low and moist land, and recommended that the orchard of the future be planted on the banks and borders of creeks and rivers. And lately Dr. Dubois, the editor of the *Fruit Grower*, of Cobden, in the fruit region, reported that few if any trees had survived the trying climatic ordeal of the last few

years, except they were growing on land permanently moist. On page 358 of the October issue of the *American Garden*, Mr. Massey tells us that the famous Newtown Pippins of Albemarle County, Va., are grown in mountain hollows, where the soil is permanently moist, and where in the summer mornings the trees are bathed in dews and fogs for hours after there is a clear sky above and below. A similar fact was stated to the writer by Mr. Samuels, of Clinton, a nurseryman and fruit grower of large experience and wide reputation, who said the best and most fruitful Apple trees and orchards he was acquainted with were to be found in the ravines and draws made by the breaking of the watercourses through the bluffs into the bottom of the Mississippi River below in South-western Kentucky.—B. F. J., in *American Garden*.

BLenheim ORANGE APPLE.

PROBABLY few persons living know more about the origin and history of this famous Apple than does Mr. Robert Fenn, of Sulhamstead. Having resided at the Woodstock Rectory for, I think, some twenty-five years, he had the fullest opportunity of learning all about Kempster, the reputed raiser of Blenheim Orange. More than once, when visiting Woodstock, I was shown the house and garden in which Kempster resided, and remember that it adjoined the ducal park, which, so far, has given the Apple its name. The original tree had then disappeared, but there were many of its direct progeny about Woodstock. It is worthy of note that the Apple was originally named Woodstock Pippin, and later had added the designation of Blenheim Pippin and Blenheim Orange, the latter being, perhaps, the most commonly used. It is not a correct designation, because, whilst the Apple is round and yellow, it is also usually richly coloured. No Apple so well merits the appellation of Orange as the Golden Noble, the yellowest and handsomest of all pure, self-coloured kinds. Mr. Jefferies indulges in the hypothesis that Kempsters and possibly some others of the ancient Woodstock Pippin trees were raised from pips taken from fruit from some even more ancient tree. That would be but to throw back the assumed origin of the Apple indefinitely, and, on the whole, seems hardly sound. I very much doubt whether any raisers of Apples, even from non-fertilised flowers, have ever found the parent form of tree and fruits to be so truthfully reproduced as is thus indicated. On the whole, experience points quite the other way, especially when we know the remarkable tendency on the part of seedling Apples raised even from the finest kinds to revert to inferior forms. I prefer to think, whether old Kempster was the original raiser of the Blenheim Apple or not, and if he was, he merits some worthy memorial, "that all existing trees of the true form have sprung from the original tree through grafting and budding." That there are slight divergencies in the character of the fruits on some trees, I admit; as, for instance, the Beauty of Hants form, which, I believe, originated with Mr. Rogers, at the Red Lodge Nursery, at Southampton. I noted a large tree of it when in full fruit in the gardens of Glen Eyre, Mrs. Crabbe's beautiful place at Southampton, and compared the fruits with those growing on Blenheim trees close by, the divergence being most marked, as the fruits of Beauty of Hants were much more conical, larger, and richer coloured. Still, I do not think the divergence has been so marked in the fruits since the kind has been put into commerce, although here a tree of it invariably shows the conical form more prominently than does the old Blenheim Pippin close by. Stocks materially affect the character of fruits and also trees, as here, for instance, I have old trees of the same kind of Apple worked at the same time, some being double the size of others and producing the finest fruits. On the whole, I regard the Blenheim Orange as the most cosmopolitan Apple we have, as it seems to do well everywhere, and no one living will ever see it excelled as the most popular Apple of the country.

A. D.

Pears.—The information you are eliciting from various correspondents in regard to the areas of profit-

able cultivation of certain kinds of Pears, notably Winter Nelis, and your endeavours to obtain information concerning the merits of the various kinds of that fruit grown in different situations, with the ultimate view of restricting collections, is calculated to be of great use to fruit growers, both amateur and professional. There are very few gardeners who have escaped the necessity of rooting out unprofitable fruit trees, and one hesitates to destroy a well-trained tree, even when successive seasons have proved its inferiority. Fully persuaded that the various circumstances of latitude, elevation, rainfall, and soil influence the quality of the majority of our Pears, I have often warned the inexperienced of the difficulty of selection, and I have been unable to refer to any comprehensive treatise on the subject. By taking one Pear at a time, as you have done Winter Nelis, you will be able to define its limits of successful cultivation. First, let me answer your question concerning Winter Nelis. Belvoir is in the north midland district, the fruit garden 237 feet above sea-level and sheltered; the subsoil is lias clay, but the borders are made. The trees are trained to both east and west walls, and the fruit is invariably of good quality, sugary, juicy, and melting, but rather small. The trees wear out sooner than others, and are liable to the attacks of American blight.—W. INGRAM, *Belvoir*.

FRUITS UNDER GLASS.

PINES.

ALTHOUGH the British fruit-grower is closely run by Continental and colonial exporters to our markets, he still holds the monopoly in early Queen Pines. Later in the season, the Smooth Cayenne, from the Azores, is seen in every fruiterer's window, but as yet the delicious Queen, not only in the spring but throughout the summer, has been conspicuous by its absence. It is, no doubt, easy enough to account for this, but so long as foreign growers find it does not pay, simply because it is too tender for their mode of culture, all the English gardener who still grows Pines, has to consider is the production of a goodly number of fair-sized fruit for filling up the gap throughout the early London season. In my last paper I advised the selection of a few of the most promising plants, viz., those with thick stems and the greatest number of sharp-pointed centre leaves, as being the most likely to start into fruit without making a growth, for placing in sharp bottom-heat in a snug light compartment early in January. If this has been done, and the plants have been firmly packed with turf to keep them steady and properly watered, the minimum temperature in fairly good weather should now range about 70°, whilst that by day may run up to 80° from fire-heat, and a few degrees higher after the house is closed, with gleams of sunshine. The plants having been kept dry for some months, the application of water to the roots should be regular, until every particle of soil is properly moistened, but not saturated, as too much of this element at this early season is apt to injure the inactive roots when the fruit thrown up by the first batch will be deformed and useless. If plunged in tan or leaves, especially the latter, the roots will derive a great deal of moisture therefrom, and it is just possible the constant application of tepid water over the surface of the bed will cause the temperature to rise to a figure that may be considered dangerous to the crock roots. A bottom-heat of 90° about the pots, and a little more beneath them, will do no harm, but should it rise above these figures it will be well to shake the plants a little in the centre rows, and to make the pots firm again when the violent heat is subsiding. By this means the strong heat and moisture confined in the bed will be set at liberty, and, whilst economising dry fire-heat, will benefit the foliage when syringing or dewing over even may be considered dangerous. The syringe, as a matter of course, may be plied freely to the walls, avoiding the pipes when highly heated, and, provided atmospheric moisture suitable to the growth of winter Cucumbers is produced, the less these newly-started plants are syringed overhead the better. Although air in small quantities

only can be admitted, the supply should be evenly distributed, if only a chink on each ventilator, always with a rising glass when the temperature approaches 80° on fine days and 76° when otherwise. Close for the day not later than 2 p.m., damp the floors and walls, and again give a breath of fresh front air on mild evenings.

General stock.—If the proper forethought has been exercised, a good body of well-worked tan or leaves will now be ready for renovating the bed for the main stock of fruited. When in proper condition, a thorough cleansing of the house and plunging-pit should always precede their introduction, and, this done, the bed should be made very firm, as solidity is a great check to violent fermentation. As a few of the plants selected for the early start will persist in making a growth, and others in the main batch will throw up at once, it may be advisable by-and-by to exchange some, but, the stock being abundant, this pit for the present should be filled with the most promising early starters from the succession house. Having removed a leaf or two from the base of each plant and packed them firmly with lumps of warm turf, place them in shallow basins, and defer filling tight until the balls are properly moistened and the heat in the bed shows signs of declining. The plants left over, naturally the weakest, should be encouraged to make a growth before they start, and the better to secure this they should be replunged and carefully supplied with water and atmospheric moisture.

Successions may still be kept quiet in a temperature ranging from 60° at night to 70° by day, and 75° when fine and mild, or, the house being light and well appointed, they may soon be encouraged to make fresh root preparatory to potting. Nothing, however, is gained by undue haste; therefore, unless there is likely to be a break in the supply of Cayennes and Rothschilds, the two favourite summer and autumn varieties, it will be well to move cautiously until more of the wintry weather still due is left behind us. This, however, will not justify delay in getting a good supply of crocks, pots, soil, and correctives, the first clean and dry, the second warm and mixed, ready for use when the proper time arrives. Every day will now bring its own work, and when it is known that the compost should lie for a little time in a warm house or potting shed before it is used, a march in this direction is a double advantage.

Suckers.—Pits containing these need not exceed 50° to 55° at night and a few degrees higher by day for the present. Very little water will be needed, but it will be well to examine the beds, especially where the pots are plunged close upon the bottom-heat pipes, and if found very dry to give the leaves or tan an occasional supply of tepid water. To prevent its rapid absorption by the dry atmosphere of the pit, the pots may be completely covered with half-spent material until the time arrives for the general potting.

VINES.

Disbudding, tying down, and stopping in the early house will now claim daily attention, as every hour's delay in the performance of this work, especially of the pinching of the points of the shoots, deprives the Vines of a certain quantity of sap, which should go towards the development of the bunches. Vines on the single or double-rod system should be pinched at the second or third leaf beyond the bunch, and again when the first set of laterals have made sufficient growth to cover every part of the trellis with foliage when tied down and the latter is fully developed. No one approves of crowding the shoots or foliage, as every leaf must have full exposure to the sun and air, and the more of such leaves the finer and better will the Grapes ripen. Remove all superfluous bunches from Hamburghs and other free-setting varieties as soon as the best and most regularly placed clusters can be decided upon for the crop. Raise the temperature to about 60° on mild nights and 70° by day from fire-heat alone, but never draw a hard-and-fast line, as it is better to drop to 58° when the weather is unfavourable and redeem the loss by early closing about 1 p.m. on sunny afternoons. Counteract the drying influence of fire-heat by damping all bare

stems, also the walls and floors, avoiding the pipes when heated, and turn over a portion of the fermenting material every day. The outside borders, hitherto well protected by Fern or dry leaves, may now receive an additional supply of the latter in a fermenting state, and when the two have been turned and thoroughly mixed, the covers or tarpaulin should be replaced to keep out snow and wet. Many Grape growers have discontinued the use of fermenting coverings for their earliest Vine borders, but when protected from the weather, a good body of fresh Oak leaves produces a genial surface warmth which draws the roots upwards, and by the time the Grapes reach the stoning stage the top-dressing becomes one mass of hungry feeders. So far good, they say, but what about its removal and the check that follows? Well, leave it alone until the Grapes are ripe and cut, then take it off piecemeal, leaving a few inches to serve as a mulch, and allow this to remain until the time arrives for top-dressing in August.

Watering.—As more well-drained internal borders suffer from the want than an over-abundance of this element, liberal supplies—always in a tepid state—should be given after the Vines have started, and again before they come into flower, but not, if it can be avoided, during the time the Grapes are setting. Old Vines will take diluted liquid from the outset, and the size and boldness of the bunches will be improved by its use in every way from the roots to the evaporating pans and floors. Young canes, on the other hand, are not so much in need of early stimulants, and, provided they are liberally supplied with pure water, produce the most compact "shows," with many points in favour of a perfect set of fruit. This sometimes difficult stage safely passed, mild stimulants—including manure water, soot, and guano water alternately, and always in a clarified state—may be freely used up to the colouring stage.

Ventilation.—This at this early season is a very difficult matter and requires incessant attention, but fresh air, more or less, must be admitted every day, and night too for that matter, where the heating power is strong enough to support it. The greatest danger we have to encounter is the admission of cold currents, which lower the temperature and chill the tender foliage, but, following the good and only safe method of slightly opening each ventilator, with a rising glass when the mercury touches 70°, and resting upon this until a higher figure is reached, a change of air can be secured every day unless the weather is extremely wintry. On bright forenoons the temperature may range from 75° to 80°, closing about 1 p.m. being regulated by the slightest tendency to a downward movement, when the house should be properly damped and a little more fire-heat turned on to prevent a too rapid decline before nightfall. As days increase in length and the sun gains power, the foliage will stand more air, always, be it understood, to prevent the house from getting too hot, never to lower the temperature, and the chink from banking time through the night should be on the front ventilators.

Succession houses.—All late Vines, including the autumn Muscats, should now be pruned, cleansed, and the houses put in thorough order for starting. If only recently relieved of their fruit, a series of steady waterings should follow up pruning, but not until every knife-cut has been dressed with styptic, or painter's knotting to preclude the possibility of bleeding. The borders, too, must be cleared of all loose surface soil and old mulching quite down to the solid compost, which should be full of brown, healthy roots ready to seize upon the new supply. The best top-dressing for established borders is good turfy loam, lime rubble, and bone dust, a compost which may be built upon, layer over layer, for years, as there is nothing in it to become sour and inert. Rotten manure, as a matter of course, is an invaluable agent, especially in old houses, but the compost gives all the roots require at the outset, and the mulch, fresh and good, later on helps the Vines when the foliage begins to draw upon them.

Pot Vines must now be encouraged with frequent

additions to the top-dressing, and liberal libations of warm diluted liquid whenever water is needed. The roots will now do without bottom heat, but time in this department being an object, steady warmth not only hastens their progress, but the material from which it is obtained being well stored with the elements of vegetable life, whilst hastening growth, feeds the roots and foliage and economises fuel. If the rods are trained upon an ordinary trellis, continue tying out the leading laterals until the whole surface is covered with foliage, but avoid crowding, as the leaves must have light and liberty to admit a free circulation of air. Gradually raise the temperature to 65° at night and 75° to 80° on bright days by the time the Grapes come into flower, and whilst damping all available spaces, keep up a constant circulation of air to prevent the moisture from condensing or settling upon the bunches. Fertilise all varieties with Hamburgh pollen, thin out the berries as soon as a good set can be ascertained, and carefully avoid heavy cropping.

Vine eyes may now be put into single pots or small squares of turf, as recently advised, but they need not be plunged in bottom-heat before the first week in February—that is, unless they are to be grown into fruiting canes by the end of the season, when a fortnight earlier may be an advantage. The general stock for planting out or cutting back have plenty of time before them, and as days will now be increasing in length, the best results will follow if they are rested in a cool pit through the present month, and started in February.

Weak plants of last year's propagation that have been cut down to a single bud with the view to growing them into strong fruiters may now be gradually excited upon a bed of fermenting leaves in an intermediate pit. Once watered to moisten the small balls through, the syringe will keep them quite wet enough until the buds are fairly on the move. As soon as this return to life takes place and the young shoots have made 2 inches of growth, shake them out, trim the straggling and faulty roots, and repot in pots 6 inches in diameter. As these small plants will require another shift into 10-inch, or perhaps 12-inch, pots, the compost which is to form the nucleus of the future ball should be composed of sweet, rich, turfy loam, a little old hair plaster, and bone-dust. Let the pots and crocks be clean, the compost warm, pot moderately firm, and plunge at once into a bottom-heat of 70°. Water once to settle the soil, then sparingly until new roots are well on the move, but dew the plants over with a fine syringe twice a day, and keep the pit sweet and moist at a temperature ranging from 60° to 70°.

Lifting late Vines.—The external roots of late Vines may be lifted and relaid in fresh compost as soon as the Grapes are ripe, say early in October, and, provided the inside borders are full of roots, the fruit will not suffer through November and December; but unless the house is very lofty and the bunches well out of the way, inside renovation must necessarily stand over until the crop is cleared about the end of December. The sap being down and the Vines in want of rest, they should be pruned, cleansed, and slung loosely to the wires, but on no account should the border be disturbed until the sap is again in motion. Meantime the old border intended for removal being dry, it should be gradually moistened for the twofold purpose of filling up and exciting the buds and favouring forking out without injuring the small fibres. A fortnight or three weeks before lifting is commenced mix up the new compost, using fresh turf with the Grass upon it as an aid to fermentation, add the usual correctives, not forgetting a good percentage of crushed bones, old lime rubble, and lively embers from an active fire in the refuse yard. Throw the whole mass into a sharp conical heap or ridge, and cover it up with a thick layer of hot stable litter. Unless the weather is very severe and the compost unusually obdurate, a fortnight will suffice for its becoming warm, when, the Vines being on the move, they may be renovated without risk or injury. As it will not be necessary to fill up the whole of the area allotted to the roots, the space left for future

additions of compost may be filled with sound Oak leaves in a state of strong fermentation. The warmth from this mass penetrating the retaining wall of turf and drawing into the drainage will keep up the temperature of the compost, when the oldest and blackest of roots that may have been useless, if not injurious for years, will quickly throw out young fibres. As I may not touch upon this subject again, it may be well to remark that all decaying leaves, manure, and the like used for producing bottom-heat should be removed when the Grapes are cut the following winter. W. C.

THE BANANA TRADE OF DEMERARA.

In a recent report the United States Consul at Demerara urges his countrymen to establish a steamer line and fruit-growing company in British Guiana, of which he says "the profits must, in view of the magnitude of the trade, be necessarily large." As the opportunity is equally favourable for British merchants and investors, it may be well to summarise the consul's statements on the subject. The soil of the colony along the coasts is extremely rich; Cocoa-nuts grow near the shore, and large quantities of Bananas may be grown within three or four miles from the sea. The long yellow Bananas are in every way superior to those grown in the West Indian Islands, and equal to those of Port Limon and Aspinwall, which are so deservedly popular in the American markets. The first cost of planting an acre with Bananas is from £10 to £12; the production being from 600 to 800 bunches a year. The plants mature in nine months, and the fruit can be gathered every week in the year after it is well started. In Guiana all carriage is by water; hence Bananas can be delivered at the steamer in better condition than in any other part of the West Indies, where they are carried by springless carts, on negroes' heads, &c. Hurricanes which decimate the plantations elsewhere do not prevail in Guiana. Demerara is 2200 miles from New York; the course crosses the Gulf Stream, which is said by shippers "to cook the fruit" in a much shorter time than that from any other West Indian port; Bermuda and Barbadoes might be made ports of call to the greatly-increased profit of the voyage. Vessels drawing 18 feet 6 inches can enter the Demerara river at high water. In 1885 Bananas to the value of £400,000 were imported into the United States, mainly at New York, New Orleans, Boston, and Baltimore. The cargoes realised from 4s. to 12s. per bunch for the best quality, and it is, Mr. Bunker thinks, highly probable that contracts could be made in Guiana for their delivery alongside at 10d. to 1s. per bunch. A vessel of 1000 tons dead weight could carry a cargo of 20,000 bunches; the loss on the voyage rarely exceeds 15 percent., and if the balance were sold at the low price of 4s. per bunch the estimated profit on the trip would not be less than £1400 after payment of all charges. This does not include profit from general freight, passengers, or mails. Cocoa might be cultivated at the same time as the Banana, the latter giving the best shade for the young Cocoa plants. Banana plants yield an excellent fibre, and the Papaw, Lime, Orange, Mango, Guava, and Pine-apple might be added to the cultivation. Guiana being a Sugar-producing colony, a trade in canned fruits might be developed. The climate, the consul thinks, is much maligned; Guiana is not, as is commonly supposed, a hot-bed of fever; there is little variation in the temperature, the thermometer giving an almost uniform reading of 84° Fahr. Sea breezes prevail for the greater part of the year; cases of yellow fever are comparatively rare, and may be generally traced to dissipation or indiscretion. Under these circumstances he suggests that American capitalists should establish a fruit-growing company in British Guiana, with a line of steamers running between Demerara and New York.—*The Times*.

Pear Winter Nelis.—I thoroughly agree with nearly all your correspondents as regards the merits of Winter Nelis. My first lot was gathered on October 16, began to ripen December 1, and lasted till January 11. It is certainly one of our best late Pears.—W. FRANCIS, Richmond, Surrey.

MADRESFIELD COURT, MALVERN.

THIS beautiful baronial residence, a view of which is given, is picturesquely situated in its own finely-timbered grounds at the foot, one might say, of the Malvern Hills. It is the seat of Earl Beauchamp (lord-lieutenant of the county), and is well known to the readers of gardening literature by reason of the excellent Grape of that name, which was raised here by the late Mr. William Cox, who had the management of the extensive gardens and grounds at Madresfield Court for about forty years, and who is succeeded by Mr. William Crump. The approach on one side (from Malvern Link) is by an avenue of stately Elms and Oaks. The Court is a commodious and picturesque building. It is situated in the midst of charming woodland scenery, and, as viewed from the Malvern Hills, it forms the central figure of a very beautiful landscape.

been made within the last three or four years, is an additional feature in these charming grounds.

THE PLEASURE GROUNDS, which, in addition to the avenues indicated, include three others—the Oak, Golden Yew, and Portugal Laurel (the latter on stems 5 feet to 6 feet long), and grand Yew hedges, are very extensive, and have been laid out with great taste and skill, and judiciously planted with an assortment of choice trees and shrubs. Noticeable among the trees are *Picea grandis*, *P. cephalonica*, *P. Pinsapo*, *Pinus excelsa*, *P. Strobus*, *P. Lambertiana*, *P. macrocarpa*, *Abies Douglasi*, *Wellingtonia*, *Araucaria*, &c. All range from 50 feet to 60 feet in height, and are of proportionate dimensions. Two fine Catalpas and a Judas tree (*Cercis siliquastrum*) near to the Court also deserve passing notice. Neither must mention of the magnificent Oak—which must have already attained a fine growth

panthus umbellatus was very effective, the whole forming a quiet, though agreeable contrast to the masses of bright and delicate colours in the beds on the opposite side of the moat.

HARDY FRUITS.—These are grown largely and well in the walled-in kitchen garden, as well as in the nursery, to which we shall presently refer, none but sterling varieties of the several kinds being grown. The walls are furnished from bottom to top with healthy well-trained trees of the Peach, Nectarine, Apricot, Plum, Cherry, Fig, and Pear. Several young cordons of the latter on a short length of wall showed a good promise for next year. The several walks which intersect the gardens are furnished on each side with handsome horizontal and pyramidal-trained trees of the Apple, Pear, and Plum, and which, like the trees on the walls and the large plantations of bush fruits, such as Currants, Gooseberries, and Rasp-



View of flower garden at Madresfield Court. Engraved for THE GARDEN.

To hide the side of the house which contains the offices, a straight avenue of *Cedrus atlantica* was planted in 1866, leading by a sharp angle from an avenue of Elm trees, both running into an avenue of *Picea nobilis glauca*. A complete triangle of avenues is thus formed, and the Court being at the apex end, the effect from that direction is very telling. The avenue of *Picea nobilis glauca* is supposed to be the finest of the kind in the country. The trees were all grafted on *Picea pectinata*, and were planted eighteen years ago. They are now from 40 feet to 50 feet high, of proportionate dimensions, and furnished from the ground with luxuriant branches of bluish grey foliage, which, when viewed under the rays of the afternoon's sun, is singularly effective. Situated at the western end of the above avenue and at the junction of that of the Elm, there is a good example of the useful and ornamental combined in the way of an island or skating pond 18 inches deep. This sheet of water, which has

when it witnessed the attacks made upon this Puritan fortress by the loyal Cavaliers—be omitted. Not the least interesting feature in these extensive and beautiful grounds is the rocks, which present an imposing and romantic appearance, and although they cover a considerable area, the effect would, in our opinion, have been even better than it is had a little more space been devoted to the arrangement. These stately rocks, which are 30 feet high, and clothed with Ferns and other plants, gratify the eye.

THE FLOWER GARDEN is situated opposite the grand front of the Court. This being surrounded by a moat, and the water supply from springs in the Malvern Hills being ample, the plants close by are therefore kept well supplied with water. The garden inside the moat contains twenty beds, which are mostly filled with dwarf, sweet-scented plants. A centre bed filled with Aga-

berries, were generally carrying good crops of excellent fruit.

THE NURSERY.—There are two acres of nursery for fruit trees only. One thousand standards are given gratis to his lordship's tenants yearly. In the trial quarter there are 172 varieties of Apples, 82 of Pears, and 42 of Plums. New varieties of the several kinds are added to the collections as they come out. The condition of the trees shows conclusively that the stiff heavy Worcestershire loam and the treatment which they receive are alike congenial to their requirements.

GLASS DEPARTMENT.—The plant and fruit houses are numerous and in excellent condition. It would take up too much space to particularise the occupants of the various well-heated and efficiently ventilated houses in this representative garden; suffice to say that all bear evidence of skilful management. The greenhouse was

resplendent with well-flowered plants of Begonias, Pelargoniums, Celosias, &c., of the best varieties; whilst the Tea and other Roses planted out in the Rose house gave promise of a good display of flowers during the winter and spring months.

FRUIT HOUSES.—Pine-apples are not only grown extensively, but well at Madresfield. The thick, firm texture of the broad, dark leaves of the sturdy successional plants amply justifies the assumption that the fruit which they will ripen next summer will be no less meritorious than the handsome fruits supported by stout stems, which the plants in the fruiting house were then swelling. The varieties grown include Queens, Smooth Cayenne, Prince Albert, and Charlotte Rothschild, these being grown in good sound loam and bone-meal, in pots from 9 inches to 11 inches in diameter, plunged in tan near the glass. Melons.—Plants of that excellent Melon, Blenheim Orange, were carrying good crops of handsome fruit, averaging 5 lbs. each. Cox's Golden Gem, raised by Mr. William Cox, is another first-rate Melon, which is thought very highly of at Madresfield, as indeed it is in most places in which it is grown. Grapes.—Mr. Crump, on taking charge of Madresfield Court, found that the Grapes were not quite so good as he should like to see them, so he determined to secure better results. Having ascertained the condition of the Vines at the roots, the greater part of the sour, uncongenial soil was carefully worked out from among the roots and removed, and a like complement of a compost consisting of loam, wood ashes, lime rubble, and half-inch bones in proportionate quantities was replaced in its stead. Into this the roots afterwards pushed freely, and, as a consequence, better fruit was taken from the Vines the next year. However, Mr. Crump, in addition to a wish to classify the Grapes in the different vineries and to add to the Madresfield Court and Muscat of Alexandria kinds in place of the Black Hamburgh variety, was determined to produce better Grapes than were likely to be had from the Vines operated on, and resolved to establish a fresh batch of Vines in each of the five spacious vineries in the principal range, and in such a way that the regular supply of Grapes would not suffer. With this object, having raised the required number of Vines from eyes at the beginning of 1886, he made a narrow border about 4 feet or 5 feet wide, measuring from the front wall on the inside of each vinery, the ample drainage being covered with turves, Grass side down. The old Vines, be it understood, are growing in an outside border. The young Vines, which have all made very satisfactory growth during the interval and ripened a few finely-finished bunches each this season, are intended to take the place of those growing in the outside border. A strip of old border, about 5 feet wide, will then be removed, the drainage re-arranged, and openings cut in the front wall of the various vineries to allow the roots of the Vines planted inside free access to the new border, which will then be made outside. In the meantime the spurs will be either cut clean away or disbudded from the bottom part of the old Vines as far up as the young Vines, which are planted between them, may require space for the development of lateral growth. The Madresfield Court Grape not only holds its own with the Muscat of Alexandria in point of flavour, but is also a noble-looking Grape when well grown, as is the case at Madresfield. Peaches, Nectarines, and Figs, also Strawberries in pots, of which La Grosse Sucrée and Pauline find most favour for forcing,

are likewise done well under glass as also outside.

KITCHEN GARDEN.—In addition to the 4 acres within the walls, and in which the principal range of vineries and Peach houses is located, there is a like acreage, known as the "new kitchen garden," lying upon a gentle slope situated a short distance northward, but out of sight of the Court. This site was chosen by the present proprietor some twenty years since, and was at once drained and fenced. The soil is a strong, heavy loam, resting on a subsoil of strong, marly clay. Both gardens, almost needless to say, are well stocked with vegetables of the best description. One acre of the new kitchen garden is planted with Asparagus in rows at 4 feet apart and 2 feet from plant to plant in the rows, with the intention of removing alternate plants for forcing, and ultimately bringing them to 4 feet square. The shoots resulting from roots so planted within the last few years were, in point of size, like stout walking-sticks when I saw them; hence the production of forced "Grass" of the best description during the winter and spring months.

In conclusion, we may be permitted to say that there is scarcely a walk in Madresfield and adjoining villages but reveals some church, school, or orphanage which have been erected and supported by the munificence of either the present Earl and Countess Beauchamp or their predecessors in the titles which they so nobly bear; while the numerous tenantry, peasantry, and employes on the estate show, both by their appearance and conduct, how much their welfare is the object of their landlord.

H. W. WARD.

ROSE GARDEN.

OWN-ROOT ROSES.

M. LEVEQUE, of Ivry, near Paris, of whom we made some inquiries as to Roses on own roots, kindly replies as follows. M. Levêque devotes special attention to this way of Rose growing:—

In general, the Tea, Bengal, and Bourbon Roses do well on their own roots; among the Hybrid Perpetuals the progeny of General Jacqueminot, such as Marie Baumann, Pierre Notting, Maurice Bernardin, Madame Victor Verdier, Charles Lefebvre, &c.; of Victor Verdier, such as Eugénie Verdier, Albert Payé, Marguerite de Roman, Hippolyte Jamain, &c.; of La Reine, such as Duchesse d'Orléans, Paul Neyron, Anna Diesbach, &c., do very well on their own roots, but those that do badly are the progeny of hybrids of Portlands, such as Mme. Boll, &c.

The varieties that have issued from Jules Margottin do very well, but those of Triomphe de l'Exposition do badly, such as Bernard Palissy, President Mas, &c. The varieties coming from Lord Raglan also do badly, such as Léonce Moide, M. de Pontbriand, &c.

I think that this will guide you, but if these explanations are insufficient, we are completely at your service. I am able to give some experience in this culture. My father was one of the first to grow Roses on their own roots in large numbers. I also grow many thousands of them.

Roses from cuttings.—We have been replanting our beds of Roses, and as the plants are old and of large size, they are found to be well furnished with suckers, whether they have been budded on the Brier or on the Manetti; indeed, we are pestered with suckers from the entire collection all through the summer and autumn months. All this may be

avoided when the plants are propagated from cuttings. Tea Roses may be propagated from cuttings as easily as Verbenas are if the work is performed in the right manner. Some varieties of Hybrid Perpetuals are easily propagated, others are more difficult; but perhaps it is more a matter of waiting, as some produce roots much more quickly than others. I propagate Roses at any time. We grow Teas and Hybrid Perpetuals in pots, and at whatever season they pass out of flower, the growths are then ready to make into cuttings. The last-formed young wood is taken off with a heel attached to it, each cutting being about 5 inches or 6 inches in length. Some compost is prepared of equal parts loam, leaf-mould, and sand. When in full leaf about six cuttings are placed in a 5-inch pot, and in spring they are placed over a gentle hotbed, and thus they soon produce roots. In summer the best position is in close hand-lights on the north side of a low wall or fence. When the cuttings are fairly well rooted, they can be potted off singly into 3-inch or 4-inch pots.—J. DOUGLAS.

STANDARD ROSES.

THE first entry I can find in my firm's books about standard Roses is one dated March 24, 1827. "Lady E. Palk, 3 standard Roses, 15s," and "sent to Lady Lucy Vaughan, 5 standard Roses, 25s." From that time forward frequent entries occur, till in 1832 the demand seems to have been general, and the supply proportionately large, for the prices seem to be identical with those of this year.

Our president in his ever-being republished "Book about Roses," tells us about the standard Rose trees introduced from France in 1818, and the Royal Duke of Clarence's royal order for 1000 at as many guineas. In 1820, they were imported by Mr. Lee, of Hammersmith, and Mr. John Lee distinctly remembers in 1882 his father receiving a consignment from France of 8000 at 3s.

I have been trying to find out who was the French grower who originated this form of culture. M. Eugène Verdier writes me that his father, Victor Verdier, first began growing standard Roses in 1832.

My oldest friend amongst the French Rose raisers, Lacharme, wrote me only a few days before his death that he first cultivated standards in 1841. As he graduated with Plantier, of Paris, it is probable he brought the idea with him from that cultivator.

Like many important gardening (I had almost written horticultural, but I hate the word) novelties in cultivation, standard Roses were probably due to some enterprising gardener's "happy thought."

How the idea could have escaped the gardeners of the Grand Monarque I cannot imagine, but no record of the cultivation of standard Roses is found in *La Quintinie's de la Culture des Fleurs in his Jardin Fruitier*, though he gives a long chapter to the various sorts of Roses then in vogue—including amongst them Guelder Roses! Perhaps the Rose, by the irregular growth of its shoots, did not lend itself to clipping with the shears, and thus was not included amongst the favourites of his luxurious Majesty.

From the first the natural stems of the Dog Rose seem to have been used in France and in England. In Holland, where a sandy soil does not favour the vigorous growth of the wild plant, various kinds of the multiflora or evergreen kinds have been used for stems, but nothing beats good selected Briers from the hedgerows for making fine standard Roses.

From the year 1851 to 1870, standard Roses seem to have been most in favour, the number grown being very large, and other nurserymen planting each 100,000 to 150,000 a year, and in every garden a Rose garden of standard Roses—standard Roses studding the edges of the lawns—standard Roses in place and out of place—was one of the leading features. Gradually as the Manetti and dwarf seedling Brier stocks grew into use, and exhibiting became the order of the day, they declined in favour, and beds of dwarf Roses, more in harmony with the fashion of dwarf summer bedding which then held sway, were used.

What helped partly to bring standard Roses into disfavour was the habit of working all kinds, whether vigorous or not, as standards; and the result was seen in most gardens, viz., huge stems with small, dwindling heads, which rather disfigured than ornamented a garden. When they were first introduced the kinds most popular were the fine vigorous Hybrid Chinas, such as Blaire No. 2, Charles Lawson, Paul Verdier, Miss Lavier, Madame Plantier and other large-growing profuse-flowering kinds, many with a good fine evergreen habit; and standards of these sorts, each year becoming larger, were really good ornaments to the garden, and when in bloom, beautiful objects.

As they are again rising in favour, growers must again revert to a more careful selection of the kinds to be worked in this way.

Standard Roses can in nowise be dispensed with. In large gardens, with their big heads and good straight stems, they are of use in breaking the monotony of Grass surfaces, of herbaceous or mixed borders, in Rose borders at the edges of lawns, or by the side of long gravel walks.

In small suburban gardens, where only a few can be grown, and where walls 5 feet or 6 feet high encircle the narrow limits, standard Roses lift up the Rose to the light and air, and allow the cultivation of Roses where dwarfs would be stifled by the want of circulation.

I can recall many small suburban gardens where, under the unremitting personal care of enthusiastic amateurs, wonderful results in the way of fine flowers are produced from small numbers of well-grown standard Roses.

I have mentioned a few of the kinds which first won favour for the standard Roses, but they were summer once-blooming Roses. Perpetuals are now many of them vigorous enough to make fine heads. Which are the best? What are the desiderata? First, fine evergreen foliage, good vigour, combined with fairly even growth, great freedom, and continuous habit of flowering, hardiness, so that they do not get injured in any but exceptionally hard winters. It is singular how few kinds fulfil all these conditions. Amongst the reds or crimsons Lacharme's Charles Lefebvre and its offspring, Glory of Cheshunt, Annie Wood, Dr. Andry, Dupuy Jamain, Madame Victor Verdier, Maréchal Vaillant, Marie Rady, Sénateur Vaisse, Ulrich Brunner, and the English red Roses, Beauty of Waltham, Duke of Edinburgh, John Stuart Mill, George Baker, and Brightness of Cheshunt. The spring-wooded Eclair, Duke of Connaught, Camille Bernardin, General Jacqueminot, and Maurice Bernardin do fairly well. Very dark or maroon-crimsons do not seem to make fine plants. At most three or four sorts make fairly good heads—Prince Camille, Reynolds Hole, Abel Carrière, Sultan of Zanzibar, and Jean Liabaud. Rose and pink colours are more numerous. The old, vigorous Jules Margottin and its offspring, Lacharme's Alphonse Souperet, and Clara Cochet, Abel Grand, Centifolia Rosea, Edouard Morren, François Levet (almost a Hybrid China), John Hopper, Madame Clemence Joigneaux, Madame Gabriel Luizet (only it mildews), Madame Prosper Langier, Magna Charta, Marquise de Castellane, Paul Neron may be named.

La France is perhaps the type of what a standard Rose should be in the way of a flowering kind.

Of the white or lightest shade of pinks, Captain Christy grows into a fine free standard in time. Boule de Neige, Madame Lacharme, and Violette Bouyer are the finest whites. Duchesse de Vallombrosa and Princess Louise Victoria are perhaps the two best pinks.

Of Hybrid Perpetual sorts to be specially avoided as standards are such growers as Louise Van Houtte, Horace Vernet, Marie Coinet. Beautiful kinds, such as Marie Baumann, Marie Finger, Comtesse d'Oxford, are far more lasting and desirable as dwarfs, and make but poor, short-lived standards.

In the other classes which really are worth growing in this form, Souvenir de la Malmaison (a splendid dwarf when stubbed in yearly like a Willow) makes but a poor standard; its seedling, Madame Isaac Perriere fulfils all the conditions.

Of Mosses, Bath White, Lanei, Blanche Moreau, Madame Edward Ory, and Salet make fine heads.

Of Noisettes, Aimée Vibert and Céline Forestier are the two best. Maréchal Niel, Ophirie, Réve d'Or, and William Allen Richardson, as weeping kinds are graceful, and, with care, succeed.

China—Mrs. Bosanquet is the perfection of a standard Rose; vigorous, evergreen, and always in flower.

Lastly, we come to the fairly hardy Teas, and in the Dijon section we find some of our best standard Roses, fulfilling all the conditions needed for standards in selecting sorts.

Bouquet d'Or is, I think, the best, even better than Gloire de Dijon, whilst Madame Berard, with its large spreading habit, is a fine object when at its prime. Belle Lyonnaise is a little tender, and hardly free enough.

Of Tea-scented proper, which make good enough standards to be worth, except to the exhibitor, the trouble of protecting tall-stemmed Roses, there are very few and they complete the list. Anna Olivier, alba rosea, Homère, Innocente Pirola, Francisca Kruger, Mesdames Lambard, Falcot, Margottin, and De Watteville, Marie Van Houtte, Perle des Jardins, Etoile de Lyon, Safrano, Souvenir d'un Ami, and I am tempted to include Souvenir d'Elise.

Although not a very long list (and I would guard myself from criticism and misapprehension by stating that I do not say many other kinds will not make fair standards), but that anyone planting standards for garden decoration should select sorts such as I have named, and will not do wrong in having all I have, as the result of careful thought, given the names of.

Finally, one word as to culture. Standard Roses are mostly planted as permanent objects in the garden, and so are worth especial care. No pains are too great to prepare the spot for each plant—considering it may stand there for years. If in a bed, carefully trench your ground and add plenty of manure before planting—if as a single plant on a lawn, take the same pains with the site as if you were planting a Conifer—and your Rose will give good reward for all your trouble.—GEORGE PAUL, in "Rosarian's Year-Book."

SHORT NOTES.—ROSES.

Rose Etoile de Lyon, referred to on page 28, is not one that growers generally find any difficulty in flowering well on Brier stocks under glass, where it proves one of the most beautiful and perfect of yellow Roses, but it is a fact that not only does this variety, but a good many other vigorous Tea-scented Roses do exceedingly well on Rosa polyantha stocks out of doors in this country as in France.

Rose Mabel Morrison.—In the current number of the *Journal des Roses* M. Fanquet describes a plant of Mabel Morrison, which produced during the past summer simultaneously white flowers characteristic of the variety, pink flowers like Baroness Rothschild, and flowers half white and half pink. Of course, it is a common thing to find a sport reverting to its original type, and Mabel Morrison, White Baroness, and Merveille de Lyon have all been known to produce flowers of Baroness Rothschild, but the production of parti-coloured flowers is certainly not common among Roses.

China Roses for autumn blooming.—"R. D." does well to draw attention to the China Roses for making a striking group where there is a large space to be filled. A great mass of the common pink China is most effective, and is continuously in flower, becoming especially conspicuous in autumn by its profusion when many other Roses are flowerless. It is to be feared, however, that Ducher cannot be admitted as a decorative variety. It is true that its flowers are "pure white, of large size, and double"—when they can be got to expand; but they are produced so sparingly on such long stems, and so rarely open fair, even in fine weather, that the plant is quite worthless. The desirability of a good white China induced the trial of Ducher upon all sorts of stocks and in various situations, but always with the same results, until it was

thrown away. A white China as free and perpetual as the common pink and Cramoie Supérieure is still among the desiderata of the rosarian, but in the meantime the two last-named are well worth planting in bold masses wherever Roses are wanted and places are required to look bright in autumn.—T. W. G.

CHRYSANTHEMUMS.

E. MOLYNEUX.

HINTS FOR THE COMING SEASON.

THE past Chrysanthemum season was perhaps one of the most trying ever experienced. No doubt, many failures with certain varieties can be chronicled by growers. I think that a failure, more especially in horticulture, stimulates us to obtain better results in the future. Bad seasons are therefore useful, as they teach us what to avoid. It is not possible to experience a more unfavourable season for the growth and successful cultivation of the Chrysanthemum than that of 1887 was. In the first place, we had during several months a very dull sunless period, which prevented a free solid growth of the plants at the commencement. Chrysanthemums in all stages of growth—no matter by what method they are grown or for what purpose they are required—are sun-loving plants; therefore, a scarcity of that all-invigorating medium often causes much mischief. Possibly the absence of sun at this period had something to do with the extreme height which some plants attained, particularly where the convenience was not of the best. After that came, towards the end of April, cold cutting winds, and early in May again were the plants similarly affected directly after they were placed in their flowering pots and stood outdoors. Several collections that I know were so much battered about with wind at this stage, that the leaves were torn into shreds. This, of course, checked the plants in a wonderful degree. Where the position was high and in any way exposed to the east the damage was far worse.

These ill effects were followed by an extraordinarily dry summer; in some localities no rain fell for twelve weeks. Where this occurred in hilly positions the air was excessively dry, as there were no night dews, as in the case of valleys and low-lying districts. Cultivators residing in the latter positions had an immense advantage over their neighbours on the hills, as after a hot dry day, a cool night, accompanied with dew, is immensely refreshing to the Chrysanthemum. Although this plant loves sun, it also likes moisture; therefore the advantages I have referred to will be at once seen. To some cultivators another drawback occurred to their plants. During the early part of September a severe frost occurred, which was sufficient to cripple many of the most forward flower-buds by turning the centres black, owing to the calyx splitting just about that period, thus exposing to the frost the tender petals in an embryo state; flower-buds so affected showed the results later on by bad centres.

November being the wettest month of the year, it was not favourable in most localities to the development of blooms of the finest quality, which on all hands were admitted to be exceptionally late; the incurred section always suffers the most from the effects named. Except under the most favourable conditions, the depth of bloom in this family is sure to be wanting, and there will be a roughness of the petals.

Some persons are in a much worse position than others regarding the water they use, where the supply of rain water is limited, and recourse has to be had to that from wells, or that sup-

plied by water companies, with no means at hand for storage in the sun's rays to warm the water preparatory to using it. The water from wells is often largely impregnated with lime, and this applied direct to the roots and foliage of Chrysanthemums, without any means being taken to soften or warm it, must injure such plants. Having pointed out the reasons which have not been favourable to high-class development of flowers, it behoves all those who are at all affected by the causes here named to devise plans for preventing a recurrence of these effects in the coming season; much may be done by a timely outlook when knowing what to avoid and aim at. The next thoughts of the cultivator are how to avoid the ill-effects of such a season as the past, and to ensure a greater measure of success in the future. I will point out a few of the remedies I would suggest for future guidance. The most important is that of giving more strict attention to minor details in the cultivation.

Commencing with the first point, that of overcrowding the plants, the remedy for this is to limit the list to a reasonable length. It is far better to grow a smaller collection really well than attempt a large one merely for the sake of numbers and variety. It is well to remember that the pint measure will not hold a quart. The next consideration is how to prevent damage to the plants by cold east winds at the time when they are first placed out of doors in an open situation. A little forethought will prevent a recurrence of damage to the plants in this way. Shelter on the east side by the use of sheep hurdles, mats, or boards; in fact, anything that will break the winds will suffice. It is not to be expected that another summer like the past will happen this year, but in all seasons there is a spell of very hot weather, and extra attention is required to keep the plants in good condition as to water at the roots. In some hot, dry situations some plants are checked by reason of the roots on the sunny side of the pots being burnt. This more often takes place when the soil in the pots is allowed to become dry. Some persons may say, why not plunge the pots during the summer season? I do not believe in the practice, for the reason that in showery weather it is not possible to ascertain correctly if the plants really need water at the roots or not. Often under such conditions the plants are suffering from drought when the cultivator thinks the rain has been sufficient to moisten the soil through. I prefer to apply shade to the pots on the sunny side, either by means of boards on edge placed alongside the pots, or by a covering of straw, Fern, or even ashes.

Where necessity compels the use of water other than that from rain-water tanks, as much of it should be placed in casks or tanks as space will allow, standing the tubs, &c., in the full sun, so that the water may become warmed before using. Washing soda, used at the rate of quarter of a pound to 36 gallons of water, previously dissolving the soda in hot water, softens it if allowed to stand for a time afterwards, and also acts as a stimulant to the plants. Where the water is from chalk wells, the soda precipitates the chalk, and keeps it at the bottom of the tank or tub; this sediment should not be used for the plants, but should be thrown away, as it contains a very large percentage of lime, which is not required for the plants, as soil which is taken from land overlying chalk is supplied with sufficient lime, as is the case where chalk wells abound. Some towns, I believe, are wholly supplied with water from wells of this class. Amateurs and other

cultivators residing near such towns are compelled to use such water. As far as my experience leads me to judge, water of this class is about the worst to use for Chrysanthemums. If some of our scientific friends would give us their experience of water of this kind and the means of rendering it in the best condition for plant life in the shortest possible time, I am sure many besides myself would feel grateful for such information.

Of course, there are circumstances over which we have no control, such as absence of sun in the early months of the year, excess of it during the summer, and a wet autumn, all tending to make the flowering late and the blooms not so good in quality as when the seasons are more favourable. What I wish to impress upon the beginner is to look ahead with a view to obviate as far as possible any known difficulties standing in the way of success.

SWEET-SCENTED CHRYSANTHEMUMS.

I HAVE many times written in favour of sweet-scented Chrysanthemums, believing they would form a very interesting class both at home and at the exhibitions. Now that some of the single varieties possess a delicate pleasing perfume (which to my mind is more refreshing than even that emitted from *Progne*), we shall soon have more of them. The Hull Society set a capital example towards the encouragement of sweet-scented Chrysanthemums by offering prizes at their late exhibition for this class. Nothing that I am acquainted with brings any section into prominence so quickly as the offering of prizes. Prizes offered in this way benefit two classes of people, viz., the raiser of new varieties and the grower. These two reasons generally go hand in hand, and where such elements predominate, something is sure to quickly arise. It is questionable if the Hull Society last year made the best regulations for the encouragement of this section when framing the class; it reads thus: "Twelve blooms sweet-scented Chrysanthemums;" to this they add the following: "In judging this class the scent of the blooms will be the chief point considered." I consider both the wording of the class and that of the added clause wrong, that is, if we must consider that pure fragrance of the flowers is the object the society wish to encourage. Why I think the wording of the class is wrong is that by asking for twelve blooms, such a variety as *Mrs. Langtry*, which is single, is too heavily handicapped to compete with the same number of blooms of *Dr. Sharpe*, for instance, as it is impossible to find as much scent in twelve small flowers as in the larger ones. Again, the *Anemone Pompon* variety *Dick Turpin* has a delicious perfume. Fancy twelve blooms of this variety, which is naturally very small as Chrysanthemums go nowadays, competing with those named previously; had the class been for twelve bunches, the small-flowered kinds would have had an equal chance with the other sorts. A bunch of flowers of the variety *Mrs. Langtry* fully developed emits a more pleasing perfume than any other variety that I am acquainted with. My reason for considering that the added clause is wrong is, that by inserting the word "chief" it infers that scent is not the only consideration the society wished the judges to make. If the word "chief" had been omitted altogether, then scent would have been the only point to consider. I take it that the encouragement of fragrance in Chrysanthemums was the object of the Hull Society when offering the prizes; therefore, I trust that the committee of that society will accept my criticisms in the manner they are given—for the encouragement of scented Chrysanthemums.

A few notes on the culture of this class of Chrysanthemums may not be out of place here. The only varieties that I know possessing a fragrance are *Progne*, a small-flowered, rather tall-growing variety of the reflexed type, amaranth in colour, violet-scented; *Dr. Sharpe*, also reflexed, magenta colour. If this variety be grown with the object of

producing large flowers on what is termed the crown-bud principle, they have little or no scent; even if there be any, it lasts a very short time; but when grown with a view to provide a quantity of blossoms—as it does readily—the fragrance is much more pronounced. The single variety *Mrs. Langtry*, pale pink, is dwarf in habit, branching freely and flowering abundantly the whole length of the stems. One or two plants will perfume a whole house. *Dick Turpin*, with brightly-coloured ray florets and deep yellow-centred flowers, is very highly perfumed. Cuttings may be inserted in the ordinary way, or two in a 3-inch pot. Any time during the present month, when the plants are 4 inches high, pinch out the point of each to induce side branches; select about three of the strongest of these, removing any others. When those retained have grown from 4 inches to 6 inches long, once more pinch the points. From these select six of the strongest shoots. These may be allowed to grow unchecked, and will in time produce a plentiful supply of flowers. The varieties *Progne* and *Dr. Sharpe* should have some of the weakest-growing branches removed from the lower part of the main stems, and the flower-buds should be thinned somewhat to induce a fuller development of the flowers remaining; but in the case of the single variety and *Dick Turpin*, when six of the strongest stems are selected upon each to remain, all branches growing from them should remain, and all bloom-buds allowed to develop. It is the freedom of flowering and graceful habit of the flower-stems when fully developed that lend such a charm to single and *Anemone-Pompon* Chrysanthemums. In some cases two plants may be grown in one pot where space is a consideration. The pots at each potting should be a trifle larger. Plants moderately grown will produce better scented blooms, while the colour of *Progne* and *Dr. Sharpe* will be richer if later produced flower-buds are retained for flowering.—E. M.

— At page 605, under this head, I distinctly said that while myself and others like the odour of Chrysanthemums, even in their leaf odour, that "others object to it quite as decidedly." "E. C." (at page 9) seems difficult to please. I wish Mr. Molyneux or some other good grower would give us a complete list of really sweet-scented varieties, as many would like to grow them.—F. W. B.

CHRYSANTHEMUM SHOW SCHEDULES.

MR. MOLYNEUX always writes with authority upon all that relates to the Chrysanthemum, but some surprise will be felt in finding that he, whilst actually favourable to the existence of such huge classes as forty-eight incurved flowers, yet intimates that a class for forty-eight incurved and Japanese flowers is a very difficult one to compete in. I should have thought that if it was difficult to obtain twenty-four good incurved flowers, it would be far more difficult to make up forty-eight blooms, even though twenty-four duplicates were allowed. I have never regarded the class for forty-eight blooms, half incurved and half Japanese, as seen at Kingston, for instance, as a difficult class for exhibitors, especially as competition in it is always large; but I have always regarded it as a difficult one for the judges, because it is far from easy to balance Japanese flowers against incurved ones. And there is little sense in the combination. But the offer of a cup, which has to be won twice before it becomes the property of the competitor, gives to classes of this kind an interest which they do not merit. Still, it must be obvious that it should be no more difficult for any ordinary grower to make up twenty-four incurved flowers and twenty-four Japanese flowers for one class than to put up twenty-four of each kind in two classes. I think it would be well if, in all cases, no class exceeded twenty-four blooms. But whilst I agree with the suggestion that the exhibitors in the 24 class should be excluded from the 18 class, that other growers might be induced to compete, I would establish also an open class for eighteen blooms, in which exhibitors should stage flowers quite diverse in variety from those in the 24 class, and thus bring to the front many beautiful flowers which are now left at home, because,

perhaps, not up to the ordinary show standard. Committees in arranging their schedules might, by cutting down the big classes, do a lot in this way to add interest to their shows, encourage the exhibition of neglected flowers, and promote a stronger feeling of competition amongst growers. I think Mr. Molyneux is wrong as regards knowing the names of the judges before he agrees to exhibit at any show. This demand would place it in the power of other exhibitors, members of committee, to keep Mr. Molyneux from competing by appointing as judges men objectionable to him. Why should such a condition be exacted in the case of the Chrysanthemum? Surely we may have confidence in committees that they will do their best to furnish fitting judges, and as good men are needed for the summer shows as for those of the Chrysanthemum. On the whole, the less known beforehand of the judges the better. A. D.

FLOWER GARDEN.

PRIMULAS OF THE MARITIME ALPS.

WE are accustomed to hear much of the almost sub-tropical flora and of the climate of the Riviera, but it is seldom—too seldom—that

ing plants are seen, such as *Saxifraga cochlearis*, *Micromeria Piperella*, *Saxifraga lantoscana*. It is not, however, my intention now to speak of the very many rare and beautiful alpine plants which are met with during such a walk, or to speak of the beauty and grandeur of the scenery, but rather to draw attention to one or two species of *Primulas* which are found there.

P. LATIFOLIA (Lap.).—This plant, which is found in great abundance, varies considerably both in the size and the colour of the flowers. The blossoms are borne in large clusters on long naked stalks; in some places there are only single plants, while in others (at high altitudes) it is found in large tufts.

P. MARGINATA, which, I believe, is confined to these Alps, is found very plentifully. It generally prefers sunny positions, and soil freely intermingled with nodules of stone. It derives its specific name from the leaves having a white margin, which adds greatly to the beauty of the plant. The plant is also easily recognised by the whole of it being dusted over with a sort of yellowish-white powder. The flowers, bluish-lilac in colour, are large, and unfortunately appear so early in the spring that one is rarely able to see them, excepting at high positions on the mountains, where they appear later. It may be here remarked that there are many

posed of neat little rosettes, 1 inch to 2 inches in diameter, clothed with nearly round or spoon-shaped, thick, fleshy leaves, the leaves thickly covered with glandular, viscid hairs. The blossoms, very circular in outline and varying in colour from pale delicate pink to rose-pink, are over an inch in diameter, and rest literally on the foliage. It was thought this plant would be most difficult to cultivate from the peculiar position in which it was found (it has, however, since been discovered in crevices fully exposed to air and light). Fortunately, it has proved by no means difficult to grow. It is better not to expose it to too much wet in winter.

The *Androsaces*, which are closely related to the *Primulas*, are most interesting. There are about seven species. I have, however, only seen the following on these Alps: *A. carnea*, *A. carnea* var. *brigitica*, *A. imbricata*, *A. villosa*, and *A. Vitaliana*. *A. brigantica* is rare and very pretty, with small flowers of snowy whiteness. *A. imbricata* always occurs in narrow fissures of calcareous rocks; it has silvery leaves and comparatively large solitary, pure white blossoms resting upon the leaves. The most brilliant of these is *A. Vitaliana*, which, when seen in full flower, resembles tufts of gold. *Soldanella alpina* is also very abundant, and is most conspicuous when seen with its bluish, bell-shaped, deeply-fringed blossoms appearing through the melting snow.

Holgate, York.

R. POTTER.



Primula Allioni.

anything is told us of the snow-capped mountains which run almost parallel with the Mediterranean coast, which is from 40 to 50 miles distant. They are, nevertheless, most interesting, rising to an elevation of over 10,000 feet. The lowest pass over the chain is more than 6000 feet high. The flora of this district is, in many respects, distinct from that of the Swiss Alps.

There is one locality which the native population are accustomed to visit, viz., the Sanctuary of La Madonna Finestre—so named from the pass (8000 feet) immediately above. The sanctuary and other buildings are situated in a fine alpine valley, bordered on either side by lofty mountains. It may be reached either by carriage from Nice to San Martino Lantosca, from which place a mule track leads to the hotel, or by carriage or public conveyance, which runs daily, from Nice to the Abbey of San Dalmazzo, or to Tenda (3 miles further). From either of these places to the Colle della Finestre the journey is a most interesting one. In some portions of the route there is no well-defined path, so, in case of fog, a compass should be taken. To allow of ample time for botanising, an early start should be made. Immediately on starting, a number of interest-

varieties of this, varying both in foliage and flower. At the *Primula* Conference, held in London some time ago, Messrs. Backhouse and Son exhibited some interesting varieties, which were collected in close proximity to where *P. latifolia* and *P. viscosa* (Vill.) are found. It is, therefore, probable that these varieties were of hybrid origin.

P. VISCOSA (Vill.) is one which is found on most of the European mountains, and it is as beautiful as it is common. The leaves are very viscid to the touch; the flowers are bright rose or rosy-purple, borne in dense clusters on short, sturdy stalks.

P. FARINOSA occurs occasionally, but I have never seen it here so fine as in Teesdale and other parts of England.

P. ALLIONI (Lois.) (see illustration, for which we are indebted to Messrs. Backhouse and Son), which I consider the best of all, is found in very peculiar positions. I well remember first discovering it. I retired into a large cave (limestone) for the purpose of shelter from the sun while partaking of food, and when the eyes became accustomed to the subdued light, something unusual was noticed apparently clinging to the roof of the cave. I at once commenced to build a platform of loose stones, when a clump or two was secured—I say clump, for here it was in such masses that must have taken many years to produce. The tufts were found to be com-

NOTES ON HARDY PLANTS.

The Saffron-flowered Saxifrage (*Saxifraga mutata*).—I have never known this singular and beautiful kind to flower when less than three years old, and often the plants have been older. The species bears seed freely, and seed-raising is practically the only means of increasing it. I have never known a cultivated specimen to survive after producing seed. The plant is very apt to rot off at this season, especially if grown in lowland gardens, or on land of a damp nature. I believe that the dead, but very persistent foliage, owing to its holding too much moisture about the softer part of the half-woody stem, causes its decay. Anyhow the plants that have not flowered for five years (as I have known many to do), and which have consequently become leggy, rarely succumb in the wettest of winters, owing, as I suppose, to the longer stem being harder and drier. There is a mode of growing this desirable Saxifrage by which two points are gained, viz., earlier flowering and a less proportion of losses from damp. It simply consists in growing the plants on a sloping and sunny part of the rockwork, on a patch that has been coated with sandstone to a thickness of 3 inches or 4 inches. Not only do the plants mature earlier when so placed, but the self-sown seed, according to my experience, has always vegetated more freely in the grit than it did elsewhere.

The Scarlet Lobelia (*Lobelia cardinalis*) and other varieties of the tall and so-called hardy perennials are certainly not safe in all gardens if left out entirely unprotected. It may be questioned also if it is a good practice to dig up the roots and store them as we do *Gladioli* and *Dahlias*, for it has often been found that when the plants have been gone over in spring that nearly every offset had more or less decayed. If one must dig up the roots, they should be separated from each other and kept rather dry in an airy place. I have, however, found the plan of protecting the roots where they have grown by a good covering of coal-ashes to involve both less labour and risk. If the clumps, which start into growth in March, be cut up, potted, and placed in cold frames they will do well for planting by the latter end of May.

The Spring Gentian (*Gentiana verna*) is certainly not difficult to accommodate, but if I wanted it in big patches, I would take a little more time and raise seeds on the spot. The seed is cheap, and there need be no difficulty in securing it quite fresh. Plants flower the second year from seed. The most important point is to prepare the soil for the seed, and the position should be fully exposed with a provision for moisture. My seedlings came up freely when sown in a mixture of

free loam, small stones, and leaf-mould. This compost was laid 18 inches thick on a bed of small rubble at the base of a slope having a southern aspect. No plant could have more risks to run than the vernal *Gentian* when planted so late as the latter end of November, unless the specimens had been previously established in pots. I should never think of planting short or fibreless-rooted alpine so near the times of frosts and thaws as we experience them. All such plants are sure to be thrown on the surface, and even if they are put back with the utmost care, they may have received an injury, and finally die off. Just a word about the term "fresh seed," only to make what may seem a very narrow distinction between "just ripe" and "just gathered" seed, owing to the way in which the pods retain their contents, you may have "freshly gathered" seed a month or more after it has been ripened, and when we remember that perhaps nowhere could the seed be kept to greater disadvantage than when left in the dried pods to bake in the summer sunshine, we may see the importance of collecting the seeds of certain kinds as soon as the pods split at the apex.

The Scorpion Iris (*Iris alata*) has been frequently and favourably referred to of late, as it well deserves, but we must not be led to believe that it is capable of standing out-door exposure; in mild winters it may do, but already such as were left exposed have been killed here. J. WOOD.

Woodville, Kirkstall.

A good annual climber.—Anyone in want of a really good annual climber should not fail to include the Japanese Hop (*Humulus japonicus*) in their order list. We have now a good number of plants suitable for draping unsightly walls, &c., but few equal this for grace and beauty, as well as rapid growth. The habit resembles that of the common Hop, the leaves, however, being more numerous, with more divisions and incisions, and of a much lighter or yellowish green. The plants may be raised successfully in the open air along with the other annuals. For covering trellises, verandahs, outhouses, unsightly walls, or as a feature in the pleasure garden or park this Hop is unequalled amongst the annual climbers at present known. The lively green of the leaves is retained until late in the autumn, and the contrast with the varied autumn tints is very marked.—K.

Premature spring in the south of Ireland.

—All sorts of Daffodils are well above the soil and promise a wonderful bloom. Then we have the *Crocus*, *Snowdrop*, *Squills* of all sorts, *Glory of the Snow*, &c., well above the surface, and in flower *Gentiana acaulis*, *Paper-white Narcissus*, *Anemone fulgens*, *Winter Aconites*, *Iris stylosa* with a perfume like that of *Primroses*, *Ox-lips*, *Primroses*, and *Cowslips* of many sorts, hybrid *Primroses* with the early sulphur double form, and in *Hellebores* (niger varieties), *altifolius*, *St. Brigid*, *Riverstoni*, *caucasicus*, *Madame Fourcade*, three varieties of *major*, as collected from Teignmouth, Bath, and our Irish form—I should like to call it *multiflorus*—and to add a small late-flowering sort that may be recognised as *H. niger vernalis*. Among Daffodils the most forward—the beds being all covered with foliage and buds—are *Ard-Righ*, *Tenby*, *Trumpet Maximus*, *Henry Irving*, *Golden Plover*, *Johnstoni*, *Leda*, *Corbularia*, *conspicua*, *General Gordon*, *princeps*, &c. *Pallidus præcox* seems late for imported bulbs, so does *nobilis*. The Italian double form of *Telamonius*, the bulbs here for four years known as *præcox*, will bloom probably at the same time as *Ard-Righ*, early next month. Then under glass in a cool house we have very forward the rare *cyclamineus*—astonishing! the smallest bulb of this variety gives its bloom to perfection—*capax*, *pallidus præcox*, *Leda* (White Trumpet), and in full bloom *Ard-Righ*, blooms of which were sent to THE GARDEN office on New Year's Day. Its fine golden trumpets are very beautiful, and the pots placed at intervals with other plants have a good effect. In a cold house planted permanently in tubs 3 feet in diameter we have a grand display of Christmas Roses. The

plants (at the least fifteen years old) are one solid mass of bloom and foliage. I have had some specimens photographed, of which more another time. But there is a great future before the Christmas Rose when grown after my fashion, in conjunction under glass with *Megaseas*, and *Daffodils* for winter bloom, without fire-heat. To my mind, no plant is more valuable for producing white flowers from November until February. We have also a fine promise of bloom with the Algerian white *Corbularia* and *Narcissus triandrus albus* planted out of doors. Both are now well in bud in a raised position at the foot of a south wall.—W. B. H., Cork.

CHRISTMAS ROSES.

"J. C. C." in THE GARDEN of Dec. 31 (p. 599), writes:—

Hellebores evidently do not like being disturbed. Two years ago I very carefully lifted some plants bodily with a fork and transferred them with great care to their new quarters. They have, however, hardly recovered even now, &c.

My experience is the reverse of "J. C. C.'s". Two years ago I lifted some for forcing purposes, and as soon as the blooming was over the plants were put back in the place from whence they came. They are now a perfect mass of large, well-formed flowers and buds, and to a casual observer look as if they had not been touched for many years. I must, however, make this admission, and which is perhaps the secret of success, that the ground was thoroughly enriched before they were put back in their old quarters.—W. J. D., Alton Nurseries, Headingley, Leeds.

—My experience in dividing Christmas Roses differs from that of "J. C. C." in THE GARDEN, Dec. 31 (p. 599), as I have always found that they succeed well when they are divided carefully and all the soil shaken, or, better still, washed from the roots, and then planted in a suitable position in any fairly good soil. I attach some importance to clearing off all the old soil, for they appear to do badly when lifted and planted with a ball. "J. C. C." gives us an instance of this, as he says that some which he planted in this way two years ago have not yet made a good start, and he apparently infers from this that they would have done still worse had they been divided. I think there is far too much faith in lifting plants with balls of soil attached. No doubt this is an important matter with many things, but there are many exceptions. I am aware that *Hellebores*, as well as other plants, should be carefully lifted, but the care required is more to preserve the roots intact than to have a body of soil attached to them. The weight of the soil frequently breaks or wrenches the roots, and so defeats the object of careful lifting. *Hellebores* do not make fibrous roots, and if broken they rot back to the base, and probably cause still further decay. I know of quite small bits that were planted less than four years ago some hundreds of miles north of the home of the parent plant which have made very fine plants, and have produced large quantities of fine blooms this year. I prefer planting Christmas Roses during January and February, provided the weather is suitable.—JOHN C. TALLACK, Livermere Park.

—I admire *H. niger angustifolius* very much with its large, pure white flowers and ample foliage, but I am not altogether sure that the plant sent out by nurserymen under the name of *H. niger ruber* does not carry off the palm for simple beauty. True it lacks the abundant foliage of *H. angustifolius*; but then, in the case of the latter, the leaves are often too numerous, while in *H. n. ruber* there are just sufficient to set off the flowers to the best advantage. In the open, however, unless in well-sheltered spots, *H. n. ruber* loses a great many of its fine, bold, dark green leaves; some get discoloured, and the beauty of the plant, though not of the flowers, is marred. *Angustifolius* retains most of its leaves, though in some few instances they are discoloured. Another plant sold as *H. caucasicus* seems to me to be all foliage, and no—at least, very few—flowers, which are small, dirty white, and much inferior to those of the typical *H.*

niger, which I consider the best of all. *H. maximus* or *altifolius* and *major* are also very desirable varieties.—K.

Iceland Poppies (*Papaver nudicaule*).—The original type was introduced one hundred and fifty years ago. The plants appeared to have suffered some neglect, but of late years they have rapidly grown into popular favour, and very pretty and striking tufts of them can be seen among other places in the London parks. They are well suited for rockwork, a position in which they do well. Then they are perfectly hardy, and produce an almost endless profusion of flowers. The habit of growth is neat and graceful, and the foliage elegant and somewhat Fern-like, and from amidst the tufts formed by its rise slender stalks a foot in height bearing charming flowers. As a rule, Poppies are not persistent enough to be of much value for cutting, but *P. nudicaule* is one of the best for the purpose. The normal type is of a pleasing shade of yellow. Then there is *album*, which has pure white blossoms. *P. nudicaule miniatum* is a singularly bright and pleasing variety, having flowers of an intense orange-scarlet colour, and it has received a first-class certificate of merit. They can all be raised from seed.—R. D.

Hardiness of Gladiolus corms.—With reference to the paragraph about these on p. 8, I beg to say that, having got several clumps of *Gladiolus brechenleyensis* frozen in by the early cold in autumn, 1886, I gave them up as done for; nevertheless, when I examined them in the spring, I found an increased number of sound and plump corms, decidedly better than some I had just bought for planting. I dug them out and replanted them with the new ones, and all came up, but (owing, I suppose, to the want of rain during the summer) none of either lot flowered. I have now left out both these and some hybrids, and hope to save them all, my soil being light and on gravel. Last summer I saw in Essex a magnificent clump of single Dahlias, three times as strong and handsome as either of the many other clumps in the same garden, and was told that it came from a root accidentally left in the ground all winter. I believe many bulbous and other roots which are not considered hardy might safely be left cut if planted deeply (a foot of soil will protect from a long frost) and well provided with drainage and with plenty of grit and fibre about them. Probably "J. C. C.'s" self-sown corms are much deeper in the ground than he ever plants any. The Winter Cherry, by the way, has always hitherto perished with me, whether in the form of seedlings or transplanted roots; but I have never planted it deeply.—WM. SIMMONS, Enfield.

Some simple arrangements.—I have found the following combinations very effective:—

One massing or combination is most beautiful—*Heliotrope* and *Cineraria maritima*. One or more big beds should be of these.

Calceolaria amplexicaulis makes a grand bed, but does not mix very well with many flowers; does well with sweet variegated-leaved *Pelargonium*.

Pelargonium Indian Yellow, a lovely salmon-pink, with *P. Lucius*, a deeper pink.

Verbenas, deep and light purple; also with *Cineraria maritima* and *Centaurea ragusira*.

Verbenas, scarlet and pink together.

French and African Marigolds.

Bed of *Zinnias* and bronze-red *Cannas*.

Small bed of *Fuchsias*, single white and scarlet (*Cannell's Gem* and *Delight* are two beautiful sorts). *Salvia patens* with green *Cannas* and sweet-leaved *Pelargoniums*.

Some pink *Pelargoniums*, with *Mme. Crousse*, salmon-pink, Ivy-leaved *Pelargoniums* towards edge.

Calceolaria floribunda with *Gazania* towards edge.

Bedding *Nasturtiums* in any combination.

I think this list includes the most desirable things in good simple mixtures.—J.

Alpine plants on rockeries.—Many of the smaller alpine, notwithstanding the comparatively mild winter, are having a hard time of it. In their native habitats they are now snug underneath the warm snow, while on our rockeries they are subjected to rapid changes of temperature, with a superabundance of moisture, which is anything but agreeable to

them. Squares of glass and other ingenious methods have been tried with varying success. Bits of glass, however, or the shelter of a large boulder, do much to preserve these alpine gems under ordinary circumstances.—K.

FLOWER GARDEN NOTES.

HERBACEOUS PLANTS.—Last year all our plants were taken up, so that the beds and borders might be trenched and manured, and really they did so remarkably well, that I am half inclined to serve them the same this year. The only plants that resisted the lifting were the Japanese Anemones, Lilies, Acanthuses, and Pæonies of all kinds. They evidently do best if left undisturbed for years, and, therefore, as soon as the weather is favourable and it is decided to lift the general bulk to be able to trench the ground, these kinds shall be left undisturbed. I am so satisfied from last year's experience that the general opinion that this class of plants when once planted will take care of themselves is an erroneous one, that never in future will I fail annually either to lift and re-plant in order to give the beds a good dressing of manure, or to fork in plenty of good manure in as careful a manner as possible, so as to avoid injury to the surface-roots. I think the difficulty in regard to kinds that dislike annual moving might be surmounted by allotting separate beds or parts of borders to such kinds alone. I am having separate borders prepared that I may practically test the idea here expressed. What I shall call the permanent section shall have one bed, and the kinds that flower best when lifted yearly the other. It may be well to add that the new beds are to take the place of sub-tropicals, a change that a few years since I should have looked upon as retrograde. The opposite is the case now, and the change has come about by a closer study of hardy flowers. The success of last year has increased the desire to have still more. There is one drawback in connection with arrangements of these plants, namely, the difficulty of covering the whole of the soil of the borders. I have the honour to serve an employer who has educated his eye up to that stage of refinement, that he keeps constantly asking so long as a bit of soil is visible, "When will it be filled up?" Personally, I do not object to a bit of bare ground; at the same time, I do think that more might be done in the way of carpeting the ground with Sedums, *Herniarias*, Thymes, prostrate Veronicas, and *Antennarias*, and in the new beds I propose to plant, the attempt shall be made.

SWEET PEAS.—Most people like these; here they are in great demand, and therefore we strive to have them as early and as late as possible. Our first sowing in the open air was made on the 11th inst. in one of the quarters in the kitchen garden. The drill was thickly strewn with soot, and the Peas covered with the same material before the soil was put over, and neither mice nor birds disturb the seeds (they used to do till we adopted this dressing). As soon as the tops appear above ground they are dredged with tobacco powder, and a sniff of it is sufficient to deter the birds from making a second visit. We have a batch that was sown in 3-inch pots some three weeks since, and as soon as they are a couple of inches high they will be planted out, in small clumps of three and five plants each, in any warm corner near the shelter of fruit walls, which, together with the thick spray branches cut from the tops of Hazel with which they will be at once staked, will prove ample protection from the hardest frost.

LILY OF THE VALLEY AND PRIMROSES.—We have a nice plot of Lily of the Valley that has been left undisturbed for some years, and as fine flowers are always forthcoming in great abundance, the annual top-dressing of fresh soil and decayed cow manure is evidently relished. The crowns are just commencing to grow, and this is the best time to apply the dressing. But first remove any weeds and old foliage that may still adhere to the plants, then very lightly fork up the surface, so that the dressing to be applied may mix more thoroughly with the old soil. The aspect of the plot is north-east, shade from bright sunshine in summer being necessary for the well-doing of this moisture-loving

Lily. The plantation of Primroses adjoins that of the Lilies, and these also do well in the same aspect and soil. The strain is Dean's. The colours are of all shades, from almost pure white to vivid scarlet, and the plants might with truth be called perpetual, for it is very rarely indeed that flowers cannot be gathered from some or other of the plants, and from about the beginning of April to the end of May the quantity of flowers they produce is enormous. The plants are to be top-dressed after the manner named for the Lilies, but there being a quantity of self-sown seedlings between the rows of the old plants, these will first be taken up and the soil between the rows loosened, and this work must be done soon, as a great number of the plants are already showing flower. The seedlings will be transplanted into shallow boxes before being planted in the rocky amongst clumps of shrubs, and any that can be spared will be planted amongst the wild Primroses in the woods, where some of them are already established.

SPRING FLOWERS.—Wallflower, Brompton Stock, *Limnanthes*, Silene, Forget-me-not, and *Nemophila* are about all the early spring flowers we transplant in the autumn for spring flowering, and they are mostly in clumps of three or five plants in the open parts of Rose beds. The soil being light and dry, protection is unnecessary, other than that of making the smaller seedlings quite firm in the ground after each spell of sharp frost. This is specially necessary in respect of *Silenes*, as the frost not unfrequently brings these entirely out of the ground. These spring flowers are planted over or closely adjoining clumps of *Lilium longiflorum* and *tigrinum*, that begin to bloom about the time the spring flowers are over. There being a great depth of heavily manured soil this double cropping has no apparent injurious effect on the Roses.

PROPAGATION OF BEDDING PLANTS.—Though by a greatly increased use of hardy bedding plants this work has been much reduced, we still require a large number, and as we have not got too much space for wintering, we only propagate sufficient in the autumn to ensure stock cuttings in spring, and on that account the work has been commenced early. Ordinary hot-bed frames, made of leaves and long stable litter, are the handiest structures for rapid propagation of such plants as *Heliotropes*, *Marguerites*, *Petunias*, *Iresine*, and *Coleus*. The cuttings are inserted from nine to twelve in a 5-inch pot, and are partially plunged in leaves, the bottom-heat necessary being from 65° to 70°. Provided the heat is not greater than this, the cuttings will strike readily if a little air is admitted daily to carry off excessive vapour. If the temperature ranges higher than this, unless air be freely given, there will be danger of the cuttings damping off. *Pelargoniums* strike most successfully in a dry heat, and we put the cuttings in shallow boxes, and place them over the hot-water pipes in any of the forcing houses. Pink-flowered and white variegated *Pelargoniums* are my favourites, and there are none, out of the almost numberless varieties, that excel the old pink Master Christine, or the white variegated May Queen, and the very old kind, *Manglesi* variegata, which is invaluable for mixing with any shades of blue or purple. Lady Plymouth, a sweet-scented variegated kind, and Lady Betty, a beautiful double-flowered pink variety, are also excellent for the same purpose. These are about all the variegated kinds grown here, soft or quiet colouring being sought after rather than novelty. For vases in which higher or brighter colours show to the best advantage there are no better kinds than *Henri Jacoby* and *Bonfire*. We had last year vases of these kinds alternated with what is now known as the Blue *Marguerite* (*Agathæa celestis*), and the effect was very fine, and it will, therefore, be repeated this year.

SOWING SUB-TROPICALS.—We have not much space to devote to sub-tropical or large-growing fine-foliaged plants, and the few beds there are have mainly to be planted with seedlings raised in the spring, there being no house room to spare for wintering large plants. It is too early to sow the rapid-growing kinds, such as Castor-oils, Maize, and Tobacco, but slow-growing kinds ought to be sown at once. Amongst these are *Grevillea robusta*, *Sola-*

num pyracanthum, *Solanum argenteum*, *Phormium tenax*, *Melianthus major*, Cannas, and Eucalyptus. They all require a temperature of not less than 65°, and though bottom-heat is not indispensable, the seeds germinate better by having a little, such as that to be had from a bed of leaves that at this time of year is generally made up on the floors of early vineries for the production of a warm, moist atmosphere. The pots or boxes in which the seeds are sown need not be plunged; if stood on the leaves, sufficient warmth will be imparted to the soil.

W. W.

KITCHEN GARDEN.

KITCHEN GARDEN NOTES.

EARLY POTATOES.—These are not particularly profitable crops under glass, but they must be grown whether there is any convenience in the shape of frames and pits or not. The best positions are deep pits provided with a single hot-water pipe, this being sufficient to keep out the frost. The pit should be nearly filled with a mixture of leaves and stable manure, which will retain heat long enough to mature a crop of Potatoes, and also to give a good start to a successional planting of either Cucumbers, Tomatoes, Melons, or Kidney Beans. If there is any likelihood of the bed becoming too hot (which frequently happens if formed with rather green materials), it must not be soiled over for a time. Our hot-beds being composed largely of leaves previously thrown together into a heap and turned frequently, seldom heat violently. We make the hot-bed rather firm, and on this place first a layer of the shortest of the manure, and then about 9 inches of light loamy soil, such as the siftings of old Melon and Cucumber beds, or old potting material. When finished off, the soil should be within 6 inches of the glass, as the mass will always settle sufficiently to allow plenty of head room for the Potato haulm. As soon as the trial stakes, plunged in the centre of the bed, denote a decline in the heat, if not already done, soil over at once, and plant as soon as the soil is warmed through. The sets may be forwarded in a warm house while the beds are being prepared, all that is needed being to set them closely together in shallow boxes, sprout end upwards, and sprinkle overhead occasionally. Nothing is gained by crowding the rows; in fact, the Potatoes mature much more quickly when allowed plenty of room. If the lights are 4 feet wide, or rather more, three rows are quite sufficient, but if nearer 3 feet in width, two rows in each are ample. Open the drills 6 inches deep, disposing the sets 9 inches apart, and carefully covering over. Those sets furnished with one good sprout give the best returns, and all side shoots should be removed. As the Potatoes come on very rapidly, it is not advisable to sow Radishes between them. They ought never to be dry at the roots, and the lights should be tilted up during mild days. The successional, and in many instances the first crops, have to be taken from deep cold pits or frames set on gentle hot-beds, these being formed about 4 feet high at the back and rather less in front. The preparation of the beds and other treatment is in all respects similar to that just described in the case of those in heated pits, only it will be necessary to closely cover the frames with mats and litter every night. As the haulm grows more slowly where there is no top-heat, a pinch of early Radish seed may be sown thinly over the surface of the bed and lightly covered. Several good bunches of tender roots may in this manner be obtained very early.

POTATOES IN POTS.—Very early dishes are to be had from a few dozen plants in pots or boxes, and it is not yet too late to make a start. The plan is more especially to be commended to those with plenty of fruit houses and but few pits or frames. Fronts of early and late Peach houses, vineries, and orchard houses are capital positions for early Potatoes in either pots or boxes, and without much trouble several fairly good dishes may be there obtained. The shelves of these houses may also be utilised for a similar purpose, as it is possible to grow the Potatoes in 9-inch pots. The Chry-

santhemum pots and old soil might be thus employed while the young plants are being brought forward. The soil we use consists of two parts fresh loam to one of old Mushroom-bed manure, and when this mixture is also placed in the pits we sometimes get a crop of Mushrooms as well as Potatoes. Very little drainage is needed, and the pots are only half-filled with the soil, this allowing for a subsequent moulding-up with fresh soil, which should be given before the haulm is far advanced. One set is sufficient for a 9-inch pot, two for those rather larger, and three for any 12-inch and upwards in diameter. If deep boxes are employed, place a single row in those not more than 9 inches wide, and a double row in any about 12 inches wide. The subsequent treatment consists in watering whenever the soil is at all dry, and the tubers are fit for use when as large as Walnuts. When wanted, take out the largest tubers each time and leave the rest to grow bigger. The true Old Ashleaf and Early Border are the best for either frame or pot culture, but as these are not generally procurable, most cultivators must rely upon Veitch's Improved Ashleaf.

KIDNEY BEANS.—Those with a limited amount of house room seldom attempt to maintain a never-ending supply of this popular vegetable, and merely content themselves with gathering as much as they can from March till late in the autumn. The earliest crops are from plants in pots, and a sowing is made in January and repeated every fortnight until those in frames or the open ground commence to yield. The good old Osborn's Forcing was at one time preferred for the earliest crops, but this is being ousted by Ne Plus Ultra, the latter being quite as early as Osborn's and more prolific. We prefer 9-inch pots (twenty-five being sufficient for a batch), drained lightly and filled with rich loamy soil. About a dozen seeds are sown in each pot, and if all germinate the plants are reduced to six in number. In order to get them up quickly set the pots on the hot-water troughs, or even the pipes in a forcing house, and here every seed will germinate strongly. New seed will usually come up regularly when the pots are set on a warm shelf or mild hotbed, but old seed, which sometimes has to be used, cannot be depended upon unless the pots are set on the pipes. The plants should be removed from the pipes before becoming drawn, and be arranged on a light bench or shelf in a brisk heat, and to prevent them from tumbling about they should be supported either with a few Birch sprays or four light stakes and matting round them. The old practice of top-dressing the plants is only labour thrown away, as the roots rarely find their way into the fresh soil. My plan of filling the pots when the seed is sown obviates this difficulty, and the roots have the benefit of a full pot of soil. When the pots are well filled with roots plenty of water is needed, coupled with overhead syringings in order to keep down red spider, and liquid manure should be given frequently. The Beans ought to be gathered directly they are fully grown, a few hours' delay spoiling them as well as weakening the plants.

TURNIPS IN FRAMES.—In numerous gardens Turnips are very scarce, nor are there many markets well supplied with them. Early sowings or those for affording Turnips during the autumn were in most cases complete failures, and the later sowings were stopped in their growth by cold weather and frosts. We were fortunate in securing abundance of good roots by sowing seed on a north border in July, Red Globe and Chirk Castle Blackstone being especially tender and good at the present time. Fortunately, the introduction of the Early Milan Turnip renders it a comparatively easy matter to force a quantity of serviceable roots almost as quickly as Radishes. Our plan is to prepare a hotbed of leaves and manure about 3 feet high at the back and 2 feet high at the front, on this setting a three-light frame, one quarter filling this with short manure, and on this spreading a layer of loamy soil about 6 inches deep. If at all dry it is watered, and the seed is then sown broadcast and rather thinly over the bed, and lightly covered with fine light soil. The frame is kept close till the plants appear, when air is given in

the daytime when the weather permits, closing early and well covering with mats or litter every night. The plants may be thinned to about 4 inches apart each way, and if not kept too warm and properly watered, they will soon form bulbs. The Early Milan forms but little top, and if the bed is drawn from when the largest bulbs are about 4 inches in circumference the rest will be benefited by their removal. It is really surprising what a lot of Turnips can be grown in a frame. The fronts of early and late Peach houses, or other fruit houses, may also be utilised for the production of a quantity of early Turnips.

FORCED ASPARAGUS, SEAKALE, AND RHUBARB.—Fifteen supplies of these rarely give satisfaction, and the aim should be to maintain an even succession. All are easily forced, the greatest difficulty being experienced in procuring sufficient strong roots for the purpose. In some few cases Asparagus is grown specially for forcing, but, as a rule, the roots are drawn from old beds that are to be destroyed. Gentle hotbeds, either in pits or formed in the open large enough to hold a two-light or larger frame, are most suitable for forcing Asparagus. The roots, carefully lifted, should at once be spread out on a layer of rich soil and covered with 2 inches or more of soil, this, if at all dry, being well moistened with lukewarm water. The frame being kept close and dark, the roots soon become active and the "grass" appears. On no account should the soil be allowed to become dry, and if a thin sprinkling of salt be washed in, it will encourage strong growth. A bed ought, if not unduly forced, to remain productive for about three weeks. Asparagus may be forced in heated pits without the aid of hotbed material, but we prefer a gentle and less dry heat. Seakale roots may be lifted and forced in darkened frames alongside the Asparagus, or if placed in large pots and rich compost, set in a forcing house, and kept watered as needed, plenty of fibrous roots are formed, and if liquid manure is given, the second cuttings will be greatly improved thereby. A warm Mushroom house being available, the pots may be set in this instead of a forcing house, or the roots may be planted in rich soil in a warm corner of the house. A few roots should be introduced into heat every fortnight, and the old roots stored and protected from frost till wanted for propagating purposes. Rhubarb is also most easily forced in a Mushroom house or under the staging of a forcing house. Ours is obtained in a heated pit, darkened, and with a little top and bottom heat. Strong old roots of early varieties are lifted, though the giant late also forces quickly. W. I. M.

Late-grown Tomatoes.—I find these most useful for prolonging the season during which fresh home-grown fruit can be had without any great amount of artificial heat. To get young plants to ripen fruit at midwinter requires more elaborate means in the way of heated structures than many people possess, while by growing a crop in any cool house, so as to get the fruit well advanced by September, they can be readily ripened off by applying a little fire-heat, or, if this is not possible, by cutting the stalks off with the fruit attached and hanging them up in a dry, warm house where they will ripen thoroughly, and keep up the supply until after Christmas. We utilise the back of a late vinery, which being wired for climbers offers a ready means of suspending them. When the autumn proves cold and wet, or frost sets in early, as was the case last year, I cut off the whole of the outdoor crop and treat it in this manner, and frequently cut more ripe fruit than I have done during the entire season out of doors. If fully grown when cut, no matter how green, the Tomatoes ripen thoroughly with hardly any loss, and the demand is so great and continuous, that as long as they are to be had at a reasonable price they can be readily sold. In private gardens they are never more useful for cooking, and as our summers are rarely long enough to sufficiently ripen more than half the outdoor crop, it is of the utmost importance to utilise the remnant of the crop as much as possible.—J. G. H.

Radish Rettaka of Sweden.—I fancy that the Radish referred to by Mr. Jas. H. Reeve in The

GARDEN, Oct. 29, 1887 (p. 401), is the purple large Gournay Winter Radish.—H. MARTIN, Paris.

GARDEN FLORA.

PLATE 632.

BRAZILIAN FLAGS.

(WITH A COLOURED PLATE OF MARICA CÆRULEA.*)

OF the nine species of this interesting genus given by Mr. Baker in his "Systema Iridacearum" (pp. 149 and 150), the three noted below are certainly the most useful garden plants, although the others may be grown as curiosities where such are desired. The stove treatment has been that usually adopted for the members of this genus, although I am of opinion that a somewhat lower temperature, such as that supplied by the greenhouse, suits them much better. *M. cærulea* grown in a greenhouse retains the beauty of its flowers longer than when grown in a stove, and flowers at a time when the curiously marked blooms are a decided acquisition amongst half-hardy subjects. The variety called *M. grandis*, sent out by a Continental nurseryman, seems to differ very little from *M. Northiana*, and may be a form of that species, though our material was not such as to allow us to judge definitely. *M. Sabini*, described and figured by Lindley in the "Journal of the Horticultural Society," vol. vi., p. 75, t. 1, was sent by Don from St. Thomas's Island in 1822. It seems to be quite distinct, the flower-stem being so much longer than the leaves, pushing forth for some distance below its end a spathe-like raceme of four or five flowers, very slightly fragrant, opening two at a time at an interval of two or three days. The outer segments are large, ultramarine, whitish at the edges and point, and yellow towards the base, crossed with ribs of a brownish colour; the inner ones, curved as in *M. cærulea*, are sky-blue, white, chocolate, and yellow. *M. humilis*, lutea, brachypus, glauca, and longifolia are the other species.

M. CÆRULEA is the tallest of the species now in cultivation, and although by no means easy to flower under stove treatment, the plant from which the figure in the accompanying plate was taken received, according to Mr. Bartholomew, nothing but ordinary greenhouse treatment, and threw up trip-lets of flowers at intervals from the beginning of May until the middle of June. As shown in the figure, it is really a most charming Flag, and worthy the attention of all who possess a greenhouse or have the means otherwise of giving it accommodation in a moderate temperature. The flowers, as will be seen, resemble those of the Tiger Lily (*Tigridia*), and, though like them, somewhat short-lived, an individual flower-stem will keep up a succession for a considerable time. The flower-stem grows to a height of about 3 feet, flat, almost like the leaves, which are 6 feet long and from 1 inch to 1½ inches broad. Native of Brazil, and figured in the *Botanical Magazine* under the name of *Cypella cærulea*, tab. 5612.

M. GRACILIS is another greenhouse kind, and is probably the most useful and easily accommodated of the species. It was first received at the Glasgow Botanic Garden from the famous collection at Woburn. This species is not unusually seen doing very well and flowering profusely in baskets suspended from the roof, although in pots it is equally effective and flowers abundantly. The flowers are much smaller than those of *M. Northiana*, the outer segments of the perianth being white or bluish, and variously marked at the base; the small inner ones are erect, recurved and spotted or marked

* Drawn for THE GARDEN at A. C. Bartholomew's, Park House, Reading, June 14, 1887, by H. G. Moon, and printed by G. Severeys.



BLUE BRAZILIAN FLAG (MAFIA VERULEA).

with a velvety blue and reddish brown. It flowers all through the summer. Native of Brazil.

M. NORTHIANA is another charming species somewhat nearly allied to the above, so far, at least, as the colour of its flowers is concerned. Instead of the segments being almost entirely chocolate-brown, as in the above species, they are thickly spotted with the same colour. The flowers of *M. Northiana* are about twice the size of those of *M. gracilis*, and on this account it is well worthy a place, even in the choicest collections of stove plants. It was first known in this country in the collection of the Hon. Mrs. North, at Farnham Castle, who is said to have introduced it from the gardens of the Queen of Portugal about the year 1789, since which time its cultivation in our stoves has been pretty general. Its slightly fragrant flowers, produced in spring and summer, are much valued and admired, notwithstanding their fugacious character, the flowers rarely lasting more than a day, but each morning succeeded by a fresh lot. The winged stalk, about the same height and somewhat resembling the leaves, is said to be sometimes viviparous. The leaves are sword-shaped, dark green, distinctly ribbed, and generally 2 feet or 3 feet in length. It is a native of Brazil.

D. K.

STOVE AND GREENHOUSE.

T. BAINES.

TOXICOPHLEAS.

THESE are evergreen shrubs indigenous to South Africa. They form a limited genus, of which only some two reputed species are in cultivation. In their native country they are said to attain the dimensions of small trees, but they are so exceptionally free-flowering, that they will bloom in quite a small state. Their dense, closely-packed bunches of bloom are composed of numerous tube-shaped flowers, with the limb divided into five segments. In general appearance the flower-heads are not unlike those of *Bouvardias*, only that they are larger, the individual flowers being more numerous. They are white, and borne on the extremities of the shoots, and in pairs at the base of the leaves on the greater portion of the preceding season's wood; they are powerfully and agreeably scented, for which alone the plants are worth growing. The time of blooming depends much on the way the plants are treated; in some cases the flowers appear in spring, in others in winter. The time the growth is completed and the temperature afterwards kept up has, no doubt, much to do with the difference in the time of flowering.

It is not unlikely that these *Toxicophleas* will succeed in a lower temperature than has hitherto been supposed necessary. They are propagated from cuttings of the young shoots, which strike readily when the wood has got a little firm. Growth begins as soon as the blooming is over, and consequently the earlier the plants flower the earlier in spring can cuttings in proper condition be obtained. As it is desirable that the young plants should get well established before the end of the growing season, it is best to get them struck as early as possible. The cuttings should be about 3 inches long and made from the stout shoots, which, when rooted, invariably grow faster than plants from weak cuttings. Trim them to a joint, removing the bottom leaf, and put them singly in small pots filled with sand. Place them under propagating glasses or in a striking frame, and keep the soil moist, giving only a little air. They will root in a few weeks if they can have a warm stove temperature. After they are struck give more air, ultimately dispensing with the glasses altogether. When well rooted, shift them into 3-inch pots, which should be well drained and filled with good fibrous peat, to which enough

sand has been added to keep it open and porous, as the plants do not like the old material shaken away with a view to replacing it with new in the manner that is practised with soft, quick-growing things. Keep the plants moderately close until the roots begin to move, after which expose them to the full air of the house. Stand the pots on moisture-holding material, by means of which much more progress will be made than is possible if they are placed on dry shelves or stages. Let them have a light position, keeping them near the glass to induce a sturdy habit. It will be necessary to use a thin shade in bright weather all through the summer. During the growing season an ordinary stove temperature will answer best, as through the early stages of growth they will make more progress with warm treatment than is possible under cooler conditions.

Directly top growth has fairly commenced pinch out the points of the shoots; this is necessary to induce the plants to break near the bottom. Keep the atmosphere fairly moist during the summer, closing the ventilators early enough to shut in sun heat, and syringe overhead once a day. By the end of July the plants ought to require repotting; give pots two or three inches larger. In potting make the soil moderately firm, as, in common with other hard-wooded subjects, the light potting often practised with soft, quick-growing things does not answer, as the soil when loose and open holds too much water. When the young shoots formed after the tops were pinched out have made 3 inches or 4 inches of growth they should be tied out horizontally; this will ensure the bottoms of the plants being furnished properly, and will cause the back eyes to break. By this means the thin, unsightly appearance which the plants, when they get older, frequently present will be avoided. The roots should be kept fairly moist during the spring and summer. In autumn give more air, and discontinue shading and syringing, but in thus placing them under conditions conducive to the ripening of the wood, the atmosphere of the house should not be kept so dry as is sometimes supposed necessary for stove plants. To avoid this the large amount of air often given in autumn should be reduced, and the floors, stages, &c., not be kept so dry. An ordinary stove temperature, such as answers for the other occupants of the house, will do for the plants.

Before top growth begins to move in spring cut away the points of the shoots to again induce them to branch. When the days get longer give a few more degrees of heat in the night as well as during the day. As soon as growth has fairly commenced move the plants into pots from 2 inches to 4 inches larger, according to the progress that has been made. Now use the peat in a little more lumpy state than hitherto, adding a similar proportion of sand to the earlier pottings. Again syringe daily, and keep the atmosphere moister. In March, when the sun gets powerful, shade as before in the middle of the day, and give a little air by opening the roof ventilators when the weather is warm, regulating the amount in accordance with the external conditions. When keen cutting winds prevail it is better to allow the sun's rays to raise the temperature considerably than to let in cold currents that injure the young tender leaves and encourage insects. Again train out the strongest shoots, allowing the weaker ones to remain erect. Treat during the ensuing summer as advised for the preceding, increasing the temperature as the season advances. If the plants make satisfactory progress they will most likely

require another shift about the end of July; the condition of the roots and the amount of top growth that has been made will decide the additional root room necessary, but avoid the two extremes of using larger pots than requisite, and confining the roots so as to interfere with the top growth, the object being to get large specimens with little delay.

Through the rest of the growing season treat as in the corresponding time last year, taking the necessary means to stop active growth and help the wood to ripen. Let the winter management be similar to that recommended for the last, keeping the soil a little drier than in summer.

The plants will now have attained a flowering size. If all goes satisfactorily they will bloom from every shoot. A good proportion of the flowers can be cut without doing any injury to the plants; they will be rather benefited by it, as one-half the length of the preceding summer's shoots will be better removed. In fact, if the shoots are not shortened to this extent when in flower, they will require cutting back after the blooming is over. Again give more warmth about the time previously advised, and as soon as the plants have commenced growth let them have a shift according to the root-growth made. After this, and onwards through the summer, treat generally as hitherto, except that no second potting will be necessary. In the summer, when the roots have got well hold of the soil, the plants will be benefited by manure water once in ten days or a fortnight, being careful not to apply it too strong, as if the roots of plants of this description get injured to any extent, they are seldom of much use afterwards. The same holds good if surface-dressings of any concentrated manure are used. In all cases these should be applied in small quantities at a time, otherwise they often do more harm than good. In after years a continuance of the treatment so far recommended is all that is necessary, giving larger pots when requisite until the size reached is considered as large as desirable; the strength can then be kept up by the use of stimulants, always using these when growth is going on. In this way the plants may be kept in a vigorous state for several years.

The kinds in cultivation are *T. spectabilis* and *T. Thunbergi*. The former, under ordinary stove cultivation, usually blooms in the depth of winter, and somewhat earlier than *T. Thunbergi*; but, as already said, the treatment has much to do with the time of flowering.

Vitality of the Pelargonium.—I have lately had an opportunity of observing the tenacity with which this popular ornament of the garden and conservatory clings to life. I had been in the habit of throwing away all plants, which having passed through a sickly stage, have turned black round the stem at the surface of the ground. Having one in this state of a good sort, the name of which I had unfortunately lost, I resolved to make cuttings of the three surviving shoots, one only of which seemed to be in a healthy condition. The result has been that I now have three fine plants of this same variety. I have since operated in the same way, and with equal success, on another that had turned black from the root upwards half the height of the plant. As I was myself unaware that it would be possible to raise cuttings from plants so affected, I send this to be inserted for the benefit of those who may happen to be as ignorant as I was myself before the experiment was tried.—B. S.

Seedling Abutilons.—Abutilons are not difficult to raise from seed, but we have already so many good varieties, that it does not appear probable we shall obtain new sorts of special value unless the raising of seedlings is carried out on a

large scale. Seedlings, however, make handsomer plants than those obtained from cuttings, and if the seed is sown early in the spring and the plants brought on in heat, they will flower by the end of the summer. When quite young the plants require a stove temperature to promote a free growth, but as the summer advances, a warm greenhouse suits them very well. With proper treatment I find that nice little specimens may be had in 5-inch and 6-inch pots for flowering during the winter, but to keep them in bloom a temperature of from 55° to 60° is necessary. I may mention that the seeds take some time to germinate. It is therefore necessary to sow early if the plants are wanted to flower the same year, but anyone having a hotbed may raise the plants in five or six weeks.—J. C. C.

SALVIAS.

AMONG the *Salvias* there are several species and varieties which are very showy and attractive. Although not of much commercial value, they should be grown by all who have to provide flowering plants for conservatory decoration, as they provide useful material for keeping up a bright display during the autumn and early part of the winter, a season when, with the exception of *Chrysanthemums*, flowering plants are not very plentiful. The most useful sorts are *S. splendens* or its variety *Bruanti*, bright scarlet; *S. Bethelli*, a variety of *S. involucrata*, with large terminal panicles of rosy purple flowers, very showy; *S. Hoveyi* (*ianthina*), deep violet-purple; and *S. Pitcheri*, soft azure-blue, of rather a slender habit of growth; if stopped from time to time during the summer it will form a compact plant for a 5-inch pot. In order to flower satisfactorily, the other varieties, which are of more vigorous growth, should be grown in 8-inch pots.

TREATMENT.—To provide stock for the following year, a few plants of each variety should be selected after they have done flowering, and placed in a favourable position, so that they may be kept healthy and free from insects. Cuttings struck in April will make good plants the same season, but the first batch should be put in as soon as they can be obtained, and the tops of these will later on give a batch of stronger cuttings than those to be obtained from the old plants. The cuttings will root freely in a close frame where there is a little bottom heat. In growing the plants on, the main points are to pot them on as they require it, giving them good rich loam, with a liberal addition of manure, and to keep them stopped from time to time until they have formed bushy plants. As soon as the weather permits, the plants should be placed in a cold pit, and later on they will do well out of doors. If kept in warmth too long the plants get spindly, and are also liable to the attacks of red spider, and when this is the case they will be ruined for the season. If, however, they are given a good start, the plants will give very little trouble afterwards. Although it is advisable to keep the *Salvias* well exposed, they should not be left out of doors too late in the autumn, or they will lose their foliage. As soon as they begin to come into flower they should be regularly supplied with liquid manure, which will considerably prolong the flowering season. A.

SHORT NOTES.—STOVE AND GREENHOUSE

Eucharis blooms in winter.—In *THE GARDEN*, Dec. 24 (p. 579), "J. C. B." mentions that it is not easy to have the *Eucharis* in flower during the shortest days of the season; but I do not see why it cannot be had in flower as easily in December as in the longest day of the year. I have several plants now in full bloom.—JOHN THOMSON.

Pancratiums (*G. Cooper*).—These are not difficult to raise from seeds if they are sown when ripe in shallow pots or pans filled with leamy soil, to which enough sand should be added to make it friable. Sow thinly, covering lightly with the compost, and place the pans in a house or pit where a temperature of 60° is maintained. Give shade to prevent the soil being dried up too quickly, as it requires care in watering before the seeds have germinated, so as little of it should be done as possible.

HERBACEOUS CALCEOLARIAS.

THE Florist for August, 1853, contains a plate of some of the best types of the herbaceous *Calceolaria* grown in those days. The largest flowers scarcely exceed 1½ inches in length, but they illustrate the attempts made in that day to obtain form and symmetry in the blooms. Those were the days of named varieties when *Calceolarias* were propagated by means of cuttings and grown from these cuttings into exhibition specimens, though more generally from seed, as is the case now. Those were the days of Major and Gaines, Kinghorn and Constantine—all noted raisers, and who were doing their best to improve this rapidly rising flower. But the *Calceolaria* was then regarded as outside the classification of florists' flowers. The varieties were of tall growth and spare habit, and the *Calceolaria* was regarded as an annual, and lovers of the plant were then contending that it was essentially necessary that a more shrubby habit should be infused into the herbaceous *Calceolaria*, a work that Mr. J. James undertook with such marked success a few years later. But what superb specimens were grown about 1853. Why, mention is made of some plants that were shown by Mr. Constantine at the metropolitan exhibitions:—

Six of them measured from 7 feet to 9 feet in circumference, and they were one solid mass of flowers, numbering many hundreds on each plant.

Our herbaceous *Calceolarias* of the present day may be said to have attained to an almost perfect habit, so close, robust, stocky, and compact is the growth. The size of the flowers has been considerably increased also, and they are now produced in large dense clusters, but mere size now appears to rule and form is sadly wanting, for the flowers are flat and baggy, and wanting in that symmetry seen thirty years ago. Presently, in all probability, something more will be done in the direction of securing better form, which is most desirable.

Calling at Messrs. Sutton and Son's Portland Nursery at Reading a few days ago, I saw there some plants of herbaceous *Calceolarias* of an exceedingly fine character that were growing in a low frame heated with hot water. The specimens, nicely established in their large flowering pots, were as healthy as one could wish, and I was informed that the temperature in the frame was not allowed to fall below 32°, nor to rise above 40°. Here there could be seen the advantage of growing these plants through the winter in as cool a temperature as possible. It is painstaking culture that has brought the plants to their high state of cultivation, and though in 13-inch pots, there was not a symptom of damp or decay of any kind. The plants have good drainage, good soil, a low temperature, plenty of air and light, and they are closely looked after in the matter of cleanliness. Thus is set forth the leading principles of successful culture. Extremes of heat and cold are fatal to their well-being; sharp frost, on the one hand, or a dry, parching atmosphere leave their fatal marks upon the specimens. Damp does less harm than drought, and in the majority of cases where plants fail it is mainly from being grown in too close and dry an atmosphere, or in sour, soddened, and unsuitable soil.

Seed can be sown at any time between May and the end of July, and, indeed, directly it is ripe. Good cultivators tell us that June-sown seed will produce the "quickest, strongest, and most robust plants." In their book upon the "Culture of Flowers from Seeds," Messrs. Sutton and Sons give the following useful directions for sowing:—

The mould, whatever be its composition, should be rich, firm, and, above all, porous. Soil that has been carefully prepared will not require water, but should it become needful to moisten it, this must be done by dipping the pans into water. Distribute the seed evenly, and sift over it a mere dusting of fine earth. Place a sheet of glass upon each pot or pan, and the glass must either be turned or wiped daily to avoid drip. This will not only check rapid evaporation, but will prevent the attacks of vermin. Germination is always slower in an open than on a close stage. Perhaps the best possible position is a moist shady part of a vinery, if only care be taken when syringing the Vines to prevent the spray from falling upon the seed-pans.

Now, some seeds germinate slowly, and mention may be made of *Cyclamen persicum* as a case in point, for the seeds appear through the soil at long intervals. But *Calceolaria* seeds are soon active; they are through the soil in eight days or so, and when the seed is new the whole crop may be said to come at once. As soon as this happens, it is best to remove the sheet of glass, otherwise the plants may damp off. When the second leaf puts in an appearance, small as the plants are, they should be pricked off into other pots, or pans, of soil prepared to receive them. A little practice enables this to be done deftly by means of two small sticks with sharp points to them; one is employed to lift the plant from the seed-pan, the other to place it in its new quarters. At the first pricking off, quite 2 inches should be allowed between each plant.

Here a caution is necessary, and I cannot do better than give it in Messrs. Sutton and Sons' own words. They say:—

There is a singular fact about *Calceolarias* at this stage of their growth which is well worth bearing in mind. With many subjects it is a safe rule to use the robust seedlings and throw the weakly ones away. That practice will not do in the case of *Calceolarias*, as in this way some of the more charming forms may be lost. The strongest seedlings generally produce flowers in which yellow largely predominates. But it must not be inferred that because the remainder are somewhat weaker at the outset that ultimately they will not make robust plants. The occupants of each pan may generally be pricked off in about three operations, and there should be only the shortest possible interval between.

In a month from the time of potting off, each plant should have four or five leaves, and place them singly in 2½-inch pots. In September they should have a shift into larger pots, according to the size of the plants, and then be kept as near the light as possible in a greenhouse or frame, where plenty of light can fall upon them from the sides as well as above. They should be kept cool and perfectly clean, carefully removing all decaying foliage. Early in March the plants can go into 8-inch or 10-inch pots, and in these they should be flowered. Let them have well-drained pots, suitable rich soil, and careful treatment, and fine specimens will be certain to result. The *Calceolaria* is something of a gross feeder, and will take liquid manure, but it should never be applied until the pots are well filled with roots. If the plants are growing strongly and robustly, a rather strong dose will suit them.

Many *Calceolarias* are spoiled by being allowed to become drawn, and then they become infested with green-fly, and the plants rapidly go to the bad. Many gardeners who grow *Calceolarias* deserve a certain amount of commiseration when they fail, as they have to cultivate their plants under trying circumstances, in unsuitable houses, and among other subjects that overcrowd them. To do them properly and thoroughly they should have a small frame to themselves, and then success is a matter of good and careful management. R. D.

Treatment of Coburgias.—I have a quantity of offsets of *Coburgias* (*incarnata* and *fulva*), and shall be glad of any information as to their treatment. Ought they to be repotted, and should the bulbs be dust-dry when at rest?—S. NISBET.

* * *Coburgias* should be kept quite dry when at rest. In early spring the bulbs should be repotted into rich loamy soil and placed in the stove. During the growing season they enjoy strong heat and a very moist atmosphere, as well as an abundant supply of water to their roots. When the leaves are mature, reduce the moisture and well expose the plants to sun and light, in order to ripen the bulbs and thus induce them to develop flowers, which are produced at the end of summer before the bulbs go to rest.—W. H. G.

Rhododendron præcox under glass.—This *Rhododendron* flowers naturally very early in the season when in the open ground, and being, like all of its class, amenable to gentle forcing, it may be had in bloom by the early days of the year, at which time the blossoms are bright and cheerful, and remain a long time in perfection. The habit

of the plant is dwarf and bushy, so that neat little specimens a foot high and as much through can be readily obtained. If grown under favourable conditions the plants will be bristling with flower-buds, and whether forced into bloom or allowed to expand naturally in the open air the flowers are so numerous as to completely cover the whole plant. This *Rhododendron* is the result of crossing the pretty little purple-flowered *R. dahuricum*, which is a native of Europe, with the Himalayan *R. ciliatum*. Being so early in flower, *R. præcox* is, when in the open ground, very liable to have the blossoms cut off by spring frosts. The slight shelter, however, afforded by neighbouring bushes will often be sufficient to protect the blossoms, which perish when exposed.—H. P.

The Mexican Groundsel.—This plant, formerly called *Senecio Ghiesbreghtii*, but now simply *S. macrophyllus*, on account of its large leaves, is to be seen at this season in many old-fashioned gardens, and is generally to be found in out-of-date conservatories or orangeries. Its leaves, as also the flower clusters, which consist of a multitude of yellow flower-heads, are very large. The leaves on old plants are usually on the upper part of bare stems, often 6 feet high, and crowning all is the great broad, flat flower cluster. For any large greenhouse or conservatory it is a most useful plant in mid-winter. A fine specimen may be seen in the temperate plant house at Kew.—W. G.

Daffodils in pots.—Amongst the many beautiful bulbs that adorn our glass houses in early spring, there are none so useful as the common forms of single and double Daffodils. They are so easily managed, that those who have not yet added them to their regular list of pot-grown bulbs ought to do so without delay. I prefer home-grown bulbs, and generally lift a quantity after the foliage has died down naturally in summer, and store them in a dry, cool place until September, when they are sorted out, and all the largest bulbs are picked out for potting, and the weaker ones are replanted in rows for another year. At least a dozen bulbs may be put in a 6-inch pot, and as every one may be relied on to produce flowers, they make a fine display when in bloom. If potted very early and covered with ashes they may be started into growth by Christmas, and may then be removed to a cool house or pit, and will come on rapidly. As soon as the bloom-spikes are visible they may be assisted with a little rise of temperature, but if hurried in strong heat the leaves get drawn, and they are not so handsome as when allowed to come on more naturally. When in bloom they make striking effects in groups in the conservatory, or for filling vases for indoor decoration. For cutting from, the bulbs can be planted in boxes, and after the crop of flowers is gathered the boxes may be sheltered in a cold house until the season is sufficiently advanced to allow of their being planted out to mature their growth.—J. G.

Young Camellias.—"Cambrian" at p. 606 of the last volume of *THE GARDEN* gives excellent advice on the subject of cutting Camellia blooms. Doubtless many young, thrifty plants have been seriously checked by the reckless cutting of the flowers. It appears to me, however, that young Camellias should never be allowed to undergo this bad practice. They ought never to be allowed to bloom until they are of fairly large dimensions. I much doubt if Camellias in their natural home bloom in a small state. We all know what a seedling fruit tree does; it grows rapidly for some years before it bears any fruit. A crop in the early youth of any fruit tree would be dearly paid for later on. In the same way, though in a modified degree, the few blooms that are allowed to come on a young Camellia retard its progress. The use of the Camellia is to adorn conservatories where plants of fairly large dimensions are required, and to furnish cut blooms. It has not the same value in small pots that most flowering plants have; consequently the object of the cultivator is to increase the dimensions of his plants as rapidly as possible. It would surprise many to see the difference in the growth made by young plants that have been

disbudded in the autumn and those that have been allowed to bloom. By starting the plants early in the year, keeping up a brisk growing temperature through the spring, and pinching out the extreme points of the shoots when they show a tendency to form buds, it is possible to get a double growth out of Camellias every year. By this express method good-sized specimens can be had in less than half the time it would take to get them if the flowering is allowed to take place.—J. C. B.

CROTON LEAVES.

In almost all floral arrangements foliage is now extensively used, and for this purpose well-coloured Croton leaves are especially valuable, the bright and variously tinted variegation of the different sorts producing a very effective display with the use of comparatively few flowers.

To obtain highly-coloured leaves, it is essential that the plants should be grown in a high temperature and fully exposed to the sun. It may perhaps be necessary to shade the plants lightly during the hottest part of the day in the summer, but the lighter the shading the better. Plants grown in a shady position never attain the bright tints that are produced on plants that have been fully exposed to the sun, and many of the sorts lose their variegation entirely when not properly treated. Another matter of importance is that the compost they are grown in should not be too rich; light sandy soil should be used for potting, and although plants confined to small pots will be better for a little stimulant when making their growth, manure water should be used sparingly. Soot water is a good stimulant for Crotons.

The following are a few of the best sorts to grow for foliage, but the varieties are so numerous and vary so much under different treatment, that it is difficult to decide which are the most meritorious, and so confine the list within reasonable limits. Several of the old sorts may still be grown in preference to the newer ones, as they are more constant in their variegation: *C. majesticus*, for instance, is one of the best, the long, narrow leaves, which when well matured change to a bright crimson hue, being very effective; *C. Queen Victoria* is another good old sort; *C. undulatus*, though a little inclined to get leggy as a pot plant, is one of the best for the purpose for which this selection is made; *C. Disraeli*, when well done is a useful form and very distinct; *C. Warreni*, *C. Youngi*, *C. Massangeanus*, *C. Lady Zetland*, *C. Sunset*, *C. Rodeckianus*, and *C. Prince of Wales* are all useful sorts in which the older leaves change to various shades of colouring. Of sorts which retain the yellow variegation in the old leaves, *C. Weismanni* is one of the best. *C. Countess* is a very pretty variety with narrow leaves, which are beautifully spotted and flaked with yellow. This variety makes a very pretty table plant. *C. Johannis*, *C. hastiferus*, and *C. Mooreanus* are useful; and last, though not the least of the list, is *C. angustifolius*. A.

The Scented White Freesia (*F. refracta alba*) is at the present time the most noteworthy feature in the greenhouse (No. 4) at Kew. On one of the side stages there are a score or more plants uncommonly well grown and profusely flowered, and their delightful fragrance, much like that of Violets, but pleasanter if possible, fills the whole house. The plants are arranged in one bold group by themselves, and the contrast of the deep green grassy foliage with the spikes of large tubular flowers of snowy whiteness has a charming effect. We do not remember seeing the White Freesia grown and flowered so well in mid-winter before, all the plants being of sturdy growth and carrying as many as five or six flowers on every spike. It is an easily-grown bulb if attention is given to one or two essential points. In order to get bulbs to flower at this season, they must be potted about August, putting half a dozen plump bulbs in a 6-inch pot, and using a soil composed of good loam, with sufficient peat and sand to keep it open. The bulbs may be kept in a light, well-ventilated frame, and no water must be given until they start into

growth. When the foliage is well developed, weak manure water can be given, the object being to get a strong growth before winter sets in. Like most Cape bulbs, Freesias much dislike artificial heat and must have plenty of light and air, otherwise the growths become drawn and weakly. By potting bulbs at intervals till late autumn a continuous succession of flowering plants can be had throughout the spring. Seeing what a beautiful plant this is, and how cheaply it may now be bought, the wonder is that it is not more common.—Q.

THE CINERARIA.

THOSE who have an opportunity of reading the garden literature of the last fifty years may well trace the rise and progress of this popular greenhouse plant. It seems to have been produced from a reddish purple-flowered species, *C. cruenta*, introduced from the Canary Islands about the year 1777. The original species was in the hands of Messrs. Cannell, of Swanley, a few years ago, and they may probably have plants of it at the present time. The first coloured plate of a garden variety that I can find is in the *Floricultural Cabinet* for the year 1840. The description of the plant is very meagre, the raiser's name not even being given, but it is stated to be "a most desirable variety, well worth cultivating." The flowers are evidently the natural size, $1\frac{1}{2}$ inches across; the florets narrow, and wide apart at the tips. During the next ten years many good cultivators and raisers of new varieties had greatly improved the Cineraria. The flowers were not so large, but the florets were much improved in form, and a coloured plate in *The Florist* in the year 1850 shows how much had been done in the improvement of form and variety of colour; in fact, it was at that time the most popular of greenhouse plants, as I can well remember, for it was at the commencement of my gardening career. The editor of *The Florist* writing in that year says:—

But it is not in form alone that the Cineraria has been improved. On account of the different sorts hybridising freely with each other, the most exquisite colours that it is possible to conceive have been obtained.

At that time every really good seedling raised was propagated and sent out under name. The seed firms of those days had not given their attention to the careful saving of seeds from the best varieties. The propagation of the named varieties was a part of the gardener's duties periodically, and long lists of named varieties carefully described appeared in the trade lists. The propagation of the plants from offsets is easy enough. It has to be done in the summer months, a shady position in the garden being the most suitable. The offsets can be taken off with a small portion of the roots attached, each to be planted in small pots, using fine sandy soil, leaf-mould, loam, and sharp sand in equal portions. Place the pots close together in a frame or handlights. When well established admit air freely, potting the plants on as they require it. I grow them in frames in an open position when they are established, but the back of the frame is to the south. The glass lights are removed in fine weather. On hot days, with a drying wind, I would rather have the lights over the plants, well tilted against the wind, and shaded with light tiffany or some similar material. When cold, damp weather sets in, about the end of September or early in October, the plants must be removed to a heated pit or greenhouse. They grow quite as freely as seedlings and form as good plants.

Seeds may be sown any time during the spring and summer months; the plants speedily appear above ground, and when large enough may be pricked out and potted on as they increase in size. The largest plants are allowed to flower in 8-inch pots, and they make handsome specimens for exhibition purposes, as size always counts, although it does not supersede quality of the flowers, nor a perfectly healthy state of the plants. The leaves are very easily bruised or broken, and some growers are not careful enough when moving the plants or when watering them. A plant fit to take the highest

honours at an exhibition should be perfect in leaf and flower. A still more frequent cause of disfigurement arises from the plants being attacked by green fly, or that more troublesome parasite, mildew; in fact, the last is by far the most difficult to deal with. It has been very troublesome in our house this year, and frequent dustings of flowers of sulphur have not altogether prevented some of the best plants from being rendered rather unsightly by it. Tobacco smoke effectually destroys the green fly. Thrips get upon the leaves during summer, and their traces are soon seen. Fumigating will also destroy these, but the plants may also be dipped in tobacco water; this last is the most effective cure for thrips, but it is not so cleanly.

The Cineraria likes a rich compost, but a too vigorous growth is not altogether desirable. Four parts of good loam, one of leaf-mould, one of decayed manure, and a little sand will be found a very suitable compost. Of course there are many details of culture that can only be mastered by careful observation. Amongst them may be named the manner of potting, the quantity of water to be applied, the ventilation, and shading of the house. Ventilation is very important indeed, as drying winds exhaust the energies of the leaves to an alarming extent, causing them to droop and hang limp over the sides of the pots. To avoid this, sprinkle the paths of the house, and rather shade lightly than admit too much air. The same effect is sometimes produced by over-heating the pipes in severe frosty weather, but this, like the other, may be mitigated by a judicious use of the water-pot, and being careful not to apply more heat than may be absolutely necessary to prevent the plants from being injured. Our house, which is 50 feet long and quite filled with these plants alone, is in an exposed position, but the temperature at night does not rise much higher than 40° nor fall below 35° during frosty weather. Useful flowering plants may be grown in 6-inch and 7-inch pots, and the plants of that size require no training or tying of any kind. The larger plants must be tied out in order that a well-formed head of bloom may be produced. When the plants, whatever their size, have quite filled their allotted root space, the use of manure water is desirable, but it should be weak and not be used too often. I have seen the plants quite spoiled by too much sheep manure being used in the water, while frequent applications of soot water will also kill the roots.

Many years ago I learned a lesson which will never be forgotten. I watched a splendid lot of exhibition plants gradually decline; parts of the plants died off, and before the day on which they were required they presented a miserable spectacle, and all brought about by too heavy applications of manure water.

J. DOUGLAS.

WORK IN PLANT HOUSES.

INDIA-RUBBER PLANT (*Ficus elastica*).—This plant will stand for a long time in halls and rooms that would be too dark for most things. It looks best when confined to a single stem. To keep up a sufficient stock, cuttings should be struck from time to time. Tops of last summer's shoots taken off now with about four leaves to each will answer well. Remove the lowest leaf, cutting the base even at the joint; put each cutting in a 4-inch pot, which should be well crocked, and half fill it with a mixture of peat and sand, or loam and sand, the top all sand; press the material firm, and give some water. If covered with propagating glasses or confined in a striking frame they will soon root if they can have a brisk heat. If bottom-heat can be given they will strike more quickly. The plants, from which the tops are removed, if kept in heat, will soon plump up the dormant eyes immediately below where the cuttings are taken. When these eyes are prominent and just before they have commenced growth, they should be taken off with the leaf attached and put in small pots. Treated in the way recommended for the other cuttings they will form roots and make top growth. These single-eye cuttings do not attain a useful size so quickly as those taken from the leading shoots.

The new golden-variegated form of this *Ficus* deserves cultivation, for not only does it afford a nice contrast to the green-leaved sort, but it is a handsome plant in itself. The treatment under which the type succeeds will answer for the variegated variety.

WINTER-BLOOMING CARNATIONS.—SEED SOWING.—Though it is not advisable for those who require a supply of Carnations all the year round to rely altogether on seedlings, there is this peculiarity about seedlings of the perpetual kinds that is worth taking into account. When the plants are well grown and strong enough few of them will fail to flower the first winter, although in all probability most of them will not prove perpetual bloomers. There is also much interest attached to seedlings when the strain is good, as there is then a chance of obtaining some that are better than existing varieties. The first flowers produced by seedlings when the plants are strong are generally larger than those borne by plants which have been raised from cuttings. This is an advantage in winter when the flowers are generally small. To enable seedlings to bloom well in winter the plants must be raised early enough. The seed should be sown not later than the end of the old year or the beginning of the new; consequently no time should now be lost. Ordinary seed pans or shallow boxes will answer for the purpose. These should be drained and filled with sifted loam, to which add some sand; press the surface sufficiently to make it smooth, and put the seeds an inch or so apart. Cover them lightly with a little of the soil, and stand the pots or boxes in a house or pit where there is a little warmth, being careful that too much heat is not used, or the plants will come up weak. Keep the soil slightly moist, but not wet. As soon as the seedlings appear they should be put close to the roof in the lightest place the house affords. This is important, otherwise they will become drawn. Great care should be taken that the seed is true, as in this section of Carnations, unless the strain is right, all the attention given to the plants is labour thrown away.

PETUNIAS.—Plants of the double varieties of *Petunia* and also of any single sorts that are worth retaining, and that were cut in after they had flowered in autumn, will have made enough new growth to admit of their being repotted. Turn them out of the pots and remove as much of the old soil as possible without disturbing the roots too much. Give pots a size or two larger; good fresh loam, to which has been added rotten manure and leaf-mould, with some sand, forms a suitable compost. Pot moderately firm, and immediately they are potted the shoots should be tied well out. If wanted to bloom early in the spring the plants should be kept where they can have a few degrees more warmth than in a cool greenhouse. In the case of quick-growing things like *Petunias*, to have the plants sufficiently strong and bushy to ensure their flowering well, they must have plenty of light all through the winter and spring. The single varieties are especially adapted for hanging baskets, the display of bloom they make being little inferior to that of *Achimenes* when used in the same way; whilst *Petunias* continue much longer in flower. Young plants struck from cuttings at the end of the summer should be moved into larger pots as soon as the soil is fairly filled with roots. They will bear putting into pots two sizes larger than those they now occupy. The points of the shoots should be pinched out to induce them to break near the bottom. The double varieties of *Petunia*, especially the white kinds, are very useful for cutting, as the flowers can not only be arranged well with others of a less massive character, but they last longer.

PETUNIAS FROM SEED.—The seed may be sown any time during the winter, but if put in now the seedlings will necessarily more quickly reach a size that will enable them to flower freely. Sow the seeds thinly, and only just cover them with a little of the finest soil. Press the surface slightly, by which means the material will retain moisture longer. It is better in all cases to give as little water as possible before the seed vegetates. Stand

the seed in a little warmth, and keep the seedlings from the time they appear, in a similar temperature, until there is enough sun-heat to help them to grow freely. In raising seedlings of *Petunias*, as of most other things, soil that is of a light open nature should be used, as when the little plants are removed there will be no serious breakage of their roots. Sifted leaf-mould is one of the best things that can be used with the loam, as it helps to keep it open, and the roots of most soft-wooded subjects have a peculiar liking for it. Another matter connected with raising seedlings, especially of quick-growing things, is to sow thinly, for if the seedlings are at all crowded before they are large enough to prick off, they get more or less drawn, even when exposed to all the light possible; and, in addition, their roots become so entangled, that it is not possible to separate them without injury.

TUBEROUS BEGONIAS.—To get tuberous *Begonias* large enough to give the full quantity of flowers they are able to, the seed should be put in early in the year. Some growers like loam better than peat for raising seedlings of *Begonias*. I find the loam answers well, especially when some sifted leaf-mould and a little sand are mixed with it. Sow in pans or boxes; do not put the seeds in too thickly, though it is not necessary to allow so much room as required by some things, as they need pricking off before the roots have had time to extend much. Stand the seed-pan in a temperature of 55° or 60°, and give plenty of light from the time the little plants appear.

LAPAGERIAS.—The best time for potting *Lapagerias* depends on the temperature to which the plants are subjected. No more heat is necessary for them than is sufficient to keep out frost, but it often happens that they are grown in houses where there are other things that require a little more warmth, in which case the potting should be carried out before the strong shoots that spring from the base have moved much, as they are liable to get injured. If the growths in question are much interfered with they seldom make satisfactory progress afterwards. Where the plants are kept quite cool, potting may be deferred for some weeks, but where, as I have instanced, they are kept warmer, it will be safer to pot at once. When the plants have attained considerable size, wide boxes or tubs are better than pots. Whichever are used the drainage must be ample, as though *Lapagerias* are moisture-loving subjects, there must be means for the water to pass away freely or the roots will soon get into an unhealthy state, from which the plants seldom recover. *Lapagerias* will grow in either loam or peat. Where the latter can be had of good quality I should give it the preference, but unless the peat contains plenty of vegetable fibre it is better to use turfy loam. Add sufficient sand to keep the soil open; for large specimens the soil should be in a more lumpy state. In potting, make the material moderately firm, but not so solid as some things require. After potting give less water until the growth begins to move, but even when at rest *Lapagerias* must never be allowed to get so dry as necessary for many things. If any insects, such as scale, are present, advantage should be taken of the absence of soft, tender growth to give the plants a thorough cleaning. The shoots and leaves should be well sponged with insecticide, and the whole well washed afterwards with the syringe.

T. B.

Evils of deep planting.—Very few things really thrive when the soil surrounds the stem above what is termed the collar of the plant. Soft-wooded plants, such as the *Balsam*, that are capable of throwing out roots from the buried stem, do not appear to mind this much; but even with the *Balsam* burying the stem has a dwarfing effect. Sooner or later, also, hard-wooded plants and trees die if their main stems are covered, even if the covering does not exceed a few inches in depth. Some years ago I was in a conservatory where many of the principal plants in the borders appeared to be losing health in a most unaccountable way. Investigation proved that the plants were buried in the soil of the borders more than was good for them,

and it happened in this way: The conservatory was a comparatively new structure, and the borders had been a few years before newly made, and of the best soil attainable. But the fact that the borders had settled had been overlooked, and the frequent top-dressings to make up the border had buried the stems of the Camellias too deeply. The plants were being slowly killed, but the discovery was fortunately made in time, and lifting brought them back to health again. This is the season for planting fruit trees, and it generally happens that the soil, having been recently trenched, has not had time to consolidate. When the trees are planted in this loose soil the collars are almost certain to sink too low. Who can say how many of the scrubby-looking, prematurely-aged trees owe their decrepit condition to deep planting? When planting trees in recently-moved soil, tread it down firmly beneath the roots. And if there is the slightest reason to suspect any injury from this cause, lift the trees and replant; in fact, it is a good plan to lift and replant all young fruit trees about four or five years after planting. This secures the proper placing of the collar. Burying the trunks of trees in making alterations is not an uncommon occurrence. I suppose that there is no person of experience in the management of gardens but can call to mind many instances where valuable trees have been destroyed by placing earth around their stems. If this should ever be necessary, a brick wall should be built to sustain the earth far enough from the trunk to allow for growth. The top may be fitted with a wooden grating to permit of a free circulation of air.—E. H., in *Field*.

PROPAGATING.

PRIMULA SIEBOLDI.—There are now a great number of pretty and distinct varieties of this *Primula*, and as they can all be propagated by means of root cuttings, I employ this method for the increase of the newer kinds. Where there are large masses or clumps of any variety they can be readily increased by division, but with smaller plants this cannot, of course, be carried out to any extent; therefore cuttings of the roots are necessary for their rapid propagation. This is the very best time of the year for taking the cuttings, and the method we follow is to turn the plants out of their pots and shake off all the soil, which is not a difficult matter, as this *Primula* does not form a dense mass of roots. Then it will be found that the flowering crown is situated on the end of a rhizome, from whence the roots descend into the soil. A few of the roots from the end of the rhizome farthest removed from the crown can always be spared without injuring the future display of bloom, and, of course, as far as possible, the thickest ones should be chosen. They should be cut up into lengths of about an inch, care being taken when laying them down that they are not mixed, as it will otherwise be difficult in some cases to distinguish between the upper and the lower parts of the roots. Meanwhile the pots or pans are prepared for their reception by thoroughly draining them with broken crocks and filling with a light sandy soil such as is used for various soft-wooded cuttings. Some of the rougher particles of soil that will not pass through the sieve may be placed immediately over the crocks before the finer soil is put on. The pots or pans should be filled almost to the rim with the prepared compost, which must not be pressed down firmly, as if just shaken into its place the cuttings can be inserted by simply pressing them into the soil. The cuttings must be put in perpendicularly, and at such a depth that the upper part is just level with the surface of the soil, and as that is some distance below the rim, a little dry silver sand may be spread over the top to form a layer not more than a quarter of an inch thick. The work is then complete, except a good watering through a fine-rosed pot. This will cause the sand to settle down in one unbroken mass, when the pots may be placed in a frame, or in some such a position till the young plants make their appearance. This will not be long, for in the spring

little clusters of leaves will push through the sand, and when the earliest are fairly developed the plants may be either potted off or planted in a bed prepared for their reception. If the bed is sheltered by an ordinary garden frame, so much the better, as the young plants make more rapid progress when protected in this way during their earlier stages. Of course, after the cuttings are put in and before they commence to grow, the frame must be kept close, and the soil must also be watered when necessary. T.

ORCHIDS.

W. H. GOWER.

ANGRÆCUM CAUDATUM.

THE subject of our present illustration, engraved from a photograph sent by Major C. H. Fisher, The Castle, Stroud, Gloucester, is a



Angræcum caudatum.

native of Western Africa, about Sierra Leone and Senegal. It was amongst the earliest of this genus to arrive in this country in a living state, having been introduced upwards of fifty years ago, and yet to this day it remains a scarce plant, and is seldom seen in collections. This is the more remarkable, as the genus has become extremely popular of late years, and numbers of new and showy species have been introduced to cultivation, so that the remark of an old writer, "the species are, for the most part, small flowered, and little better than weeds," is not applicable at the present time. This plant is an epiphyte, and thrives upon a good-sized block of wood or in a hanging basket, although it is sometimes grown in a pot; but this latter plan I do not advocate,

as the roots enjoy full exposure to light and air. The leaves, nearly a foot long, strap-shaped, and arranged in a two-ranked fashion, are thin in texture and light green. The scape is pendulous, longer than the leaves, and bears from four to five flowers. Mr. Williams, in the "*Orchid Grower's Manual*," says, "it sometimes bears twelve flowers," but I have never grown it so fine. The sepals and petals are greenish-yellow; the lip is obovate, terminating in a long, ivory-white point, spur 8 inches or 9 inches long, olive-green, shaded with chocolate. Its usual time of flowering is during summer and early autumn. By some this is considered a shy-flowering plant, but for some eight or nine years in succession the plant flowered with me, the latter part of the time producing two spikes each season. This species was growing in the collection of the Messrs. Loddiges fifty years ago.

An effective group of Masdevallias.—I was much struck with a bit of colour exhibited by a few members of the above-named genus which I recently saw at Mr. Measures', The Woodlands, Streatham. Conspicuous was a fine form of *M. ignea*, with its cinnabar-red flowers, veined with lines of crimson. *M. Davisii* has numerous canary-yellow flowers, which are large for this species. Associated with these were a superb form of *M. Harryana*, with large flowers of a deep blood-crimson hue; *M. Lindeni*, with bright magenta-purple flowers; and the brilliant *M. Veitchii*. In front of these stood a fine plant of *M. polysticta*, with twelve spikes of flowers borne well up above the foliage, the combination being exquisite. I may add that above these hung numerous baskets full of *M. Chimæra* and *M. bella*, their large and curious flowers hanging down and adding considerably to the general effect. These plants are all grown as cool as possible, and they produce about three crops of flowers in the season, the intervals between each crop, however, being filled in by casual flowers, so that I think I may safely say the Masdevallia house has never been devoid of flowers during the past twelve months.—W. H. G.

Lælia præstans is one of the gems of the Orchid house at this season, and, to use a trite phrase, no collection should be without it. It is one of those Orchids that does not take up much room, and can be grown without difficulty in an intermediate, or indeed a cool house, as, being a Brazilian mountain plant, it does not require a high temperature. It has tiny bulbs and evergreen leaves, and, compared with the size of the whole plant, the flowers are very large, being as much as 4 inches across. The sepals and petals, being broad, overlap and spread out so as to make a flat, symmetrical flower, the colour being a bright rose. The lip is circular in outline, of a splendid purple-crimson, with an edging of white, much resembling in this respect *Cattleya marginata*. This describes one of the finest varieties I have seen, and this is now in bloom in the St. Albans Orchid Nursery side by side with other dwarf *Lælia*s and *Cattleya*s, such as *L. Dayana*, *L. pumila*, and others, all of which are grown on suspended blocks in a light cool house where *Odontoglossums* thrive. Some of these were in flower, but are not so beautiful as *L. præstans*.—Q.

Catasetums.—With the advent of C. Bunge-rothi, these plants appear to be regaining their lost popularity. Some few years ago I grew upwards of twenty distinct kinds, and there is ample material in this genus for amateurs to indulge their fancy, both for novel combinations of colours and grotesque and fantastic forms. Quite recently I recognised an old acquaintance, which I took to be

Catasetum atratum, flowering with Mr. White, of Winchmore Hill; the sepals and petals are spreading, the ground colour being dull green banded with brownish purple; lip open, yellowish green, and more or less spotted with brown. It is a native of Brazil. These plants are not difficult to grow, enjoying an abundance of sun and light and an ample supply of water when forming their pseudo-bulbs. During the resting season only enough water should be given to prevent the bulbs shrivelling.—W. H. G.

MOTH ORCHIDS (PHALÆNOPSIS) AT HEATON HOUSE, CHESHUNT.

WHEN I first saw, and made a few remarks upon these plants, some fourteen months ago, sceptics ridiculed my statements, professed to know that the plants had only been forced into abnormal growth, and prophesied that they would melt away like snow before the summer's sun, &c. I was, therefore, much pleased to visit them again and to find growth as luxuriant as before; and I have to report them as being in more vigorous health and flowering more freely than when I saw them last; and I now challenge contradiction by saying that they are the finest lot of *Phalænopsis* in the country. I have been acquainted with the majority of the best Orchid collections which have existed in the three kingdoms for some years past, and I can safely say I never saw *Phalænopsis* like these. I admit having seen isolated examples perhaps as fine (never better), but I have never seen so many of them in such remarkable vigour as are to be found in Mr. Partington's garden at Cheshunt, and those who still doubt should go and see for themselves; they will well repay a journey from the furthestmost part of the three kingdoms. They will find Mr. Searing quite willing to show them, and to tell them all the details of his management, and the means he has adopted to achieve his great success in the cultivation of these gems of the Orchid flora. The *Phalænopsis* at Mr. Partington's are grown in a lean-to house by themselves, saving some plants of *Ficus stipularis* which cover the back wall; the large ones stand upon the front and side stages; the smaller ones are growing in baskets suspended from the roof over the centre of the house, the middle of the house being entirely open, and the floor composed of shingle, which is always kept moist, the same material covering the stages. That these plants are not forced into an unnatural growth may be understood when I say that the night temperature during winter rarely exceeds 60°, and during the day it rises some 5° or 8° by artificial means. On the day of my visit the sun was shining brightly and full upon the plants, and the glass stood at 70° at noon, but the hot-water pipes were nearly cold. There was a free circulation of air, and I believe this is maintained throughout the whole season both by day and night. The collection numbers about 160 plants; some few of them are small, recently imported ones, but the majority (say considerably over 100) are large specimens, with erect stems, in some instances from 8 inches to 10 inches high, bearing from six to fifteen leaves of enormous size. It may be mentioned that some of the plants have not lost a leaf for five or six years; now and then a leaf at the base will decay, but this is quite exceptional. The kinds grown are *P. Schilleriana*, *Stuartiana*, *Stuartiana nobilis*, *grandiflora* (Java variety), *grandiflora* (Bornean variety), *amabilis*, *speciosa*, *violacea*, *Luddemanniana*, *casta*, *Sanderiana*, *Esmeralda*, and *antennifera*. At the time of my visit there were about 300 flowers expanded; many spikes had been cut for the decoration of the rooms in the house, and many other spikes

were not full size, but the whole formed a perfectly unique exhibition of chaste beauty.

Amongst the most notable plants in the collection were first a fine *P. amabilis*, 9 inches high, bearing fifteen leaves, the more recent of which were upwards of a foot long and 3½ inches across, stout and leathery in texture, and rich deep green; the flowers of this specimen were past when I saw it, but it still showed the remains of two stout spikes, which, I was told (and I do not doubt the assertion), had borne upwards of sixty flowers. Another remarkable plant of *amabilis* stood over 8 inches high, bearing fourteen large leaves, but its flowers were also over, whilst there were numerous splendid examples bearing six and eight leaves of remarkable vigour. Of *P. grandiflora* there were numerous extraordinary specimens, the dimensions of a few being worthy of record; thus one plant of the Bornean variety has eight leaves, each of which is upwards of a foot long and 4½ inches wide; the spike is 3 feet 6 inches long, and has three lateral branches. At present there are only twenty flowers open upon it, but these are over 3 inches across. Another plant of *grandiflora*, the Java variety, is bearing fourteen leaves, each a foot long and 3 inches wide. Most of the flowers on this plant are still in the bud, sixteen only being expanded; these are 3½ inches in diameter, but the spike is 3 feet long and just beginning to branch, so that it bids fair to become very grand. Another plant of *grandiflora* exhibits a curious freak; it is bearing fourteen leaves as large as those previously mentioned, and this season, in addition to the axillary spike, it also threw up a spike from the centre of the growth (terminal) which bore forty flowers; this, of course, terminates its upward career in a direct line. The plant is still in vigorous health, and is evidently beginning to push out lateral growth. *P. speciosa* is represented by plants with seven and eight leaves, each a foot in length and 3½ inches across. *P. violacea* is represented by plants bearing twelve leaves, each a foot long and 5 inches over. Plants of *P. Schilleriana* have seven and eight leaves, each upwards of a foot long and 6 inches wide, one plant bearing a spike 3 feet long, which has eighteen branches and about seventy flowers; there are numerous similar examples. *P. casta* and *P. Sanderiana* are represented by fine healthy plants and of good varieties, the latter especially so. But I think the greatest praise is due to Mr. Searing for two remarkable specimens of *P. Stuartiana*, which, as far as my experience goes, is not in a usual way by any means an easy kind to grow. In this collection these plants are truly grand; the best of the two carries eight leaves, each 14 inches long and 4 inches wide, and a spike of bloom considerably over 3 feet in length, with eight lateral branches and sixty-three flowers; whilst another plant carries eight similar leaves and spike. The great success which has been arrived at in the management of these *Phalænopsis* is evidently due to not overstimulating them by excessive fire-heat; by the admission of free air liberally, while, at the same time, ensuring a sufficiency of moisture to counteract any over-dryness; and by allowing the roots to ramble freely instead of confining them. The plants in question have masses of roots, most of them hard and wiry, but there is no attempt to confine them, and even some of the largest specimens have scarcely more than a handful of *Sphagnum* about them. No spikes are allowed to remain on the plants for a second year, as they are considered to be very weakening to the plants without affording any adequate return.

W. H. G.

Odontoglossum cirrhosum.—I have received flowers of this species to name from no less than three parts of the country during this foggy week, one person sending me a large spike, which I anticipate will last in its cut state for several weeks, while all the senders ask for cultural instructions. I am rather surprised to find this beautiful plant so much neglected; it is only a few years ago since it was first introduced in a living state, if I mistake not, by Mr. Wm. Bull, of Chelsea, when it caused quite a sensation in the Orchid world. Soon after its first introduction, however, the importation of

vast quantities so reduced its value, that several thousands of established plants which I had at that time were unsaleable at the low price of 3s. each. It quite surprises me what can have become of all the plants that were in the country a few years ago, because it is by no means difficult to manage; on the contrary, I have found it one of the easiest to establish and one of the earliest of all the *Odontoglossums* to bloom after its importation. Then why has it become so scarce, for scarce it must be, or it would be more often seen in flower? Who at the present time possesses large specimens of this plant? And yet it must ever rank as one of the most elegant species in a large genus remarkable for beauty. *O. cirrhosum* usually flowers during the months of April and May. It was discovered years ago growing in the valley of Mindo, which is in the mountains of Ecuador, at an elevation of about 6000 feet, so that it may well be imagined very little artificial heat is required in its cultivation; indeed, I have found it grow vigorously and flower luxuriantly side by side with *O. Alexandræ*.—H. G.

DENDROBIUM BIGIBBUM.

IN my earlier days amongst Orchids this was a very scarce plant, and it appeared to be as difficult to manage as it was to obtain. Since that time, however, large quantities have been imported from some islands in Torres Straits, which appear to be of a superior form and more easily grown than the earlier introduced plants which came from North Australia. I recently noted numerous examples of this beautiful plant flowering in the Messrs. Veitch's nursery at Chelsea, and also with Mr. Williams at Holloway, and it is hardly possible to imagine a more elegant subject for cut flowers. It is an erect-growing plant, the pseudo-bulbs being stout, from 1 foot to 2 feet in height, and bearing near the apex four or five oblong-lanceolate leaves. The spike issues from the top of the growth, and also from the axils of the leaves, as well as from the old leafless bulbs, the raceme being nearly a foot long, bearing from six to twelve large flowers, about half of which open at the same time, and as the spikes are freely produced they make a grand display, and the blooms last in full beauty for many weeks. The sepals and petals are rich rosy-purple, the latter, round and full, being much the largest; lip three-lobed, the side lobes erect, incurved, the middle lobe slightly reflexed, the whole rich crimson-purple, conspicuously veined with a deeper shade of the same hue, the disc ornamented with a white warty crest. In my MS. notes I have a record of a white-flowered form which bloomed in Mr. Williams' nursery about the year 1869 or 1870, but I have never heard of the reappearance of a white variety. The plant in question was a very weak one, and the flowers were small, but they were the exact counterpart of the normal form, except in colour. There can be little doubt that a variety with white flowers, equal in size to those of the typical plant, would be highly appreciated, and be eagerly sought after. This plant requires an abundance of light, heat, and moisture, but it should be shaded from the fierce rays of the mid-day sun. A temperature of 70° to 85°, or even more, by sunheat should be maintained during the growing season, at which time an abundant supply of moisture to the roots and overhead with the syringe is absolutely necessary to its well-being; during winter, however, the heat may be reduced to about 60° to 65°, and very little water will suffice. Pot culture suits this plant best, and the soil should consist of rough, fibry peat and *Sphagnum* Moss, well drained. The soil should be made very firm.

W. H. G.

Broughtonia sanguinea.—This charming plant, which I saw last autumn in Mr. Williams' nursery at Holloway, and more recently in Mr. Partington's garden at Cheshunt, is well deserving of more attention than is usually accorded it by Orchid growers. It must be admitted that the plant has proved somewhat difficult to manage, or perhaps the majority of cultivators have not studied its natural requirements. It is a native of Jamaica,

where it is said to be plentiful, and is usually found growing upon bare rocks in the full sunshine near the coast, and also upon the stems of the Silk-Cotton tree. Under cultivation I have had it grow well and flower regularly with special attention, and its lovely flowers amply compensate for any extra labour. My experience was that the plant dwindled away when subjected to shade, so I fastened the mass upon a large block of wood with but a trifling bit of Sphagnum, and hung it near the glass in such a position that it would get plenty of air and full exposure to the sun all day long. Every morning during the summer the block was taken down and soaked in a tub of water, and again upon extra hot days about the middle of the afternoon. This extra attention was given because I felt determined, if possible, to solve the mystery surrounding its management, and under this treatment the plant thrived. It threw out a quantity of roots, which adhered to the wood, and appeared to like to be bare and untrammelled with soil. In winter the plant still occupied the same position, but less air was admitted, and the block was only taken down and dipped (not soaked) once in each week. The second year of this treatment the plant bloomed from the home-made growths, and from that time flowered annually until it passed out of my hands. The plant would appear to be nearly related to *Lælia*; indeed, the genus is included with *Epidendrum* by Reichenbach. It is a dwarf, compact-growing plant with clustered, ovate, angularly-ribbed pseudo-bulbs, which bear one, or sometimes two, linear-oblong, leathery, deep green leaves; spike terminal, bearing near the summit a raceme of from six to twelve flowers, which are spreading, about $1\frac{1}{2}$ inches across, and bright reddish crimson in colour. It usually blooms towards the end of summer, and lasts a considerable time in full beauty.—W. H. G.

ORCHID FLOWERS.

FROM Mr. Buchan, Wilton House, Southampton, comes a box of lovely Orchid blooms, which during this week of fog are truly refreshing. The flowers consist of *Dendrobies*, *Masdevallias*, *Odontoglossums*, *Oncidiums*, *Cypripediums*, *Lycastes*, &c. In Mr. Buchan's collection of alpine Orchids are some grand examples of *Odontoglossums* and *Oncidiums*, perhaps, in some instances, the finest in the country, and they are grown with very little artificial heat at any season; whilst such plants as *Aerides* and *Vandas* are treated to such a low temperature, that many growers would consider it absolutely ruinous. I am glad to find that the cool system is fast obtaining converts, for I claim for it, when applied rationally, at least three advantages, viz., less expense in the culture of the plants, improved health and more vigorous growth, and a condition of the atmosphere in the houses which allows anyone, however delicate, to enjoy the flowers without the slightest inconvenience.

Amongst these flowers are some specially notable. I find a large and very richly-coloured form of *Dendrobium bigibbum*, which more than bears out my remarks upon this species sent you recently, and a fine variety of *D. heterocarpum* (more correctly, perhaps, *D. aureum*), the flowers, which emit a grateful odour of Violets, measuring upwards of 3 inches across, the sepals and petals being bright primrose-yellow. These two *Dendrobies* should find a place in every collection, and require to be grown in the warmest house. A curious form of *Lycaste Skinneri*, in which the rich crimson of the lip is extended to the lower half of each lateral sepal, is also included. Mr. Buchan says all the flowers are similarly marked, and that the freak is constant. It makes a greater display of colour, but I do not think it adds to the beauty of the flower. A handsome and regularly blotched and spotted form of *Odontoglossum Alexandræ*; the delicate and pretty *O. (Erstedii)*, with its pure white fragrant flowers, which are faintly stained with lemon at the base of the lip, and dotted with crimson; two distinct and pretty varieties of *O. ramosissimum*, a plant too seldom seen in collections; the flowers, borne upon a much-branched scape, are numerous, the sepals and petals being pure shining white, profusely dotted with crimson;

lip small and purplish violet at the base. The other form is less distinctly spotted, and the lip is wholly white, saving a few scattered dots of crimson; this species is showy, well adapted for cutting, and is a winter bloomer, which should cause it to find more admirers. A form of the charming *O. Pescatorei*, having the flowers clear white, saving just a suspicion of blush in the sepals, and a remarkably brilliant crimson form of *Masdevallia amabilis* were the most noteworthy in this handsome gathering. W. H. G.

PREPARING FOR DROUGHT.

DURING the past three seasons we have suffered more or less from the effects of drought, but the year just gone was especially disastrous to garden and field crops by reason of the soil being very dry when the summer commenced, a prevalence of dry harsh winds in spring having robbed the land of its moisture to a considerable depth. Consequently, directly the sun's rays became powerful, crops began to suffer, and as we did not get sufficient rain to benefit the roots until September, the effects are still plainly visible, not only in gardens, but in hundreds of acres of Turnip fields, where only patches of roots can be seen, or the intervening spaces filled up with late-sown crops with the object of getting some kind of green crop either for sale in market or to be fed off by sheep: The frequent recurrence of prolonged droughts renders it most necessary that we should prepare to meet drought before it actually sets in, for at the time little can be done beyond what may be termed temporary measures, such as watering or mulching, and although these may assist in tiding over the difficulty, there are other means even more effectual which, if put into practice in time, will to a great extent overcome the effects of the most protracted droughts. First on the list as a preventive to the effects of drought I should put trenching, or thorough deep cultivation, as the universal testimony of those who have tried it is in favour of this remedy beyond all others. Trenching or double-digging must necessarily be done in different forms, according to the nature and depth of the soil. In old kitchen gardens that have been cultivated for years, and where the top spit from repeated manuring has become as light and rich as potting soil, the best plan is to take out a trench two spits deep, and after thoroughly loosening the bottom with a fork, and putting a layer of rough manure in, to turn the next top spit into the bottom of the trench, and on this put another layer of rotten manure. Then dig over the next spit on to this, adding a light sprinkling of manure, and finishing off by shovelling up all the broken soil on to the top. Proceed in the same way with every trench until the end is reached, and I think this treatment will in a great measure ward off the effects of drought. A friend of mine who has had charge of a garden where Peas, salads, &c., always failed when even an ordinary drought prevailed, tells me that he has never failed since adopting this plan, and he considers that trenching is labour well spent. I would not advise all kinds of soils to be treated in this manner, for the simple reason that there is not sufficient depth of soil good enough to allow of the bottom spit being brought bodily up to the surface, for if at all gravelly, or composed of hard clay-like lumps, it must be enriched and broken up well below, and only brought to the surface by degrees. In these cases we take out one spit and the loose matter, and then, putting a coating of manure into the trench, we begin at one end and fork the soil over, mixing the manure with it. Then put some good rotten manure over it, and dig over the top spit of the next trench, finishing off with the fine loose soil, and leave it to settle down as long as possible before cropping.

MULCHING is a great help both in warding off the drought and retaining the moisture in the soil, and in light, stony ground such as prevails in the south of England, it is absolutely indispensable for many crops. Mulching may be done with various substances, but in the kitchen and fruit garden nothing answers so well as farmyard manure, as it serves the double purpose of feeding the roots, while

the litter effectually breaks the sun's rays, checks evaporation, and at the end of the season can be dug in. Almost any substance, whether manurial or not, may be utilised in exceptionally dry seasons, and many people put a layer of stones over the roots of Roses, fruit trees, &c., to keep the moisture in the soil. In the flower garden, Cocoa-nut fibre refuse, Moss, and other non-manurial things are largely used, and are all more or less valuable in conjunction with

COPIOUS IRRIGATION.—Never in my experience of gardening was the value of water more fully illustrated than towards the end of last summer, when all the rain-water tanks having been dry for weeks, and the only water within miles being that obtainable from the water companies' mains at so much per thousand gallons, we were warned that this supply could only be had at certain hours and in limited quantity, so that, except for valuable plants or crops, it became a question whether some crops would pay for watering under the circumstances. To obviate this, a good deal might be done in the way of storing, in underground tanks or reservoirs, rain water, which is now allowed to run to waste, as the supply from cisterns or tanks is rarely sufficient to last during a dry season. Now is the time to set about getting reservoirs, in order to get them filled before another drought comes round. Even with all the aids of deep cultivation, one must water newly-planted trees, shrubs or plants until they get well rooted, and salads can hardly be had if the soil is dry. Let all, therefore, who value their gardens take immediate action, not only to trench the kitchen garden quarters thoroughly once in three or four years, but to provide tanks for catching every drop of rain water that falls from sheds, outbuildings, &c. Deep cultivation is equally useful in very wet, as in very dry, seasons, as it provides a ready exit for superfluous moisture, and store tanks, if not wanted this year, will keep better full than empty, and will soon repay their cost when necessity comes for using them.

Gosport.

JAMES GROOM.

A NOXIOUS WEED: A WORD OF WARNING.

THE late Miss Hope in her book on "Gardens and Woodlands" speaks of Gout-weed (*Egopodium Podagraria*) as being a fearful pest in gardens, and in a note adds, "let not a variegated hobby induce anyone to admit the variegated form into a border." This amongst many good practical suggestions found in the above work I very emphatically endorse, and, I may add, be careful above all to keep this weed out of the rock garden. For years past it has proved a plague and a pest in various portions of the rockeries here, and it has also spread amongst bulbs. I am now engaged in the attempt to extirpate it from a rocky declivity traversed by a waterfall. Shrubs have to be removed, rocks lifted under which it has penetrated, and hardy plants of all kinds cleared from the ground. There seems no more effectual way of freeing the place of such an intolerable nuisance than to remove the top spit of soil altogether, fork up the subsoil, and replace with fresh soil; and this I am doing, at a great sacrifice of shrubs, plants, bulbs, and labour. I may reiterate the warning and say, where it occurs do not let consideration for bulbs or choice plants, amongst which this weed has spread, deter you from at once attacking and rooting it out; left for a few seasons it spreads with alarming rapidity, and involves treble the amount of labour than would have been incurred if promptly destroyed. It is a weed not commonly found beyond the precincts of the garden, or in any place frequented by stock or rabbits; it is eaten greedily by the latter. It more generally occurs in waste ground near villages, about old religious houses, and in all probability was introduced by the monks. It

had a reputation in old pharmacy, and is an illustration of the inconvenience and annoyance that may be caused by the introduction of a weed into our gardens, and in a small way may help us to understand the trouble and loss inflicted on gardeners and farmers in Australia by the spread of our weeds over their half-reclaimed and fertile land.

W. INGRAM.

Belvoir.

TREES AND SHRUBS.

W. GOLDRING.

THREE HANDSOME OAKS.

THE attention of planters should be directed to some of the newer kinds of Oaks that are showing every promise of becoming trees of the future, and which, from their handsome and distinct growth, are worthy of association with the finest hardy trees in parks and gardens. For some reason Oaks are not popular with tree planters, the general impression being that they are all of slow growth, and that generations must elapse before they make large trees. But while this is true with regard to several of the Oaks, it is not so with all, some, particularly the North American species, being as rapid in growth as the generality of trees. The three species, of which illustrations of leaves are herewith given, are very little known in this country, though there is every reason to believe them to be of exceptional value as ornamental trees. They have not, it must be admitted, been planted long enough to enable one to speak decisively upon their merits when fully grown, but in a young state they are extremely handsome, and two, at least, *Q. Mirbecki* and *Q. conferta* are unquestionably perfectly hardy in England, and the Japanese species, *Q. dentata*, may yet prove to be suitable for our climate when once it has got beyond its nursery stage of growth.

THE DAIMYO OAK, as *Quercus dentata* is called, bears the largest foliage of any Oak yet introduced,



Leaf of the Daimyo Oak (*Quercus dentata*), quarter natural size.

some leaves I have measured being fully 16 inches in length by half as broad. The form of the leaf is

shown in the subjoined outline drawing. It is a native of Japan, where it is generally seen as a small tree some 15 feet or 20 feet high. It grows on the mountains, and therefore it should be much harder than many other Japanese trees which withstand our climate. But this does not appear to be the case, as the young shoots of small specimens are liable to be killed in a severe winter in the climate of London. I have noticed that in several gardens and nurseries where young trees of it are growing the shoots almost invariably show signs of having been injured by frost at some period; but, as in the case of other trees and plants, it may yet be found to be quite hardy. Its immense leaves are so handsome, that even in a small state it is an ornament to any garden. Further south the tree, even when small, would perhaps be unaffected by severe cold. This Oak is to be found in the principal tree nurseries, and is a particular feature in Messrs. Lee's arboretum at Isleworth, where it grows with remarkable vigour, developing the largest leaves I have yet seen. It is known generally in nurseries under the name of *Quercus Daimyo*. Mr. Nicholson, of Kew, is of the opinion that a Chinese Oak, *Q. obovata*, is identical with *Q. dentata*, in which case the tree would appear to have a wide range. Its leaves afford the food of a Chinese silkworm, so that it is of economic value.

THE ALGERIAN OAK (*Quercus Mirbecki*), like *Q. dentata*, has not been in cultivation in this country long enough for any trees to attain a large size, but the several young specimens that have been planted



Leaf of the Algerian Oak (*Quercus Mirbecki*), quarter natural size.

in various parts of the country prove that it is perfectly hardy, a rapid and vigorous grower, and very ornamental. I saw a tree last autumn in the arboretum at Syon House which struck me with the beauty of its foliage and sturdy and dense growth. Judging from what Mr. Woodbridge told me as to the date of planting this tree, I gather that its rate of growth is more rapid than that of most other Oaks, and as it is in good soil and in an open yet sheltered spot, it will soon make a fine tree. In Algeria and South-west Europe this Oak is one of the largest timber trees. The outline drawing here given of it was prepared from a leaf 9 inches in length. It is said that there are two forms of this Oak in nurseries, one having green leaf-stalks, the other red, but I have only seen that with green leaf-stalks, which must be the commonest. In the garden of the Villa Taverna, on the shores of Lake Como, the Algerian Oak grows to great perfection, and some of the finest specimens known in cultivation are there found. It is there quite an evergreen, and indeed in England its leaves remain green nearly all the winter, though they begin to look shabby by the end of the year. In some nurseries it is catalogued as *Quercus Zan*.

THE HUNGARIAN OAK (*Q. conferta*), known also as *Q. pannonica*, is remarkable for its rapid growth, which is one of its chief merits, though in beauty of foliage also it will compare favourably with any other

European Oak. It makes a densely branched round-headed tree, and is not unlike the Algerian Oak in this respect. Its hardiness is beyond doubt, and fine specimens of it may be seen as far north as



Leaf of the Hungarian Oak (*Quercus conferta*), quarter natural size.

Edinburgh, where it has been planted for years in the Botanic Gardens. The deeply-lobed leaves are deep green in summer, and die off in autumn of a rich yellow-brown tint. It is a valuable timber tree in its native forests, the wood being very durable.

THE ACACIA OR LOCUST TREE.

(ROBINIA.)

FEW tree lovers will, I think, agree with "A. D.," in THE GARDEN, Jan. 7 (p. 8), respecting this fine old ornamental tree. He complains of the gaunt and ragged aspect of old trees unless they are occasionally beheaded and induced to break afresh. Such may be the opinion of "A. D.," but it is contrary to that generally entertained. Gilpin, whose opinion upon the ornamental aspects of trees is considered authoritative, speaks of the Acacia as a most elegant tree and often very beautiful, and artists look upon it in the same light, and especially when it assumes that gaunt and ragged appearance in old age. A venerable old Acacia is one of the most picturesque trees I know. Its deeply seamed, rugged bark, oddly twisted branches, and scant foliage combine to make it a striking object, particularly if associated, by way of contrast, with vigorous young deciduous trees or prim Conifers. In many of the old gardens I have visited in various parts of the country, old Acacias have impressed me with their picturesque beauty, and stamped the whole character of the gardens from recollections of these trees alone. Beheading large Acacias, as "A. D." suggests, simply renders them hideous, and worse than pollard Willows or Elms, though this form of tree, no doubt, is admired by those who can call the mop-headed Robinia Bessoniiana beautiful. This particular variety is peculiarly adapted as a small street tree, being dense in growth and of a luxuriant green, but a row of them, if the trees have been hard pruned, reminds one of a line of huge inverted mops. The common Acacia in a young state is extremely elegant. I do not mean the young trees grafted man high, as one sees in a nursery, but genuine seedling trees which are feathered to the ground. Last summer I saw in the neighbourhood of Weybridge a public road fringed on either side with seedling Acacias, and I thought at the time I had never seen so beautiful an avenue. It was like walking through a grove of Ferns, the seedlings being of all sizes, from a few inches to 20 feet high. The soil was sandy, yet not too dry, and was, therefore, just favourable for the Acacia.

A great many Acacias are sold every year, and, presuming that they are all planted, the decline of the Acacia as an ornamental tree is not imminent, and seeing there are now upwards of thirty named varieties to select from, surely the tastes of everyone can be accommodated. A half-dozen of the best would include those named angustifolia, one of the most graceful of all trees, having small leaflets of pale green; Bessoniiana, best adapted for street planting,

though, on account of its distinct growth, it is desirable in limited numbers in parks and gardens; fastigiata (also called stricta and pyramidalis), in growth like the Lombardy Poplar or Cypress Oak (inermis), with broad foliage, of a deep green, the growth being dense and spineless; aurea, with golden foliage; and Decaisneana, the finest of all as regards its flowers, which are pale pink, and produced in dense racemes. All these are more or less easily obtained from nurseries, and he would be difficult to please indeed who did not consider them all beautiful.

As to the merits of the Acacia as a profitable tree I think that is aside from the present question. There is no doubt that years ago it was a much overrated tree, and was planted largely everywhere for the value of its timber, which now is found to be of little use. The celebrated Cobbett, who called it "the tree of trees," is no doubt responsible for the large number of Acacias one sees in all parts in crowded plantations, but though it is valueless as a timber tree, its merits from an ornamental standpoint are worthy of being upheld.

W. GOLDRING.

Time for pruning Limes.—As regards the proper season for pruning Lime trees, "W. C." THE GARDEN January 7 (p. 3), appears to me to answer his own question. He says that the branches of his January pruned trees died back to the trunk, while those pruned in August remained healthy. It is evident that the shoots cut in January suffered from some cause, probably from severe frosts acting on the newly-cut surfaces. It is not the usual practice to prune deciduous trees in August, but I am inclined to consider that midsummer is the most suitable season for the operation, for if done at that season the trees are then in tolerably active growth, and the wounds become healed over before winter sets in. The usual custom is to prune deciduous trees after the fall of the leaves, but this is mere rule-of-thumb practice, and it is by no means clear that it is best to prune trees when leafless. The pruning of trees and shrubs, as I have recently had occasion to state, seems to be little understood, and there seems to be no principle upon which the general practice of pruning is based. I am of the opinion that if deciduous trees and shrubs were pruned soon after midsummer while in active growth we should not see so many fine trees with their trunks disfigured by scars and holes, often eating into the heart of the trunk. Provided that "W. C.'s" Limes are in good health, his case clearly illustrates the results of summer and winter pruning. The pruning of ornamental trees and shrubs is such an important subject, that it cannot be too much discussed, and I should like to have the opinions of others upon it.—W. GOLDRING.

Poplar Parasol de St. Julien.—In answer to W. Goldring, who inquires as to the history of this Poplar in THE GARDEN, January 7 (p. 2), I should say that its history resembles that of many other varieties in demand by the planter. I will give its history in a few words. In the spring of 1865, one of the foremen of the establishment of Baltet frères observed a slender, many-branched, reflexed Poplar growing on the bank of a canal at St. Julien, near Troyes. He then procured branches presenting in the most marked degree the character that it was desired to reproduce, and crown-grafted them. After having proved and studied the new form during two years, MM. Baltet frères sent it out under the name of Poplar Parasol de St. Julien. It immediately became widely spread owing to its highly ornamental qualities. It is far more beautiful than the old weeping Poplar, and it is also hardy. It is probable (but one cannot affirm positively anything in such a case) that the Poplar Parasol de St. Julien is only a form of Populus tremula (the Aspen), a form comparatively recent and of a more showy aspect than that possessed by the old variety. I may add that it does best when grafted on Populus alba (the white Poplar of Holland), and that it does not succeed on the Swiss Poplar.—FERD. CAYEUX.

Daphne Mezereum.—It is with great pleasure I read the note of "W. G." on the Mezereum on page 2

of THE GARDEN (January 7). Being situated close to the Austrian Alps, I sometimes make excursions in search of wild plants. Amongst others I found Daphne Mezereum and the evergreen Daphne laureola in rather shady woods; whilst the beautiful Daphne Cneorum grows in open places and nestles among rocks and short Grass.—LOUIS KROPATSCH, Laxenburg.

The Nepaul Barberry (*Berberis nepalensis*).—In mild localities on the south coast this noble evergreen shrub may be grown to perfection in the open air, provided it is sheltered from rough winds, but it is uncertain about London and northwards, except against warm walls. There used to be against one of the old walls at Kew a fine specimen of it which every year produced a profusion of golden flower clusters, but it succumbed to a very severe winter. This fine Barberry is in flower now in the temperate plant house at Kew, and, being one of the very few plants in flower, is conspicuous. Its enormous leaves, with prickly-edged leaflets of pale green, and its wide-spreading flower clusters of rich yellow make it a noble plant. It is about 10 feet high.—W. G.

Juniperus rigida.—Among medium-growing Conifers suitable for single specimens on small lawns or similar spots, this Japanese species of Juniper should find a place, as it is pleasing in outline, very distinct from any of the other forms, and is quite hardy. When in a suitable position it forms a broad pyramidal specimen, but one that is totally devoid of any stiffness or formality, for the branches vary a good deal in length, and thus, as it were, break up the outline of the plant. The principal branches are rather upright in growth, but the whole of the branchlets and young shoots are strictly pendulous, thus imparting a very graceful character to the specimen. The specific name of rigida is derived from the stiff, sharply-pointed leaves, which need almost as careful handling as a Furze bush. In winter this Conifer becomes slightly browned, but not to the same extent as many others, while the young foliage during the growing season is of a pale green hue, which becomes darker with age. It stands pruning well.—H. P.

The hardiest Laurel.—Most of us know that the Colchic Laurel is harder than the common kind, but that it is the hardiest of all the Laurels, as one would infer from the note of "W. I." in THE GARDEN on January 7 (page 4), is questionable. There are at least two other varieties that will dispute with the Colchic variety the right of being called the hardiest Laurel. These are the Caucasian (caucasica) and the round-leaved (rotundifolia), both of which, I consider, are harder than colchica. It has been proved beyond doubt that the Caucasian is the hardiest of all the Laurels, since, even in Scotland, it has withstood, uninjured, the severest winters for the past dozen years. From what "W. I." says I imagine that he possesses not colchica, but the true caucasica. He says that the Laurel he calls colchica has more erect growth and narrower leaves than the common kind, and this is a character peculiar to the Caucasian variety, while the Colchic always has a spreading, not erect, habit of growth. The leaves, moreover, are distinct in form, being broadest in the middle and of rich deep green. If "W. I." really has caucasica instead of colchica, he does possess the hardiest Laurel, and not only the hardiest, but one of the handsomest in other respects. It has a bold and vigorous growth, and quickly forms a dense mass. This is not an unimportant question, for as most planters wish to buy the hardiest Laurel, they may be easily misled by ordering the Colchic instead of the Caucasian. The round-leaved variety (rotundifolia) is perhaps, of all others, the most popular among nurserymen, some of whom look upon it as the best of all, and second to none in point of hardiness. It has fulfilled all that was predicted concerning it when it was first known in this country about seventeen years ago. It was first exhibited before the Royal Horticultural Society on January 19, 1870, by Mr. W. Paul, of Waltham Cross, and though only a second-class certificate was awarded, it has since proved to be worthy of the highest certificate of merit that could be bestowed upon it. This is an instance of

the unwise plan of exhibiting a specimen before it is fully developed. As I am now studying the numerous forms of the common Laurel, I should be glad if "W. I." will send me a fair specimen of the sort he has under the name of colchica.—W. GOLDRING, Gloucester Road, Kew.

FERNS.

W. H. GOWER.

SELECT DAVALLIAS.

THE SQUIRREL'S-FOOT FERN (*Davallia bullata*).—This is one of the most charming species of this well-known and deservedly popular genus. Notwithstanding that being deciduous, it loses its fronds in winter, as a basket plant in summer it has few equals, the bright chestnut-red of the rhizomes affording such a decided contrast to its bright shining green fronds. Some fine examples of this species treated as basket plants were specially notable during the past summer in Baron Schröder's garden at Egham, and this winter I recently noted a fine specimen in Mr. Partington's garden at Cheshunt growing upon a portion of a stout Tree Fern stem, and hanging in all its natural freedom and grace; its foliage had not fallen, but was yet beautiful in its decay, exhibiting all the golden tints of a glorious sunset. The fronds of this species are from 6 inches to 10 inches high, and spring from a long creeping rhizome, which is densely clothed with bright chestnut-red scales. It is a native of India, growing in mountain districts as high as 4000 feet elevation.

D. DISSECTA is nearly allied to the preceding; it differs, however, in having its long creeping rhizomes clothed with long reddish brown scales, and in its fronds not being deciduous; it produces longer fronds than *D. bullata*, and they are not so broadly deltoid in outline; the colour is light green. It is a superb plant for a hanging basket, and some very fine examples of this species are to be seen in Baron Schröder's garden as well as in the Kew collection. It comes from the Indian Archipelago, and requires stove heat.

D. DECORA.—This is by some made a variety of dissecta, but under cultivation it appears to be a very distinct plant. The rhizome is very similar to that of dissecta, but the fronds are broader, more erect, and decidedly deltoid in outline; they are from a foot to 18 inches high, and from 10 inches to a foot broad at the base. This forms a fine exhibition plant when grown in pots. I recently noted nice examples in Mr. Williams' nursery at Holloway.

D. PALLIDA, perhaps better known in gardens under Dr. Masters' name of *D. Mooreana*, is one of the most beautiful Ferns in cultivation. I have seen it grown as a basket plant, but I think it displays its beauty to greater advantage when grown in a pot. One of the finest specimens of this species which has come under my notice was growing in the stove at Park Hill, Streatham, the residence of Mr. H. Tate. The plant in question is upwards of 8 feet in diameter, and its fronds are perfectly symmetrical. The colour is a peculiar pale green, which has a very pleasing effect when associated with deeper tints of green. No fernery should lack this majestic and handsome species. It is a native of the island of Aneitum, and requires stove heat.

D. TRICHOMANOIDES.—This species belongs, perhaps, more correctly to the genus *Leucostegia*. I am not aware that it is in cultivation, but being a native of the Fiji group—lands which have recently contributed so many handsome plants to our stoves—I notice it here as being one of the most desirable plants yet to come. From specimens of this plant sent me by a friend, the fronds appear to be almost as finely divided as those of *Trichomanes trichodeum*, and the colour is a bright sea-green. Plant collectors in these islands should search for this lovely Fern, and enrich our collections at home with it.

D. FENICULACEA is another extremely beautiful species, which I have received from the mountains of Naviti Levu, one of the Fiji Islands, which, if not already in the country, will be very shortly. It

is a distinct and beautiful plant, the delicacy of its fronds being sure to elicit admiration.

These two species alone are ample proof that plants in abundance still exist in their native wilds superior to many of those we cherish as the finest of their kinds.

NOTES OF THE WEEK.

Gardens and Pleasure Grounds Fund.—We learn that the Mansion House committee have placed £3000 at the disposal of the Public Gardens Association, to be spent exclusively in the employment of labour and supervision in connection with the new pleasure ground of 14 acres at Camberwell and the conversion of a part of the Tower Garden into an open space for the public.

Begonia manicata.—This *Begonia* is often met with in gardens, but, as a rule, in bad condition, yet when seen in rude health it is invaluable as a decorative plant at this season of the year. A beautifully-flowered and well-grown specimen is at present in one of the houses at Barvins Park, the residence of Mr. J. R. Wood.

Bouvardia President Cleveland has a great future, as it is now largely grown. The colour of the flowers is brilliant scarlet, eclipsed even by that of *Hogarth* and *elegans*. There are some small plants now flowering at Messrs. Hooper's nursery at Twickenham. At the same place were also two new double kinds, viz., *Triomphe de Nancy*, salmon-red, and *Sang Lorrain*, scarlet, which will apparently turn out something good.

Chrysanthemum Golden Gem.—Those who have not yet obtained this variety should do so, as it will be found invaluable for the greenhouse. It has a robust dwarf habit and retains its foliage well. — H. VICKERY, *Huntsmoor Park Gardens, Bucks.*

* * This late variety was well exhibited at the January show of the National Chrysanthemum Society; its yellow colour is bright and telling. As a late kind it holds a foremost place.

Carbonell collection of Ferns.—The representative collection of British Ferns bequeathed by the late Mr. Carbonell, of Usk, to the Royal Gardens, Kew, as notified in *THE GARDEN* last week (p. 37), will be mainly planted on the mound, of which the old rockery formed part. The site is being rapidly prepared, so that lovers of Ferns will find this an interesting spot next summer. As the specimens are nearly all of large size, an immediate effect will be the result.

Winter-flowering Carnations have been excellent this season in the nursery of Messrs. Hooper and Co., Twickenham, and there are a few kinds now in bloom. The varieties that we noticed as worth cultivating are the old scarlet *Alegatiere*; *Mme. Carle*, pure white; *J. P. Nugee*, orange-scarlet; *Irma*, rose-pink; and *Dr. Raymond*, like the old *Clove*, very dwarf, sweetly-scented, and rich maroon-crimson. The plants are propagated from side slips in February, and a late batch is reserved for flowering in April.

Crinum latifolium.—This beautiful Indian *Crinum* is in flower now in the stove at Kew, and bears from ten to twenty blooms in an umbel. The specimen at Kew is carrying one fully developed scape, and another that will be in perfection in a few days. The flowers, something like those of the *Madonna Lily*, are clear white, save a delicate tinge of red on the sides of the segments, and sweetly scented. It bears abundant foliage, and is most chaste and beautiful. As a *Crinum* for giving beauty to the stove at this season of the year, it has great claims upon the gardener.

A beautiful *Saxifrage* is *S. Burseriana* major, a variety of one of the sweetest of all spring flowers. There are a few plants of it now a mass of bloom in the new alpine house at Kew, and this is a most useful way to cultivate it, as the flowers are unharmed by dirt, winds, or heavy rains, which frequently spoil them when exposed. By growing them also in pots, the flowers appear early, frequently before the year

has scarcely turned. These and the tufted leafage are both larger than in the type, but we can afford both, as there are few tufted *Saxifrages* that have such an inviting appearance in the rockery. Even out of doors it is the earliest to herald in the spring, and though of delicate beauty the plant is perfectly hardy, loving a light soil and a warm nook, where it will show well at the flowering season. If those who care for *Saxifrages* have not *S. Burseriana*, then they are without a treasure of no small value.

Dombeya Mastersi.—This is a very beautiful flowering stove shrub, introduced twenty years ago from Tropical Africa. In growth it reminds one of the common *Sparmannia africana*, as it has similar large heart-shaped leaves, about 9 inches in length. The branches are few and slender, and shoot up almost erect. The flowers, produced in dense drooping clusters from the axils of the leaves on the upper part of the stem, are about the size of a shilling, with white petals and a pale pink centre, and are very fragrant. A fine specimen of the shrub is now in flower in one of the stoves at Kew, and has been in bloom for a fortnight. — W. G.

Cypripedium Fostermani.—This exceedingly rare kind I recently noted flowering in the Cambridge Lodge collection at Camberwell. The plant has short, plain green leaves, which much resemble those of *C. Spicerianum*; the flowers, however, which are totally different, are bold and handsome. The dorsal sepal is white, flushed in the centre with greenish yellow, and stained at the base with reddish purple, streaked and blotched with the same colour; petals broad, suffused reddish purple, with a yellowish green border; lip short, flaked all over with purplish crimson. It is a very distinct and showy kind. — H.

The Tenby Daffodil (*Narcissus obvallaris*) is one of the first large-trumpeted Daffodils that is brought in bloom to the London flower markets, and a very charming flower it is, so exquisite in form and so rich in colour. I saw this week a bouquet of it that pleased me much; there were about a dozen flowers of it placed loosely in a bowl with the coppery-tinged foliage of the common *Mahonia* (*Berberis Aquifolium*), of which large quantities have come into the market since Christmas. The mixture was perfect, and as the stalks of the Daffodils were of various lengths, the bunch did not look formal. The *Tazetta Narcissi*, particularly the *Paper-white*, are plentiful in the market, but do not "take" so well as the bold, big yellow-flowered varieties. — Q.

Stanhopea eburnea.—For some reason the *Stanhopeas* are not very popular, even with those who make a speciality of Orchids. Some object to the overpowering fragrance of their flowers, and in some species this is certainly an objection, but on account of the noble character of the flowers of all the kinds and their quaint forms, they are amongst the finest of Orchids. One of the less common species, *S. eburnea*, is now in flower in the Kew collection, and its flowers possess a delightful fragrance, and not too strong. The flowers, too, are very showy, being large and with the sepals and petals of ivory whiteness, while the curious shoe-shaped lip is white and adorned with parallel lines of carmine-crimson dots. Suspended in baskets, the only way that *Stanhopeas* can be successfully grown, they have, from their dissimilarity to other Orchids, an interesting appearance when in bloom.

Popularity of Christmas Roses.—Never before has the white Christmas Rose been so plentiful or in such demand as it is this season. It is to be seen in all the leading florists' shops in London, and is made up into all manner of devices with other flowers and foliage, but is chiefly used for wreaths and crosses. The large size of the flowers, their exquisite form and pure whiteness are surpassed by no other flower at this season, and they last as long as Orchids. They fetch a high price, too, in market. On Christmas eve in Covent Garden single blooms were sold for twopence, so that those who hold large stocks of the best sort, which is *angustifolius*, are making a good thing of them. The *altifolius*, or *maximus* variety, which has beautifully formed buds of a delicate pink, sell

briskly; excepting in perfume, they are equal to Rose-buds. One of the prettiest arrangements of the white Christmas Rose was a wreath of open blooms and buds with a groundwork of bronzy Ivy leaves. The largest blooms are rather too big for coat bouquets, but for ladies' head or dress flowers they are matchless. This is another instance of the growing popularity of hardy herbaceous flowers.

Lachenalias in baskets.—*Lachenalias* are generally grown in pots, but sometimes we find them in baskets, and for this method of culture they are of great use. At Wimbledon House there are several large baskets filled with the old *L. tricolor*, suspended in one of the houses, and the leaf-growth they have made is robust and glossy green, forming quite an ornamental feature in itself. This, however, in a short time will be supplemented by a profuse show of flower-spikes, as these are now appearing. The bulbs are planted moderately thickly, and the whole of the baskets are enveloped in leafage. Those who have hitherto only grown *Lachenalias* in pots should make use of them as basket plants, as although this is an old way of cultivating them, it is not carried out so much as it ought to be. We can hardly imagine few prettier or more effective features in a greenhouse in the winter than a basket, or several of them, if the structure is large, occupied with *Lachenalia tricolor*.

Cypripedium Lindleyanum.—This species is a recent introduction, and is both novel and rare. It is a bold-growing plant, with broad, shining green leaves, narrowly bordered with yellow. The scape is some 4 feet high and panicked, the sepals and petals being clothed with short brown woolly hairs, the dorsal sepal greenish yellow, prominently streaked with reddish crimson. The lip is narrow, compressed at the base, pale greenish yellow, and veined with crimson, the border broad and incurved, being heavily freckled and dotted with crimson. It appears that this plant was discovered by Sir Robert Schomburgk nearly half a century ago, but has only recently been introduced, in a living state, by Mr. Sander, of St. Albans. I recently noted it flowering in Mr. Measures' collection at Camberwell; one, a large plant, was blooming profusely in a cool house, while the other, a smaller one, was in a somewhat higher temperature. — W.

Chrysanthemum Governor of Guernsey.—I have much pleasure in sending you two flowers of my new *Chrysanthemum*, Governor of Guernsey, which was awarded a first-class certificate by the National Chrysanthemum Society, and one by the Royal Horticultural Society two seasons ago. The flowers, as you will see, are almost gone, owing to the vitiated atmosphere of the Aquarium, where they have been for two days. — T. S. WARE, *Tottenham*.

* * We saw this new variety exhibited at the show, and considered it an excellent addition to the late class. The flowers are of medium size, full, and of a fine clear yellow self colour, the florets pointed and arranged in the fashion of a bloom of Peter the Great type. It has also a long season, as it was in condition in the autumn. Such novelties as these are worth certifying. — ED.

The Tangier Iris, *Iris* (*Xiphion*) *tingitana*.—I send you an *Iris* which has been in flower some time. There is a second bud which will open if put in water. The first flowers opened about ten days ago, so it has the merit of blooming early. This *Iris* was brought to me from North Africa and blooms in the month of February. The plants are in quite a cold house. I thought it might be interesting to you. I have it out of doors as well, but though growing strongly, it has not yet shown flowers. I got the *Iris* last autumn. — OLIVE ARDILAUN, *St. Ann's, Clontarf, Co. Dublin*.

* * The Tangier *Iris*, kindly sent, is a beautiful flower, found by Dr. Hooker and Mr. George Maw in North Africa, and figured in the *Botanical Magazine* (plate 6775). It has a flower as large as the German *Iris*, of delicate, soft colouring, the upper segments pale lavender, the lower richly coloured with a yellow central band; the spreading lip pure white. It is an *Iris* that ought to become com-

moner than it is, as it blooms early, when such choice things are scarce. The growth is tall and robust.—ED.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

Scientific Committee.

Hybrid Rhododendrons.—Messrs. Veitch and Sons sent five hybrids between East Indian forms, interesting as showing the effects of colours. The crosses were as follows: 1, Female, Rhododendron jasminiflorum, from Malacca (white); male, R. Curtisi, from Sumatra (small and scarlet). Hyb., scarlet corolla, a little broader than that of the male parent. Effect: male transferred colour and form; female had no effect. 2, Female, R. jasminiflorum (white); male, R. javanicum (orange-yellow). Hyb., R. j. carminatum (bright red). Effect: male transferred the red colour, but the white female eliminated the yellow. 3, Female, R. Maiden's Blush (very pale pink); male, R. Teymanni, from Sumatra (pale yellow). Hyb., R. Primrose. Effect: yellow male transferred colour, unaffected by female. 4, Female, R. Princess Alexandra (large and white); male, R. Curtisi. Hyb., R. Eclatant (bright red). Effect: male, transferred colour, female imparted size. 5, Female, R. Monarch (a hyb. from javanicum, but of a more pinky tinge to the orange); male, R. Malayum (very small, diameter three-quarters of an inch, but bright red). Hyb., Little Beauty (diameter 1½ inches, bright red). Effect: male transferred red, and eliminated the yellow. The general results observable are: 1, the prepotency of the red male flowers and the impotence of white females to affect the offspring. When yellow is present—e.g., in orange, then either white or red can eliminate it (Nos. 2 and 5). The Princess Alexandra (female white of No. 4) arose in a similar way. A cross between the larger-flowered R. javanicum (orange) with the smaller, R. jasminiflorum (white), gave rise to Princess Royal (rose), the yellow disappearing. A further cross of the last with the parent, R. jasminiflorum, now eliminated the red; the offspring, however, retained the form and large size of the corolla of Princess Royal and R. javanicum. Mr. O'Brien observed that a similar elimination of yellow had occurred in Begonias, for B. Sutherlandi (orange) crossed by B. parvifolia Dregei (white) had given rise to a red-flowered offspring. Abutilons afforded another instance.

Rhododendron Carringtonia.—Baron von Mueller sent a description of this new species, which occurs on almost inaccessible declivities of Mount Obree, at elevations of 6000 feet to 7000 feet. The corolla is white (from *Viet. Naturalist*, Nov., 1887).

The Silver Fir Æcidium.—Mr. Plowright sent the following communication with specimens:—

The extreme tips of the branches of the Silver Fir are often found bare of leaves and variously swollen and distorted. This condition has been assumed to be the result of injury from their having been bitten off by squirrels or other animals. In the specimens sent herewith, which have been given to me by Mr. H. Munro, of Cleveland, Lyme Regis, the mischief is caused, not by animals, but by a fungus, the so-called *Peridermium columnare*. Robert Hartig worked out the life history of this fungus in 1880. He found that the *Æcidium columnare* A.P.S. is a heterocercal fungus, the teleutospores of which occur upon *Vaccinium Vitis-Idæa*, and are known to mycologists under the name of *Calyptospora Goepfertiana* (J. Kühn). The *Calyptospora* is not a British species, so that it is difficult to account for the presence of the æcidiospores, R. Hartig, *Forst und Jagdzeitung*, 1880. "Lehrbuch der Baum Krankheiten," pp. 56 to 61, t. ii. Prof. J. Kühn has, however, recently repeated Hartig's culture with this result. He finds that there are two *Æcidia* on the Silver Fir, the true *Æc. columnare* of Abertini and Schweitz, which has for its teleutospores *Calyptospora Goepfertiana* and another *Æcidium* much resembling *Æc. columnare*, but with a different life history. This *Æcidium* he proposes to call *Æc. pseudo-columnare*, and it is most probable that the fungus which has injured the accompanying shoots of Silver Fir is Kühn's plant.

Potato with incarcerated beetle.—Mr. Maclauchlan exhibited a Potato perforated and with a large in-

ternal cavity. A predaceous beetle, *Pterostichus madidus*, had somehow entered and apparently could not escape. The lining of the cavity, which had seemingly been excavated by some animal, was provided with a strong layer of cork cells.

Aluminium in plants.—Prof. Church called attention to the fact that though large percentages of this metal are well known to exist in Lycopodiaceæ, it was not hitherto suspected to be general in flowering plants. A Japanese chemist having discovered it in Rhus vernix, &c., in the gum of the lacquer resin, Prof. Church examined Cherry tree gum, gum arabic, tragacanth, &c., and found traces to be invariably present. In the *Analyst* for January it is stated that it is also invariably present in the gluten of Wheat, in this case as a phosphate of alumina. It does not occur in association with the starch. From the precautions taken it could not have been due to the millstones. In all cases it is probably accidentally absorbed by the roots and plays no part in vegetable physiology.

Orthesia insignis, "Coccus" on Strobilanthes.—Mr. Morris exhibited specimens of this newly discovered "bug" on *S. cuspidatus* from the economic house at Kew. It has been described and figured in the "Journal of the Quek. Mic. Club," vol. iii, p. 169. Mr. Michael observed that its habits did not agree with those cocci of which the larvæ lie dormant beneath the parent, but the young were always very active. The genus was, in fact, on the border of the coccidæ, and its nearest ally was iceria. A discussion followed as to the nature of the secretion of wax. It is generally believed to be renewed, the length of the secretion depending upon the age of the insect. Mr. Browne, in the paper alluded to, says it is spreading, and is now found on *Scutellaria*, &c., in the adjoining house at Kew. Mr. Lynch added that apparently the same species attacked *Acanthaceae* plants.

Clerodendron, n. sp.—Mr. Morris exhibited shoots of a new species received from Sir J. Kirk from Zanzibar. It is remarkable for having the basal parts of the leaves much thickened and curved for the purpose of support. The upper half of the petiole carrying the blade can oscillate, and becomes detached. It does not appear to be sensitive, but resembles the hooked peduncles of *Uncaria* and stipules of *Dipladenia*.

Pomegranate (English).—Mr. R. J. Lynch showed a small fruit, about 1½ inches in diameter, grown on the walls of Emanuel College, Cambridge.

LAW.

DUNSDON V. MOSS.

THIS action, heard in the Queen's Bench Division on Monday last before Mr. Justice Stephen without a jury, was brought by John Dunsdon, of Farzedown Farm, Streatham, Surrey, market gardener, against Arnold Moss, of 39, King William Street, London (trading as Jacob Wrench and Sons), for the sum of £500 damages alleged to have been sustained by plaintiff for loss of crop of Early Rainham Cabbage grown from seed supplied by defendant in 1886.

Mr. Lockwood, Q.C., and two juniors appeared for plaintiff, and Mr. Tindal-Atkinson, Q.C., and Mr. Earle appeared for defendant.

The plaintiff stated that he bought a certain quantity of Early Rainham Cabbage from defendant's firm in July, 1886, at a cost of £2 5s., sowed the whole of it on one day, viz., 22nd July, finally transplanting the produce on to 21½ acres of his land during the months of September, October, and even November following. He affirmed that the land was properly prepared for such a crop. The result of his experience, he stated, was that instead of having a good crop of marketable Cabbage in June, 1887, he had a crop of "wild things" all running to seed, which, he said, was an admixture of Savoy, Kale, wild Broccoli, and Brussels Sprouts. His claim was at the rate of £22 per acre for rent, rates, taxes, manure, labour, and other expenses; in fact, for total loss of crop. When cross-examined by Mr. Atkinson he admitted that he had sold bunched Cabbages off these particular lots of land

amounting to perhaps £8 per acre, and he could not swear it might not have been over £10, but he had not kept any account whatever of this money; also that he had, in addition to plants obtained from Messrs. Wrench's seed, procured some from a neighbour and planted these in the middle of one of the fields, and included this in his claim against plaintiff; that early sowing might cause Cabbages to run to seed the following summer, but early Cabbages always fetched more money than late ones.

Four or five market gardeners were called on his behalf as witnesses. Each declared the same thing, viz., that he had never seen such stuff before as the plants on these 21½ acres, but eventually, in cross-examination, admitted that the runners might possibly have come from Early Rainham Cabbage, and that early sowing, combined with the exceptional winter of 1886-87, and the peculiarly cold spring of 1887, followed, as it was, by a sudden change to mild and fine weather, might have caused any Cabbages to run to seed instead of forming heads.

At the conclusion of the plaintiff's case, the learned judge said that it was quite useless to continue the case further, as plaintiff had entirely failed to make out his claim in any way, and, without calling on the defence, gave a verdict for the defendant with costs, remarking that had there been a jury in the case to whom he would have had to sum up, he should have used a few very strong expressions as to his opinion of the evidence of some at least of the witnesses called by the plaintiff.

Ivy dying.—I herewith send diseased Ivy leaves, and would be glad to know what the disease is, and a cure for the same. The disease commenced some three years ago, and has gone on from time to time, breaking out in fresh places on Ivy banks bordering a carriage drive (soil sand and gravel, and with various aspects), and within the last three weeks a plant on the house has a patch of the disease. The leaves first get a spot, and gradually becoming brown all over, fall off, and the shoots ultimately die.—A.

* * In reply to "A," I have carefully examined the Ivy leaves, which are decaying in a very remarkable manner. I can find no insects on them, nor any traces of them. They are attacked by a fungus, but whether it is the cause of the decay or not I cannot say, but I should fancy not.—G. S. S.

Iris ruthenica.—In answer to "F. W. B.," in THE GARDEN, Jan. 14 (p. 26), there should be no difficulty in obtaining this plant, as it is offered in Mr. Ware's catalogue, and grown successfully at the Tottenham Nurseries. The secret in growing it successfully seems to be that it should be moved in spring when it starts into growth, as when planted in autumn it generally fails.—G. R.

I see that "F. W. B." inquires as to where *Iris ruthenica* can be procured. I will give him a plant or two, as it grows well here in dry sandy soil, and does not appear at all difficult to cultivate. It is certainly a gem, and does not lose anything by comparison with *I. Niphion*.—WALLACE MORSE, *Epsom Nurseries*.

The late M. Lacharme.—French horticulturists are getting up a subscription for a monument to the late M. Lacharme, who raised so many beautiful Roses. Subscriptions are to be sent to M. Bernaix, 63, Cours Lafayette, à Villeurbanne, Lyons.

A. H.—Your Apples appear to have been touched by frost.

Names of plants.—*W. Hills.*—*Clematis graveolens.*—*J. Morris.*—*Odontoglossum cirrhosum.*—*J. Lawrie.*—We do not name florist's flowers.—*Sholto.*—1, *Dendrobium endocharis*; 2, *Maxillaria luteo-alba*; 3, *Cypripedium Harrisianum.*—*J. W. F.*—1, *Odontoglossum cirrhosum*; 2, *Dendrobium bigibbum.*—*T. Jackson.*—1, *Odontoglossum aspersum*; 2, *Cypripedium Ashburtoniae.*—*H. B.*—Both forms of *Odontoglossum Rossi.*—*Donald (Edinburgh).*—*Odontoglossum cirrhosum.*—*Tony (Canterbury).*—1, *Erica herbacea*; 2, *Jasminum nudiflorum.*—*M. T.*—*Odontoglossum odoratum*; medium form.—*Fernery.*—1, *Asplenium Petrarchæ*; 2, *Neottiopteris australasica*; 3, *Adiantum Wilsoni*; 4, *Myriopteris lendigera.*—*J. B.*—1, *Lopholepis piloselloides*; 2, *Sitobium Pavoni*; 3, *Diplazium zeylanicum.*—*Alexander Trail.*—The flowers were unfortunately very much bruised, but it is without doubt a good form of *C. Veitchi.*—*G. B.*—*Lycaste lanipes.*

WOODS & FORESTS.

TREES FOR MARSH AND MOUNTAIN.

THE common Birch (*Betula alba*) is in some respects rather a remarkable tree, as it not only combines the ornamental with the useful to a large extent, but is also capable of growing and reproducing itself on all classes of soil and situations from the boggy swamp up to the highest position where trees will live. This ought to be a great inducement for planters to use it largely in planting marsh ground and clothing cold, wind-swept hill-sides and bare northern exposures. The weeping variety of this tree, when raised from seed collected from the best trees in the highlands of Scotland, is highly ornamental, and may be used by the landscape gardener for the embellishment of the pleasure grounds and the improvement of park scenery with the best results. Whether planted as a single specimen on the lawn or mixed with other trees in masses, its light, airy, and graceful contour never fails to arrest attention. The seeds are ripe and ready for collecting during September, and may be sown at once or kept in a dry, airy place till spring, turning them occasionally to prevent moulding. In spring they should be sown on thoroughly prepared ground of a light, sandy texture, and as they are of a small size they should be but sparingly covered with soil. When the plants are of sufficient size they should be planted out in nursery lines and allowed plenty of space to encourage the formation of stout, stocky young trees. The powers of natural reproduction of the Birch are very great. Young trees of some 10 feet high and upwards are often loaded with seed, and as these are of a light texture, they are easily wafted away by the wind to a considerable distance and lodged upon the surface of the ground and in chinks and fissures of rocks, and although there is sometimes very little soil on such places, yet the seeds germinate freely, and it is both instructive and interesting to watch their progress and the tenacity with which they will struggle for life under adverse circumstances.

On a piece of bog land on an estate in the north of Ireland the proprietor had a lot of Birch trees planted here and there rather widely apart, with the view of improving the dull, sombre appearance of the place, but as soon as these trees got rooted and established they began to produce seed, and within a short period the surface of the ground was found to be well stocked with young seedling trees. These have been thinned several times, and at present there is a fine crop of trees upon the ground. Although the Birch does not attain a very large size on bleak, exposed situations, yet it can be grown pretty thickly upon the ground, and as the wood is principally used by the turner for making spools and other purposes, all shapes and sizes of trees are looked after and command a ready sale. Many years ago, the price which I realised for this class of timber delivered at the wharf for shipment was from 8s. to 10s. per ton, but the supply being unequal to the demand, the price gradually rose, and recently I have never sold any for less than 12s. 6d. per ton. After deducting 2s. 6d. for preparing and delivering the timber at the wharf, the proprietor has a balance of 10s. as the value of his timber. The ground, whether marsh or mountain, capable of producing this class of timber is in many cases utterly valueless, and when the small amount of capital required in the formation of such plantations, either by sowing the seeds or planting, and the permanent income to be derived from such a source after the trees are established are taken

into account, I have no hesitation in saying that such ground could not be turned to better account. In planting moor ground with this tree I have used two years' seedling plants from the seed bed with perfect success. The plants were inserted by the notch system at a distance apart of about $2\frac{1}{2}$ feet, or nearly 7000 plants per acre. Thick planting and early thinning are generally practised on cold, bleak exposures at a high elevation. The cost per acre in this case did not exceed 30s., as the ground was dry and hilly and required no draining. Marsh ground that contains pools of stagnant water requires to be drained, and the extra cost in this case depends altogether on local circumstances and the amount of drains required to render the ground dry and firm. Although the Birch grows in damp, wet ground, yet it is an advantage to have it drained, as the trees will attain a larger size, and in course of time will pay for any extra expense incurred in this way at the time of the formation.

When the trees are used for ornamental purposes and in the formation of plantations for immediate effect, it is better to use transplanted stuff that has been well prepared in the nursery, and in cases where expense is only a matter of secondary importance, the ground had better be trenched and the subsoil well broken up and pulverised. The trees should then be planted in pits of sufficient size to allow the roots to be spread out to their full length, and as the Birch is naturally surface-rooting, or nearly so, care should be taken not to plant it too deeply, otherwise its growth and healthy development will be considerably retarded. When such trees become thoroughly established they sometimes require pruning, in order to keep them in proper shape. When several shoots make their appearance at the top of the tree, these should be cut off with a sharp knife, leaving the best and most central for the permanent leader. When this tree is pruned in spring or early summer, it suffers considerable damage by bleeding, which should be guarded against by performing the operation in the end of July or August. In choosing plants in a public nursery, the weeping variety may be known from the common by a small whitish tick here and there on the bark along the stem and branches.

J. B. WEBSTER.

The Alder.—J. B. Webster, in THE GARDEN, Jan. 14 (p. 44), has done good service in calling attention to the value of the common Alder as a quick-growing tree with which to plant waste and unprofitable land, as it will thrive equally well on soils that are wet, either peat or clay. In the autumn and winter of 1881 I planted several acres of land quite unsuitable for agricultural purposes with Larch and Beech. One part, however, which consisted of a wet, spongy clay, was planted with Alder, the trees being about 3 feet high. I measured one this day, and found it was 20 feet high, one of the tallest Larch, planted at the same time on better land, measuring 11 feet high. The Alder is put to many uses, broom and mop handles being made of it; while the charcoal it produces is used in the manufacture of gunpowder. For the above purposes large quantities are worked up in the neighbourhood of Newbury.—R. M., Yattendon Court.

The Tulip tree.—A writer in THE GARDEN expresses his surprise that the Tulip tree (*Liriodendron*) is recommended for timber, although he admits that some strongly favour its use. If he could see some of the specimens which formerly grew in Western New York and some of the Western States, he would be still more surprised at its product of valuable lumber. Some years ago a tree grew on the farm of H. D. Lyon, two miles east of the village of Aurora, Cayuga County, N.Y., which measured about 7 feet in diameter. It was cut down and sawed into 15,000 feet of boards, which constituted the entire exterior covering of a large farm barn. Earlier in the present century another tree,

three miles distant from this one, was felled, the stump measuring 6 feet in diameter and the height 124 feet. It furnished a large amount of fine timber, and the annual growth being quite distinct on the stump, it was found to have been ninety years old when Columbus discovered America. Bryant, in his excellent treatise on forest trees as growing in the Western States, says that the Tulip tree sometimes attains the height of 140 feet, with a diameter of 8 feet or 9 feet, and, with the exception of the Buttonwood, is the largest deciduous tree of American forests. In Hough's "Elements of Forestry," the author states that it grows to a magnificent size, in good situations reaching 100 feet or even 150 feet in height, and from 6 feet to 9 feet and even 10 feet in diameter.—*Country Gentleman*.

THE WHITE CEDAR.

(*CUPRESSUS THYOIDES*.)

RARELY is it that this handsome Conifer is seen in anything like good form, yet the aspect of a fine specimen pointed out to me lately fully corroborated an old idea that I had about the value of this Cypress, or Cedar, as an ornamental tree, even in the colder portions of the British Isles.

The specimen to which I refer is growing in a peaty loam and in a well-sheltered piece of ground between two plantations of Birch, the aspect being northern. Side by side, but at good distances apart, are growing along with this white Cedar some of the largest, best-furnished, and most healthy-looking trees of the old genus *Chamaecyparis* that I have ever seen, specimens that have created a feeling of jealousy in the minds of more than one of our Conifer lovers. My object at present is, however, to point out the particular class of soil in which this interesting and rare Conifer does well, for, judging by the half-starved and only partially-furnished specimens one generally sees, even in mild southern districts, its cultivation is certainly not well understood. It delights in a dampish, even damp loamy peat, and will even put on its best form in pure, but partially-reclaimed peat, and the fine specimen above referred to is growing in the latter class, and at not a hundred yards distance from an old and gnarled Birch, whose lofty head and ample proportions testify to the fact that it also is quite at home under similar circumstances to those which suit so well the distinct white Cedar. At the time of planting a large pit was dug for the Cedar, and a portion of the peat substituted by loam and road-scrappings, all three well mixed together and finely broken up, and in this compost has grown what I consider the finest specimen of the white Cedar in this country.

Let us now compare with this tree another of the same kind, but planted in light soil of a gravelly nature, and where but little moisture is present, and note the difference, for, instead of the bright, healthy foliage and well-furnished stem, a gaunt, semi-starved appearance and thin, pallid foliage are the only reward for nearly a quarter of a century's coddling and care. To have this tree in perfection it is, therefore, well to remember that it is only suited for planting in damp ground and at low elevations, light, sandy soil soon causing even the most healthy plant to assume anything but a pleasing or desirable appearance. Upwards of 150 years ago (in 1736) this Cypress was introduced by Peter Collinson, and yet it is, comparatively speaking, a rare tree, and this probably owing to its being planted in soils and situations that were unfavourable for its perfect development. At all stages of its growth, and when in the flush of health, this Cypress is a tree of great beauty, the evenly spreading branches, rich glaucous foliage, and dense pyramidal outline being its chief characteristics. As a timber tree it will not likely be of great value in this country, although in its native Canadian wilds it is highly prized, the wood being light, fine grained, easily worked, and remarkable for its lasting qualities. For articles of domestic use it is much sought after, and enters largely into the manufacture of tubs, pails, and other utensils where strength and lightness are the main requisites, while fences erected of the white Cedar are almost indestructible.

A. D. W.

No. 845. SATURDAY, Jan. 28, 1888. Vol. XXXIII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

TOO MANY PEARS.

A NURSERYMAN told us the other day that he had about 240 kinds of Pears! But he had only a stock of one that we should consider, beyond all doubt, a first-class fruit for Britain! No wonder, owing to the confusion of too many kinds! The grafting, budding, and keeping in good condition of so many are beyond the powers of any nurseryman who has other work to do. Everlasting recommendation of novelties untried in, or unfit for, our climate lands us in the absurd position of having a great number of kinds, learned books on distinguishing them, Pear congresses to add to the number, and no good fruit! That is the truth of most of our gardens, and the statement cannot be doubted by those who know what is done in other parts of Europe. The supply in our markets, beyond the few common early kinds, is ridiculous. Some good Pears come from France in the autumn, but after Christmas it is rare to see any good Pear but Easter Beurré in the markets, and these are grown on walls in France. Among the kinds in the nursery in question, while one could not find Pears suitable for growing in England, there was Duchesse d'Angoulême, an excellent Pear in France, but of no use in our country, and only to be grown by coddling, and then the fruit is nothing compared with what it is in Touraine. Those who want to know this fine fruit at its best should get it as it comes in boxes in the autumn to Covent Garden, and if they compare the best fruit with what one sees in England, they will see it is like other Pears which we have accepted at their French and Belgian valuations, but which are not suited for our country at all.

Among the great number of known kinds it is possible to get a few suitable for our country. Wherever one goes in fruit-growing districts he generally sees a leading sort which does satisfactorily, as, for example, the Duchess in the case we mention, Easter Beurré on walls in France, grown so largely and paying so well, and the Newtown, Baldwin, and Northern Spy Apples in America.

The very number of kinds cultivated would prevent good fruit being grown. Although they all belong to one species, it is curious the differences amongst them, and the different treatment they require for their perfect fruiting. Either for market or the table only the best should be grown. Pears require a certain amount of study and labour before knowing the wants of each kind, and that could not be given to many kinds in any one garden. One first-rate fruit for each month would be ample in a private garden. We should be very glad to find even one first-rate Pear, in February or March, in any English garden.

We should not accept anything like the miserable specimens of Beurré Rance, recently sent to us, as a fine type of a winter Pear for our country!

Rigid, intelligent selection should take the place of the old haphazard Pear congress, fat catalogue collection, and after that should come

the filling of our fruit-rooms and markets with first-rate fruit of our own growing. Really fine Pears at this season should be worth 12s. a dozen, and there would be no trouble in getting it in the market of any large city on the Continent or here. First-class Pear culture is worth doing for other reasons than the supply of our own tables. In these days, when some of the more important branches of our agriculture fail to pay, this may be worth considering.

The Pears below named are the beginning of our standard selection. If we could get a dozen as good we should be satisfied. Each is to be numbered, and we will stop at a fixed number, certainly not beyond twenty-five.

The gardener should know the good Pears by heart. It would be easier for him than moving about in a maze of trees, half of them unknown to him. What is not worth knowing is not worth growing, and no Pear is worth growing that is not first rate when you get it.

We cannot presume to teach the market grower, whose tenure of land is so uncertain, and who, to obtain quick returns, plants the Hesse Pear and the Keswick Codlin, and there often stops. But THE GARDEN appeals to private growers, who have seldom to face a short tenure.

Omitting very early Pears, which may be fancied by the grower, but which we will not count, we select:—

JARGONELLE.
MARIE LOUISE.
DOYENNE DU COMICE.
WINTER NELIS.
JOSEPHINE DE MALINES.

There is no doubt that some people may find these not all they could desire, but we have proof that they do admirably in various parts of the country, and they should be cultivated where they can be grown best.

The next thing we do will be to publish the history and culture of all the above, and we shall be glad if our readers, more particularly those in the north of England and Scotland, will give us any notes regarding them.

My selection of the six best Pears for the country generally (north and south) would be: Jargonelle, Williams' Bon Chrétien, Emile d'Heyst, fine, even in Scotland, the tree hardy and most fertile; Beurré Superfin, as fine as Marie Louise, certainly hardier; Josephine de Malines, Doyenné du Comice. These always ripen in an adverse season, and I omit Winter Nelis and Marie Louise, because the trees are very tender. Even large trees were greatly killed back by the last year's frost. Marie Louise is very fine on open trees—when you get it, but is often "turnipy" from a wall. My six are good anyhow.—G. BUNYARD, *Maidstone*.

I AGAIN venture to direct attention to the Jersey Gratioli Pear, hoping that some of your correspondents will give their experience of its qualities, as it appears to me very strange that its merits should have been almost entirely overlooked. I tasted it first in Jersey, and found it so excellent that I planted it without delay, and for the last twenty years, on the cold clay of Warwickshire, it has never failed either in quantity or quality. It ripens in long succession at a season when good Pears are not too plentiful, succeeding Williams' Bon Chrétien, and preceding the flush of October Pears. It has a very distinct and piquant flavour, is juicy, and more refreshing than any other Pear within my knowledge, and forms a handsome pyramid. Possibly, in explanation

of the general silence in reference to it, it may not realise this character on some soils, but I have no knowledge of its failure anywhere. I believe it deserves a trial in the most limited collection, as I do not know a dozen better Pears.—EDMUND TONKS, *Packwood, Knowle*.

ROSE GARDEN.

T. W. GIRDLESTONE.

ROSE STOCKS.

THE question of Rose stocks continues to be a fruitful theme for discussion, and has this season been again taken up with increased energy. There can be little doubt that the mass of evidence in favour of dwarf Brier as opposed to Manetti goes on steadily accumulating, although the latter recently found an unexpected advocate in one of the great trade growers who had hitherto been regarded as the particular champion of Brier cuttings. It must, however, be borne in mind that in speaking of stocks nurserymen are liable to consider only their behaviour as maidens, and that also chiefly in regard to their production of blooms available for exhibition; whereas innumerable amateur Rose growers do not exhibit, and are mainly concerned with the constitution of plants as cut-backs. For such growers the statement that plants on Manetti must be grown in order to obtain blooms in time for the early shows is entirely beside the point; for while it is an undisputed fact that maiden blooms are produced on Manetti earlier than on any other stock, and on seedling Brier latest of all, those on Brier cuttings coming midway between, yet it is equally notorious that, as established cut-backs, there is no appreciable difference in the time of flowering of plants on the three stocks.

When it is contended in favour of the Manetti that a collection of Roses on this stock planted more than twenty years ago is still flourishing, there is a temptation to ask the names of the varieties included, and also whether they have been examined to see if the roots are still those of Manetti or are the scion's own. There are not many of the Hybrid Perpetuals now most universally grown that would have been very generally distributed by the year (say) 1865, while there were many sorts now rarely seen but then in vogue which were vigorous enough to grow luxuriantly on any (or no) stock. It must also not be forgotten that plants that were originally on Manetti and are still flourishing are often found in reality to be on their own roots, the stock having long since perished.

In the interesting series of papers on the subject of Rose stocks in the recently published "Rosarian's Year-Book," the Rev. J. H. Pemberton puts the whole matter in few words when he says: "For permanent plants, grow seedling Brier; for maiden blooms, grow Brier cuttings; for plants to bud from, grow Manetti." Here is the real merit of Manetti as a stock, so often previously alluded to—its horrid merit of convenience. Roses on it make magnificent maiden shoots, which, when abundant buds for working have been cut from them, yet remain fine saleable plants; it is the easiest stock to multiply and to bud, but, says Mr. Pemberton, "as cut-backs, I do not like them. This, indeed, is their weakest point, for they lose heart when pruned either hard or long, and break very feebly." In the face of so strongly expressed an opinion from so able and extensive a grower as the ex-amateur champion, such points as the tendency to coarseness in maiden blooms on Manetti and the impossibility of growing on it either Teas or Noisettes or many of the smooth-wooded Hy-

brid Perpetuals out of doors appear quite minor details. But even the would-be apologist for the Manetti has to admit that it "has this disadvantage—the plants are more liable to mildew and rust, and go off flower quicker than those on Brier" ("Rosarian's Year-Book," p. 20).

Nor, judging from the same series of papers, is it only in the south that the Manetti is unpopular, for it seems even more disliked in South Yorkshire than in Berks and Essex; and though Mr. Burrell points out the desirability of growing plants on Manetti in old gardens where the soil is rich in humus in the cooler northern districts, yet he seems to believe in the Brier for Cambridgeshire. Mr. Mawley in the opening paper gives, in a table drawn up with his usual clearness and precision, the results of growing identical varieties side by side on Manetti, seedling Brier, and cutting Brier, in his Hertfordshire garden, which prove the first-named to have finished an exceedingly bad third in a field of three.

It is not worth while to go into details about varieties that will grow on Manetti, but there is one Rose which amateurs almost everywhere will be endeavouring to increase their stock of, and which they will certainly find it desirable to bud on Brier in preference to Manetti, namely, Her Majesty, in whose case there seems no question that Manetti spells "mildew." By the end of the summer plants of the great Rose on this stock were leafless, and the upper part of their shoots so white with mildew as to give the impression that they had been whitewashed. Moreover, some forty plants had not provided more than one or two blooms that were not too rough and coarse to exhibit; whereas an equal number on Brier cuttings close by all carried good, well-finished flowers, retained their foliage, and did not get mildew until they caught it from the plants on Manetti.

SEEDLING ROSES.

THE experience of Rose growers in regard to the raising of Roses from seeds and their conduct afterwards, as recorded in THE GARDEN, Jan. 14 (pp. 27 and 28), is likely to prove as useful as it is interesting. As the American writer remarks, there is no mystery about the raising of Roses from seeds. The chief mystery as well as barrier to success is the prevalence of mildew among the youthful seedlings. Unfortunately, too, it seems as if the finer strains and the more choice the varieties, the more subject they are to mildew. Be that as it may, the strongest and most robust-growing seedlings are, as a rule, worthless. So implicitly is this believed by some, that the strongest and longest-jointed seedlings are rogued out to give more light and air to the weaker ones with greater possibilities of quality. It would be most interesting as well as useful to have the experience of such successful raisers as Mr. Bennett, the two Pauls, and others. It has also been suggested that there seems at times something like a connection between vigour and singleness as well as colour, though there is hardly sufficient proof to sustain the assumption that the more precocious the growth of seedling Roses, the fewer the petals and the higher their colours.

It would also be interesting to learn how far single or semi-double Roses may be doubled by time and culture, and how much has been done in this direction. As the single Roses have mostly been rogued out as soon as seen, it is feared that this field for improvement has been but scantily cultivated, if at all. It is hoped that the growth of single Roses now becoming fashionable in gardens may at least afford time for the transformation of some of the more promising single Roses into double or semi-double ones; while it is certain that not a few of the many thousands of single Roses discarded at sight might have proved well worthy of a place in bed, border, or shrubbery. The latter might have been in fact marvellously brightened up and

improved had the thousands and tens of thousands of brilliant single Roses destroyed at sight been planted in the shrubberies and allowed time and space for development.

Who shall estimate what we may have lost of vigour and colour among our seedlings through our unwillingness to afford them time and area for their development. Is there any rule of nature or canon of art that must needs cut, curb, cabin and confine a Rose—single or double seedlings, or otherwise—into the narrowest limits, while allowing free scope and most ample area for the fullest natural development of Box, Yew, Laurel, Lilac, and indeed all other shrubs? Only those who have seen single, or semi-double, and some of our freer double Roses, clothed with all the imposing dignity and matchless grace with which Nature endows them when emancipated from the curbing and cuttings of art, can form the faintest idea of their artistic merits for forming landscapes.

It is more than probable, too, that were all the more vigorous seedlings afforded a chance of making semi-wild groups on lawns, in shrubberies, or home woods, some of them would develop new features of habit, vigour, hardness, beauty, or fragrance that would render them specially valuable for the enrichment and enlivenment of existing landscapes or the formation of new ones.

Every advance in the way of fragrance should be carefully noted and jealously preserved. It may be true that a Rose by any other name would smell as sweet, though I doubt it. But a Rose that does not smell at all is hardly worthy of its name—in fact, little better than a gay impostor—while those that smell something like semi-putrid water or bad meat—Queen Flora, forgive the comparison—should be rooted out and destroyed. Were our raisers of seedlings as intent on new odours, and the enriching and deepening of old ones as they have been in spreading out the petals like pancakes, or heaping petal on petal until, through their prodigality, promising blooms have been wrecked in dire confusion, or their hearts hardened into frightful abortions, then, indeed, would our roseries out of doors and in have been infinitely sweeter than they are to-day.

Say, ye great enrichers of our Rose gardens at home and abroad, is it any more difficult to produce or enrich an odour than paint a colour, control a form and impart substance to a Rose? or is it because odours do not tell in prizes that while most other qualities have advanced more or less rapidly, the odours of Roses have been almost stationary or retrogressive. Here is a good field for the National Rose Society, and I trust it will at once enter into its cultivation in one of two ways—either by offering liberal prizes at all its shows for stands of the most fragrant Roses, or excluding from its shows all Roses that are either not fragrant, or have a disagreeable odour. Then no Rose should be certificated by the Royal Horticultural Society or other authority unless it is fragrant. By such and other means Roses might be expected to improve as much in fragrance as they have done in colour, size, form, substance—in two words, quality and beauty.

D. T. F.

SHORT NOTES.—ROSES.

New Roses.—The number of novelties offered for the current season reaches the unprecedented total of more than 100 varieties, various raisers on the Continent contributing 93 varieties, of which one-third are Teas.

—The coloured plate in the *Journal des Roses* for January represents one of the new Roses of this season, *Souvenir de Mme. J. Métal*, described as a Tea, although it is evidently a climbing Hybrid, and appears to carry on the race of the Waltham climbers. The variety is said to have been raised from Mme. Bérard, fertilised by the Hybrid Perpetual *Eugène Furst*, and it should prove a valuable addition to the few good red climbing Roses, if it is as free from any dingy purplish shade as it appears in the plate, in which the half-expanded flower might be accepted as a faithful representation of the charming, but dwarf-growing Hybrid Tea *Cameens*.

Rose Madame Georges Bruant.—In the *Journal des Roses* for January there is also an en-

graving of the hybrid rugosa, *Madame Georges Bruant* (Bruant), which was raised from the red-flowered type, *R. rugosa*, fertilised by the pollen of the white *Tea Sombreuil*. This hybrid is attracting a good deal of attention on account of its novelty and distinctness. The plant is said to be as hardy and vigorous as *R. rugosa*, which it closely resembles in appearance; but the semi-double flowers are pure white, very fragrant, produced in trusses of from six to twelve, and the long buds are described as charming for cutting. As it is also said to be thoroughly perpetual, *Madame Georges Bruant's* appearance will be awaited with keen interest.—T. W. G.

PROPAGATING.

LILIES.—Sometimes on taking up a Lily bulb it will be found that, owing to an injury or to some other cause, the centre of the plant has become decayed, and nothing is left but a handful of scales. Should the bulb be one of *L. auratum* or of *L. longiflorum*, the probability is that each scale will have formed a small bulb, and while all Lilies more or less do this, the two mentioned above are far more prolific in this respect than any other kinds. It is therefore evident that if these small bulbs are placed under conditions favourable to growth they will continue to increase till they reach flowering size. *L. longiflorum* will do so without much trouble, but *L. auratum* is very fastidious in its requirements, especially during its earlier stages. We sometimes hear of this Lily being raised from seeds or scales and naturalising it in this country, but this is somewhat difficult, as failures are pretty frequent; meanwhile, the fact remains that an almost unlimited supply of young plants can be raised. It is a significant fact that the Dutch bulb growers do not send us any *L. auratum* nor the allied *L. krameri*, as they would no doubt do if they could grow them in that country, for the bulbs would arrive before those from Japan, and consequently, if good, command a fair price. *L. longiflorum*, on the other hand, grows freely from scales. There is, however, a great deal of difference in the varieties with regard to this matter, the slowest of increase being the long-tubed *eximium*, and the most prolific *L. Harrisii*. A good crop of this may be obtained by taking off any loose scales when potting the bulbs that are intended for flowering and placing them under conditions favourable to the formation of roots. In the case of large bulbs there are on the outside often two or three scales which are very loose, and can easily be removed without injuring the future display of bloom. Many of these scales are naturally jointed just in the middle, and when this is the case they may be at once broken in two, as each part will form a small bulb. These scales must be treated just like seeds, that is, placed as thickly as possible without touching each other in pans or boxes, and covered with light sandy soil. These pans or boxes must be drained thoroughly, and filled to within an inch of the top with a compost consisting of peat, loam, and sand, the whole sifted moderately fine. If placed in a gentle heat the young plants quickly make their appearance, when as soon as sufficiently developed they may be potted off. So quickly do they grow, that by the summer these young plants can be planted out, and will form nice little bulbs the first season; indeed, a few of the strongest will flower. Of course only a few will bloom early, and those that do so will only produce one puny blossom. A very good method, and one that gives far less trouble than this, is to prepare a place on a well-drained border and cover with a frame, as so treated the young plants will not need to be disturbed. In either case, if the place is thoroughly drained, it is better to leave the bulbs undisturbed the first winter, protecting them from frost with dry leaves, Fern, or some other material. So treated, the greater number will flower the next season, and in the autumn may be taken up, when they are available for potting and growing under glass for indoor decoration if required. Besides this method of increasing these varieties of *L. longiflorum*, many of the bulbs after flowering divide into two or three, while small bulbils are formed on the underground portion of the stem,

especially if they are buried rather deeply. Some kinds increase very rapidly by means of division, notably *L. elegans* or *Thunbergianum* and its numerous varieties, *L. umbellatum*, which is so largely imported from Holland every year, and *L. croceum*. Others, again, increase in this way, but very slowly, and of these mention may be made of *L. monadelphum*, *pomponium*, *tenuifolium*, and *pulchellum*. They, however, all produce plenty of seeds, which germinate readily enough. Those with creeping rhizomes, represented by *L. pardalinum*, *puberulum*, *superbum*, and *canadense*, are all easily increased by division; while some that can seldom be coaxed to grow are *L. Washingtonianum*, *rabescens*, *Humboldtii*, *columbianum*, and *Bloomerianum*. The small bulbils in the axils of the leaves afford a ready means of propagating the Tiger Lilies and *L. bulbiferum*, for wherever they come in contact with the ground they at once take root and commence to grow. T.

FRUIT GARDEN.

W. COLEMAN.

NIGHT VENTILATION OF FRUIT HOUSES.

THE advantages that may be derived from a regular system of night ventilation are not so fully appreciated by the rising generation of gardeners as they ought to be. Many young men having charge of fruit houses look upon a current of sweet, fresh air as an enemy, and most religiously close every ventilator and light when a shower of summer rain is falling, apparently oblivious to the fact that the moist, genial atmosphere which it produces is of more value than the close, high and dry temperature in which their trees and plants are compelled to languish. The past school of gardeners, who allowed a margin of 2° above and 2° below the hard-and-fast line, had at least one leg to stand upon, as they had old-fashioned houses, from which which they could not, if they would, exclude a constant percolation of fresh air at every lap, and those were not a few in the roofs, sides, and ends. But all this has passed away. Cheap timber and large squares of thick glass, duty free, now enable the horticultural builder to erect houses as impervious to the ingress of fresh and the egress of foul or heated air as a Wardian case, and so perfect now is their method of shutting out the gardener's best friend, that lively discussions on the shading or non-shading of Muscat houses are not unfrequent. In justice to the horticultural architect, it is only fair to say the arrangements for letting the fresh air in and the vitiated air out are on a very liberal scale; but the ability to reduce the temperature of a vinery to that of the external atmosphere on the hottest day in summer, by opening the top lights first to let all the rarified air out, and then creating a cutting draught by turning the front crank, is not ventilation; it is the foster-parent of scalding, rust, shanking, mildew, and red spider. And yet plants, like animals, require a continuous supply of fresh air; but it is by the front ventilators that it should be admitted, and in a way that it will pass under or through the stacks of hot-water pipes before it comes in contact with the occupants. It will then mingle with that of the house, and, provided the top ventilators are sufficiently open to allow vitiated air to escape, the house will be kept constantly full and the cutting draught will be avoided. I recollect, a few years ago, being taken through a range of double-glazed Orchid houses, in which the plants were by no means happy—neither was I, but was very glad to get out of the stuffy stew to inhale a breath of fresh oxygen. These poor Orchids had to endure it day and night, fortunately not for any great length of time, as the

owner found he must change his treatment, or lose his plants. The next time I passed through the same houses the bricklayer's chisel had been introduced, and a stream of deliciously fresh air at every few feet was working upwards from the ground line, or a little below it, and after threading the hot-water pipes it conveyed life-sustaining food to the plants. This front ventilation, by night as well as by day, is still going on, and Indian Orchids, to which a low night temperature and rough winds in their native habitats are no strangers, are as healthy and free flowering as any in the kingdom. If Orchids resent coddling, what shall we say in favour of the night ventilation of Pines, and Grapes, and Peaches? I say, and persist in saying, give them more front air; never mind the "chink" at the top, as it lowers the temperature and lets out the moisture when the occupants are actively feeding through the night. Let them recuperate in a fresh, free atmosphere in which the most delicate person can breathe and wish to linger, and although the mean temperature may run a few degrees too low for the express forcer, they will meet the morning light like giants refreshed; they will make up for time apparently lost, as they will stand and enjoy a high temperature when, for a few hours, the houses are closed with sun and moisture on bright afternoons. If Grapes and Peaches must be forthcoming by a certain date, it is easy enough to start a little earlier than usual, and to force from the outset with front air, especially through the night, increasing it as the season advances, always, be it understood, with or without the hackneyed top "chink," provided the house is kept full and not reduced to the condition of a room with the door and window wide open. Grapes, as a rule, under fair cropping, will then be free from spider and rust, black instead of red, and with a deep, dense bloom. Pines will not run to crowns a foot or more in height, and bud-dropping, of which we have heard so much of late, will be less prevalent in the Peach house. In the Cucumber and Melon house or pit the effect will be equally satisfactory, as a body of impure, stagnant air acting on the collars of the plants aggravates the disease, and is very often the cause of the much dreaded canker. These plants we know revel in tropical heat and atmospheric moisture, but the latter must not hang about to become stagnant and produce *confervæ* on the surface of the beds and walls, neither need it if proper attention is paid to ground-line ventilation.

Pears.—There are certain sorts of Pears which maintain their quality under very varying circumstances, and there is a general agreement amongst growers concerning them. Such, for example, are Jargonelle, Williams' Bon Chrétien, Louise Bonne of Jersey, Marie Louise, Doyenné du Comice—all of which must be included in any collection. In addition to the above, I may name others which can be grown successfully in this district. They are Doyenné d'Été, a very early, prolific little Pear, sweet and juicy in most seasons; Beurré d'Amanlis, B. Superfin, Fondante d'Automne, Beurré Hardy, Doyenné Boussoch, Glou Morceau, Beurré d'Anjou, B. d'Aremberg, Winter Nelis, Josephine de Malines, Knight's Monarch, Bergamote d'Esperen, Easter Beurré, Ne Plus Meuris, Beurré Rance, and Olivier de Serres. These are well-known Pears, and, where space permits, should obtain a place and the protection of a wall. In addition to the above I have grown with more or less success, according to season, Gansel's Bergamote, Seckel, which passes away too quickly to be of use; Brown Beurré, Conseiller de la Cour, Beurré Dubuisson, a little-known, but excellent Pear; Huyshe's Victoria, and Prince Consort, good last year; Fortunée Belga, Beurré Diel, Duchesse de Mars, Beurré Suprême, Ne Plus Meuris, Prince Napoleon, Doyenné d'Alençon, Ur-

baniste, Van Mons Leon Leclerc. Larger Pears, such as Souvenir du Congrès, Pitmaston Duchess, Duchesse d'Angoulême, General Todtleben, President Alphonse, Beurré Clairgeau, have the merit of size, but are deficient in quality. Souvenir du Congrès may be excepted, but it passes so rapidly from ripeness to rotteness, that unless watched by the hour the right moment for taking it at its best is lost. If my collection were to be limited to twelve sorts, I should grow Jargonelle, Bon Chrétien, Beurré Superfin, Marie Louise, Beurré Dubuisson, Doyenné du Comice, Beurré d'Aremberg, Winter Nelis, Josephine de Malines, Knight's Monarch, Easter Beurré, and Beurré Rance.—W. I., *Belvoir*.

GOOD PEARS.

BEING very much interested in the discussion now taking place in THE GARDEN as to the merits of various Pears suitable for general cultivation, I send you the following notes:—

My experience of the different varieties was principally gained when gardener to the late Earl of Chesterfield (better known as Sir H. Scudamore-Stanhope), of Holme Lacy, Hereford, who made the cultivation of the Pear a special study both in this country and in France, where he resided for several years. The soil at Holme Lacy is well adapted for Pear culture, so that if a variety had any merit as regards flavour, it had every chance. The Duchess and Easter Beurré were grown under various forms and aspects, in all of which the former was always gritty, but very prolific. The Easter Beurré was seldom melting, and when it was fit to eat my late employer used to say that the flavour was not equal to that of the fruit grown in France. As a rule I have found that the handsome large Pears are deficient in flavour. The vinous-flavoured Pears were the favourites. Such varieties as Williams' Bon Chrétien and Gansel's Bergamote were not allowed to be sent to table. Out of over 200 varieties the following were about the only varieties that were considered worthy of being used for dessert: Beurré d'Amanlis, Louise Bonne of Jersey, Beurré Superfin, Beurré Hardy, Marie Louise, Thompson's, Doyenné du Comice, Beurré d'Aremberg, Winter Nelis, Glou Morceau, Josephine de Malines, Bergamote d'Esperen, and Olivier de Serres, and these we could rely upon annually. I consider that there would be no difficulty whatever in confining the number to twenty-four. For my own part, I do not think a collection would be complete without Jargonelle and Williams' Bon Chrétien. Beurré de Jonghe is a good Pear, and if it was generally cultivated, I believe it could be reported on favourably. Fondante d'Automne is a delicious Pear when taken at the right time, and by gathering it at intervals the season may be prolonged. I know that the birds attack it sooner than any other variety. Zephirin Grégoire with us had a tendency to rot at the core. Beurré d'Aremberg comes much better flavoured and finer on the Pear stock than on the Quince, and the same may be said of Winter Nelis. Beurré Superfin is much better flavoured when grown against a trellis or as a pyramid than when grown against a wall. I do not think any late Pear should be condemned if only grown as a pyramid or bush; they are better from a south or west wall. As a rule those varieties which ripen say up to the middle of November are better flavoured in the south when grown against a trellis or as pyramids. The Seckel is appreciated by many people, and I think it is best when grown in the open. A YOUNG.

Abberley Hall, Stourport.

Medlar preserve.—Mr. Rivers, of Sawbridge-worth, exhibited before the fruit committee of the Royal Horticultural Society on the 10th inst. a pot of Medlar jam, which was pronounced delicious. The jam had a soft brown or honey-like appearance, and was of a very refined character. Medlars have relatively few admirers. They are notoriously unfit for food until rotten, so runs the phrase, but really when sleepy, and they wear an objectionable appearance, and are not pleasant to handle. Always a pretty tree—in fact, quite of ornamental appearance—throughout the season, the Medlar is not much grown, because its

fruits are so indifferently acceptable. That they can be converted into a delicious preserve is a new recommendation, and the Medlar may obtain fresh popularity.—A. D.

Wellington Apple and the frost.—The great frosts of 1880-81 and 1878-79 (I cannot quite fix the years) killed back most of the young Wellington Apples and severely injured older trees, but since then they have recovered. Cellini has suffered in the same way, so that I now consider it hopeless as an orchard kind.—G. BUNYARD.

GOOSEBERRIES IN MARKET GARDENS.

WHILST collections of some thirty or forty varieties of Gooseberries are grown in trade nurseries, it would seem as if there was still a demand for variety, which the Gooseberry affords in no considerable degree. We can have them either very large or small, in several colours, also rough and smooth, and then, not least, some are very sweet, while others are acid. But whilst the nurserymen continue to produce and maintain all these varieties, it is very certain that only a limited number of them find a place in most private gardens; whilst in the huge breadths of the market gardens some two or three kinds seem ample for market wants. No doubt some market gardens furnish the smaller and pleasantly-flavoured fruits for special demand, but the great mass of growers fight shy of such very uncertain produce. To them a crop is of the first importance, and a good crop of fine fruits is indispensable if profit is to result. It is also needful that the crop should be a quick one and readily marketed. Necessity, therefore, literally compels the reduction of market kinds of Gooseberries to some two or three which are hardy, prolific, and produce fruit of good size and early. Anyone may have Gooseberries in abundance to come in with the glut, but it is the first early gathering of fair-sized fruits that is profitable.

Thus we find that the markets are chiefly supplied with Lancashire Lad, Crown Bob, and Whitesmith varieties, the first-named by far the most popular, and the second one coming next in order of growth. It is, however, rather the earlier, and if escaping the late spring frosts will furnish the earlier gatherings. And yet it is neither so hardy nor so prolific as the Lancashire Lad, which mainly supplies the London and other markets. Whitesmith is yet but little grown, but in the majority of cases new plantations are made up from the two first-named ones. This locality (West Middlesex) sends out annually many thousands of small, two-year-old plants, large quantities of which go even into Kent, and that very large numbers have been already disposed of shows that there is no falling off in general planting, or that foreign or any other competition is checking speculation in fruit-growing. Certainly, in that direction, there are few safer ones than in the extensive culture of Gooseberries for market, as bushes planted in good holding soil, clean and well manured, will furnish successional crops at a moderate cost for some twenty years, and it will be hard indeed if out of that period some exceptionally profitable seasons do not result.

Gooseberries are subject to few physical ills, their robust growth, which renders hard pruning every year indispensable, being the chief one. The most harm done to the bushes comes from the birds in winter destroying the buds, an evil which is least felt on large breadths, and may be checked by a liberal use of powder and shot. The next is the occasional attacks of caterpillars, but this evil may often be prevented by removing some few inches of the top soil under the bushes into the intervening spaces, and digging it in deeply, replacing this soil with some from the open ground, and, finally, there is the danger of injury to the young blooms from late spring frosts. This latter is hard to check, except by heavy netting, but that is not possible in the case of considerable breadths. Generally it is found to minimise the evil if the bushes are not too hard pruned, as the leafage is then all the more dense. Still farther, if the bushes have over them standard trees some little protection is afforded,

On the whole, it would seem as if neither of these three evils were of frequent occurrence, as good Gooseberry crops are the rule. That of the past season was a moderate one, but prices were fairly good. The crop of the preceding year was a heavy one, and there are indications from the plumpness of the buds that the crop of the coming season will be a good one also.

Naturally the pruning is performed during frosty weather, for the sufficient reasons that other work is checked, and the ground being hard and dry is more fitted to endure the treading which accompanies pruning. If the bushes have been badly grown, wood is small and weakly, and it is not easy to get a proper supply of cuttings. Where bushes are kept regularly and properly pruned and the culture is good, an ample supply of cutting wood is found. As a rule, unless men's work is otherwise at a standstill, women are employed to gather up and bundle the best or stoutest of the shoots removed by the pruner, and these are carried into a shed, stacked, and covered up with mats until an early opportunity is found to properly prepare them for the planting. This, too, is often done by women, who have from long practice become expert at the work. The cuttings are then prepared, tied in bundles of about 500, and laid by until the soil is ready for planting. Should the weather be open, of course that work is done immediately. The ground is, after being dressed with short manure, dug deeply with the spade, the newly-moved soil being cut down, and the cuttings placed in lines about a foot apart, well fixed, and then left to take their chance. If the spring is at all genial, some 80 to 85 per cent. make root, and grow into neat plants during the season. Very good, well-branched plants have resulted in some seasons from the first year's growth, but, as a rule, it is found desirable to lift the plants in the late autumn, hard prune both roots and heads, and then dibble them out in long rows in newly-moved clean soil where the ensuing year they make stout bushes, and when lifted for sending away are found to have compact clusters of roots, which ensure future life and early fruiting. I think I am correct in stating that such plants are sold wholesale at about 40s. per thousand, certainly cheap enough, and it enables a big breadth to be put down at moderate cost. Of course, with bushes of this kind little fruit can be looked for during the ensuing three years, but the ground may also be partly utilised for other crops, as Strawberries, Daffodils, Wallflowers, Violets, Spinach, Onions, &c., so that there is no risk. From the fourth year onward the fruit produce increases very rapidly, and the average amount per acre on good bushes is enormous. Happily, the fashion for using green fruits for cooking enables the grower to secure a long market, and where the crop is heavy, early gatherings of the finest fruits are not only profitable, but relieve the bushes and assist the development of the remaining fruit. Women here, again, find very profitable employment, for with their hands protected by leather gloves they can gather the fruits with great rapidity. No doubt the practice of gathering green Gooseberries thus early is one of the secrets of that free-bearing which is so remarkable in the Gooseberry, as the bushes are not over-taxed. When possible, quite two-thirds of the berries are gathered green, as ripe fruits find little favour, and should wet weather prevail, they split rapidly. On the whole, there seems to be ample evidence that the Gooseberry is one of the most profitable of market fruits.

A. D.

SHORT NOTES.—FRUIT.

Melon Apple.—We wish to gather some information respecting this Apple, and kindly ask our readers to inform us over what area of the United Kingdom it succeeds?

Pear Winter Nelis.—I am glad to see Winter Nelis is well spoken of by several of your correspondents. Although the quality of its fruit is equalled by that of some other sorts, such as Doyenné du Comice, Thompson's, &c., yet when length of seasons and fertility are considered, I regard it as unequalled. I would advise those who are about to grow it to plant

it against a south wall in a good loam, such as Melons may be grown in, and to see that it is on the Quince stock. My trees of this sort are all horizontally trained, bear remarkably well, the branches being about a foot apart.—J. GARLAND, Killerton, Exeter.

Messrs. Bunyard and Co., of Maidstone, have kindly sent us a photograph of this delicious Pear; but we fear, however carefully engraved, that a satisfactory result would not be obtained.

FRUITS UNDER GLASS.

STRAWBERRIES.

So far the month has been rainless, dark, foggy and sunless, and forcing, as a natural consequence, has not been quite satisfactory, but the year is young, and the sharp frost now threatening may bring bright days, which will soon make up for the past delay. Should this greatly-needed change drive away the fog which has destroyed so many plants and crops of flowers in and around large towns, but has only retarded them in the country, an effort must be made to redeem lost time by putting on a spurt during the hours of daylight. If, on the other hand, the pressure continues, patience must be the watchword, as it is better to be even a month late than fail altogether. But rain, what has the absence of rain to do with early forcing? A great deal, for not only is the land extremely dry, but springs are low and hothouse cisterns dependent upon roof water have been exhausted long since. Here it is not necessary to dwell upon the effect which the loss of a foot of rain will produce this coming season, but it is necessary to remind all engaged in forcing of the fact that a dry spring favours the spread of insects, especially of red spider, and the Strawberry being so subject to attacks, the most careful attention must be given to plants in every stage of their growth. Contrary to my usual practice, I shall commence my remarks upon the latest plants first, and as these will now be resting in cold pots or possibly plunged to the rims in the open air, the lights and covering on dry days should be entirely removed, as even dry frost, unless the weather is very severe, is much more beneficial than coddling. The greatest drawback in frosty weather is the bursting of the pots by the frozen balls, but, provided they are well plunged up to, if not over, the rims, they will take very little harm, whilst watering, just now absolutely necessary, can be performed with safety. It is not usual to water late Strawberries in January, but apparently we are entering the second of a series of dry years, and when it is so well known that want of water is the forerunner of living pests and mildew, the first consideration must be a judicious, but plentiful supply of this element. As space offers the most promising plants in the smallest pots must be worked forward, first into intermediate pits, then into the Strawberry house proper, or, lacking this, into the most suitable structure, where close to the glass they can be brought forward slowly. Cleanliness at the outset being half the battle, each pot should be well washed, the aperture examined to see that worms have not choked the drainage, a condition that will necessitate a thorough soaking with clear lime water to expel them, for beneficial as they may be in deep marly land they are a great nuisance to the Strawberry forcer. The next operation will be the immersion of the plants in a tub of strong soap-suds or sulphur water, and top-dressing with a mixture of rotten manure and stiff loam preparatory to placing them on the shelves.

Successions.—Plants now in progress cannot be kept too near the glass, and the more air they get without exposure to sudden depressions or cutting draughts, the stronger will be the flower-stems and the bolder the flowers. Let the night temperature range about 50°, but not higher, and 60° by day; examine and water the plants every morning before they are syringed, as moisture from this operation sometimes deceives the eye; raise the temperature by warming the pipes when the sun favours giving more air, and shut up early with moisture on bright afternoons. As the plants advance green fly may be expected to appear, first upon the young leaves, then upon the trusses, and fatal will be its work if smoking is neglected, as one may as well expect

Figs from Thistles as fruit from Strawberries that have a single fly upon them when the first flower opens. Prevention being better than cure, we now render the foliage distasteful by fumigating two or three times at short intervals, always when it is dry, and syringe well the following morning.

Early plants.—As these come into flower they should be placed in a light house or pit where they can have a circulation of warm air passing constantly amongst them, and when the pollen becomes ripe and plentiful they must be carefully fertilised every day until the crop is set. If the flowers are very numerous, a few of the weakest may be pinched off each scape before they open, and it will be necessary to press down the foliage with the hand to give those left the benefit of every ray of light and security from condensed moisture. In days gone by it was the practice to keep all hothouse fruits in a very dry atmosphere when in flower, and very often the delicate organs of fructification suffered; now, we find a moderate supply of atmospheric moisture through the early part of the day with ventilation highly beneficial, always provided it is not plentiful enough to condense after night-fall. To this end all watering and damping should be performed early in the day, as dryness at the roots at any time is fatal.

CUCUMBERS.

Hard and continuous firing to maintain a minimum temperature is against old plants that have been some time in bearing and begin to develop a tendency to mildew and spider. Sulphur water or sulphide of potassium, a quarter of an ounce to a gallon of warm water, syringed over the foliage at night and washed off the next morning, will destroy the first and check the second; but light cropping and good cultivation also are necessary conditions, as overloading and bad feeding go hand in hand with these pests. As growth proceeds the young shoots should be neatly tied in, the worst of the old leaves being taken off to make room for them, whilst stopping must be regulated by the space still vacant upon any part of the trellis. The weather down to the present time having been so dark, it has not been safe to resume daily syringing, but so soon as the clouds break advantage should be taken of bright days for running up the temperature to 80° or 85°, and well bathing the foliage above and below with soft water quite as warm as the air of the house. Daily and hourly attention to these matters of detail will soon work a marked improvement in the health and vigour of the oldest and poorest of plants, but their restoration will not be full and lasting unless the roots as well as the tops are kept in good condition. The bottom-heat, whatever it may have averaged through the winter, should now be increased, say, from 70° to 75° or from 75° to 80°, not by hard firing, but by the renovation of the fermenting material with well-worked tan, or, better still, with Oak leaves, which cannot be turned over too often, as the moisture and warmth thus set at liberty keep the atmosphere charged with genial food, and economise syringing when external extremes render its effect fleeting, if not detrimental. Water, as a matter of course, plays a very important part in winter as well as summer culture, and it is to an insufficient supply of this that the failure of plants growing over heated chambers or hot-water pipes not unfrequently can be traced. Bearing plants in pots, boxes, or narrow beds will take good, warm, diluted liquid at every watering probably two or three times a week; but no rule can be laid down for watering at any time, especially in winter, as so much depends upon the condition of the bed and the position of the hot-water pipes. When this element is needed, and it should not be given until it is, one thorough soaking that will penetrate the crocks will do more good than a series of dribbles which deceive the eye, as water given in this way only benefits the surface roots, whilst those deeply seated languish in a dust-dry medium. The best top-dressing for Cucumbers is light, rich turfy loam, crushed bones, and old plaster or lime rubble, which should be kept dry and warm ready for use as the roots appear on the surface. If thin layers are placed on the surface, the roughest part being kept near the

stems, Cucumbers can be earthed up to any extent during the season, but there comes a time when

Spring-sown plants beat the old ones, and the first batch being now well advanced, if not quite fit for turning out, the hills or ridges should be ready for their reception before they become pot-bound. When the hills are formed upon beds of fermenting material which is constantly sinking, the trellis for two reasons should be constructed and fixed upon a principle that will admit of its being lowered at pleasure; first, to prevent the stems and roots from being strained or strangled, one of the most common causes of canker; and second, to enable the cultivator to place the foliage quite clear of the glass through the summer months. The best plan, however, is to avoid this danger by forming a solid foundation of broken brick or lime rubble immediately above the bottom-heat pipes for the reception of a thin layer of fresh stable litter followed by the compost. Then there will be no sinking, and provided common drain pipes are placed vertically a few feet apart upon the drainage, hot water or diluted liquid can be poured down in any quantity when moisture is needed, but it is not necessary to deluge the surface of the bed. Summer plants should not be pinched until they have climbed quite two-thirds of the trellis, and if more room than is generally allowed between the stems were given to them a great deal of trouble would be saved, whilst a few vigorous plants constantly extending would give the finest and greatest quantity of fruit.

Pits and frames.—Where manure and labour are plentiful, materials for making up manure beds may now be got together and well turned two or three times, more or less, to get rid of rank and dangerous steam by fermentation. When thoroughly sweetened and the violent heat has passed away, brick pits may be filled and the old-fashioned beds made up, plenty of time being allowed for settling before the soil is introduced. Meantime, seeds having been sown in the nursing frame, the young plants should be well advanced in the rough leaf, if not pinched at the third or fourth joint ready for turning out as soon as the compost is thoroughly warmed through and a steady root temperature can be relied upon. The materials used for making up hotbeds are numerous, and include stable manure, tree leaves—Oak and Beech being the best—tan, spent Hops, cotton waste—anything, in fact, that will ferment and hold heat separately or combined for a considerable time, but, taken at all points, there is nothing better than the first and second in equal parts, thoroughly incorporated, the bed being made very solid in course of construction. Much as we object to the removal of every leaf as it falls from our noble timber trees, lawns, walks, and roads must be cleared, and so must the stable yard of two articles of home manufacture, not only cheap, but in every stage of decay, containing and giving off all the elements of plant life. These materials, which so many regard as a nuisance, we look upon as the backbone of horticulture, their best and most profitable route to the vegetable and fruit-tree borders lying, as a matter of course, through the frame ground. Thanks to hot water, the making and management of manure beds for Cucumbers and Melons is almost a lost art, but why discard the one when the two combined, whilst saving much labour, produce conditions favourable to the perfect culture of all exotic fruits and plants? and why worry the overwrought managers of small gardens when a flow-and-return pipe along the front of their Cucumber pits would save their cost in a single year? If time represents money, the time devoted to the renovation of linings, to covering the glass, to watching the ventilation, as a mother watches an infant, to coddling with plants not seldom destroyed by a puff of steam when coming into bearing, and last, but not least, the shortening at both ends of the season of supply must represent a sum that, judiciously laid out, would greatly economise the management and increase the produce of the frame ground.

MELONS.

Leading lights will now have plants in all stages, from the tiny seedling to frail occupants of the trellis, but the majority of growers will be barely

on the move; whilst others, with seeds still in the drawers, will congratulate themselves upon having escaped the most protracted and depressing fog we have experienced for a great number of years. The fog, fortunately, has lifted, and the sun once or twice has tried to penetrate the black pall of vapour which, in a condensed state, would be so useful in our soft-water cisterns, but so far the outlook has not been encouraging, as no amount of artificial heat will compensate for the loss of cheering sunshine. Time, however, is going, and a supply of fresh growing plants must be kept constantly on hand for putting out as the different compartments can be got ready for them. To keep up this relay of stock a few seeds should be sown once a fortnight, and, provided the oldest plants are as regularly thrown away, the common danger of starting a colony of red spider in the nursing pit will be avoided. Young plants can be shifted on into larger pots, but unless the variety be new or scarce, they hardly pay for the trouble, as seedlings can be raised so quickly, and all Melon growers know a quick start with plants whose roots have neither been checked nor mutilated is a very important step towards a successful finish. Fruiting pots and ridges now thoroughly warmed through to a temperature of 80° may be planted as soon as the seedlings have commenced making the first rough leaf and the roots have fairly touched the sides of the pots. As Melons will not submit to earthing, the young plants should be kept well up to the level of the rims of the fruiting pots, whilst those placed on ridges should stand on little mounds when all is finished. Water will then draw away from the collars, and, provided they do not sink away from the trellis until the stems attain a cracking tension, there will be little danger of canker. Many people think canker is indigenous, if I may use the word, to some pits, whilst another garden is free, but I venture to think and to say it is the management that is at fault; further, that I would undertake to produce canker in the best Melon house in the kingdom. Before the young plants are turned out a neat stick should be placed in each pot or station, and to these they should be trained until they reach the trellis. If laterals start before they reach that structure, they must at once be pinched, but on no account in youth or mature age must an old stem-leaf be broken. The trellis reached, laterals may grow, all that do not show fruit being pinched at the first leaf, when the second break in almost every instance will produce a female flower. As the plant extends nearly all the laterals will show at the first joint, and the roots having made good progress all the flowers should be carefully fertilised, as a choice of two or three fruits of uniform size from this flush will form the crop for ripening. Some varieties of Melons do not show until the points have been pinched out of the leaders; others, like the grand old Golden Perfection, often set their fruit before they are touched, and these fertile sorts undoubtedly are the best for early forcing.

Like Cucumbers, these plants enjoy and require a brisk bottom-heat, say of 75° to 80°. They will stand more, and many get less, but 80° need not be exceeded. This should be steady, and the greater the quantity of fermenting leaves used for producing it, the cleaner the foliage will be, and of less consequence omission of the baneful practice of daily syringing.

W. C.

CONCRETING THE BOTTOMS OF WALL BORDERS.

WHERE the subsoil is bad, 6 inches in thickness of concrete is of great use in keeping the roots out of the bad soil. I have met with old gardens where all the principal walls had a concrete foundation to the borders, not only for the Peaches and Apricots, but also for the Plums, Pears, and early Cherries, and this bottom of concrete had much to do with the hale and vigorous appearance of the old trees. But when the flued walls went out of fashion, a lax feeling soon grew up about the use of concrete, it being looked on by some of the younger men who had not seen its value in the past as a useless expense. There are positions where concrete is not

required, but deep rooting is an evil which has more to do with unfruitfulness than any other cause usually assigned by cultivators to account for the barrenness of many fruit trees on walls. In the old days I am thinking of, the concrete usually extended all along the border for two-thirds of its width, but when the sites are marked out for the trees, if the bed of concrete beneath the tree is 6 feet square by 6 inches in thickness, the requisite horizontal direction will be given to the roots, and, if necessary, the extremities, if they take a downward direction, can easily be lifted and brought back, and this will give an opportunity of working in a little fresh turfy loam. This will induce them to make fibres and keep near the surface, for the roots will always go where they can find sufficient food. To plant a wall 100 yards long, say, with Apricots and Peaches 5 yards apart will require twenty concrete stations, which would take about a ton of lime and four loads of screened gravel to make a good job of it, so the cost, even if the gravel had to be purchased, would not be enormous. But a mixture of broken bricks, stones, and clinkers and lime will make a good concrete foundation, allowing the proportion of lime to be rather greater than when using good clean gravel.

E. H.

MARKET GARDEN NOTES.

WALLFLOWERS.—With a comparatively open winter, for after all we have had but little severe weather, we should, under ordinary conditions, have been obtaining fair cuttings from Wallflower breadths now. The plants are stout, stubby, and healthy, but the bloom is lacking. The drought of last summer is accountable for this, for if plants were put out early they made little growth, and if the soil was too dry to render planting out safe, of course no progress was made in that way. Hence it is that we see Wallflower plants so very dwarf and compact and so flowerless. Growers always select from their earliest, best-habited, and deepest coloured flowers for seed, and an early blooming strain is thus perpetuated. Still, the strain is contingent for early bloom upon early planting and strong summer growth. One large grower, during 1886, having a seed bed of strong young plants from an autumn sowing, thought he would ensure an early quantity of bloom by planting these largely. Fortunately for him, he also planted largely of the spring sowing, as the majority of the autumn-sown plants were killed during the ensuing winter, whilst those of the spring stood unharmed. A dribbling bloom during the winter proves more profitable than does one coming in all together. The fine blood-red strain grown round London has no equal for richness of colour and perfume. Seed is usually sown broadcast, or in drills, early in February, and the plants are ready for planting out in May if ground be at liberty. These Wallflowers will thrive very well under orchard trees.

VIOLETS.—Dense cold fogs, low temperature, and, later, keen easterly winds have checked the production of Violet blooms, and thus the comparatively open winter does not keep the promise of some earlier seasons. With Violets especially a long blooming time is much desired, as a better price is secured for the flowers during the winter than in the spring, when Violets are plentiful. Great areas of good land are cropped with the single Russian and Czar Violets, and, on the whole, given good seasons, few crops pay better, and few furnish more welcome labour in marketing. To myriads of women the Violet season comes with gladness, for with even but one penny per dozen bunches of bloom, with no leaves, really good wages are earned. Then from the market the flower-women find ample patronage during the season. Some complaint has been heard here and there of the quantity of Violets which come over here now from France and Italy, but these arrive only when ours are scarce. Still farther, they are profitable in part only when the weather is dry and cool, as damp soon destroys them. As a grower said the other day, after all how many a poor person can get a bunch of sweet Violets for a penny now, and

we ought to remember that this is excellent philosophy, and teaches us that the world of flowers is not made for growers alone. The old plants lifted and pulled to pieces are dibbled out into fresh soil during the month of May, and usually stand if the ground be clean for three years. A good grower has a big breadth lifted and divided every year. Double Violets, it is found, suffer more from fogs and frosts than do the hardier single varieties.

WINTER GREENS.—Whilst the summer drought materially affected the extent of ground planted with all kinds of winter greens, and rendered the cost of getting out those which were planted considerable because of the watering needful, yet prices have during the winter been far better than was the case last season, and growers seem very well satisfied. It is thus seen that abundance is not an appreciable blessing to growers, as much reduced crops give, nevertheless, better returns. Certainly the winter has been very favourable to green stuff, even Spinach, of which there are many unusually good breadths, not having been, so far, at all checked. White Turnips are either few or small, and thus green crops have one competitor the less. Brussels Sprouts, Coleworts, Savoy Cabbages, and small white Cabbages have been excellent. The product of the winter will doubtless stimulate to big plantings next summer if the season be favourable, and then a glut will follow again. Lettuces planted out largely in the open ground have suffered little from slugs, and nothing, so far, from the cold. There is now far better promise for a crop of spring Lettuces than usual. Autumn-sown Onions are rather smaller than usual, and will not be ready for pulling early. Still, there will be no lack of this salad when the spring comes. All white Broccoli looks well, but small, whilst sprouting Broccoli is a very medium crop, although, as a rule, so strong and abundant. Ground is now working well, and seeds of the earlier green stuff for next winter will soon be freely sown. A. D.

FLOWER GARDEN.

CHRISTMAS ROSES.

JUST now when the Chrysanthemum is on the wane in most gardens, and when outdoor blossoms of really fine quality are at their very lowest ebb, the value of well-grown Christmas Roses is apt to be most appreciated. Formerly we had only the old *Helleborus niger*, then *H. altifolius* became known, but now, thanks in the main to large importations from Austria and elsewhere, we have at least a dozen varieties, all finer, more vigorous and free-flowering than *H. niger*, and all worth a well-chosen spot and good soil in the best of gardens. The best sorts as now known are the following:—

<i>H. niger minor</i>	<i>H. niger major</i>
n. variegatus	n. m. (of Hartland)
n. altifolius (maximum)	n. major (of Bath)
n. "Riverston"	n. Mme. Fourcade
n. caucasicus (of Ware)	n. sulphureus (De Graaff)
n. (of Mr. Brockbank)	n. intermedius or scoticus
n. (of "St. Brigid")	n. latifolius, or "St. Dulough's" (of Rev. F. Tymons)
n. vernalis (of Sweet)	
n. ruber "Apple-blossom"	

There are other varieties or forms known, but the above represent our practical knowledge of to-day, and show our wealth and discrimination as contrasted with that of a few years ago.

The very best of all the above I consider to be the following in the order named:—

<i>H. altifolius</i> or maximum	<i>H. caucasicus</i> (Ware)
"Riverston" variety major (of Bath)	rubor or "Apple-blossom"
"St. Brigid," or Mr. Brockbank's form	

As grown in one or two spots in Ireland, I should place "St. Brigid" third, that is, after the "Riverston," but it is a more delicate grower; whereas, *H. altifolius* and the "Riverston" are vigorous on most deep-dug, rich soils in England as well as in Ireland. For whiteness and shapely blossoms no other variety except the Manchester form can touch the "St. Brigid" variety. It is perfect as grown on genial soil in Irish gardens. A friend of mine wrote two lines, in imitation of George Herbert, lately, on the new *Aurelia* (*Narcissus*) *Broussonetti*, now flowering at Kew.

So white, so sweet a flower, it is
A dainty, crownless *Eucharis*!

and this really applies to this Christmas Rose, which is quite sweetly odorous in a warm room at night. The characters distinguishing these six best varieties are as follows:—

H. ALTIFOLIUS.—Stems of leaves and flowers heavily dotted or blotched with red or brown. Leafage very dark green. Flower cup-shaped.

H. RIVERSTON VAR.—Leaf-stems pale apple green, not dotted with red. Flower-stems slightly dotted with red. Leaflets dark green, serrate at their apices. Flower star-shaped.

H. ST. BRIGID.—Both this and the Manchester form agree in having both flower and leaf-stalks of a pale apple green with no red dots. Leafage light green slightly serrated.

H. MAJOR (of Bath).—A free-growing, free-flowering *H. niger*. Leaf and flower-stems dotted with red. Leafage pale green, moderately serrated.

H. CAUCASICUS (Ware).—A strong, dark-leaved form of *H. major*, with very white shapely flowers. Leaf and flower-stems dotted with red.

H. RUBER APPLE-BLOSSOM.—This is one of Mr. Ware's choicest varieties, bearing rosy flowers, that remind one of its popular name. Leaves dark green, stems all dotted with red.

We must once and for all give up the "pink stigmas" as a character for distinguishing Christmas Roses. Even "St. Brigid's" variety has pink stigmas sometimes, although no red appears in leaf or flower-stalk. The red or pink stigmas are not constant, any more than is the amount or depth of rosy flushing on the sepals, which, like it, varies from year to year, or varies on different soils and in different aspects or exposures. Mr. Hartland, of Cork, has sent me fine photographs of "Riverston," "St. Brigid," and his own *H. niger*, as grown in paraffin casks sawn in half, and in good, fresh, rich soil. These casks are about 3 feet across, and the foliage stretches a little over the rim on each side, so that the plants are nearly 4 feet over, and they now bear from 200 to 300 flowers and buds each, some perhaps more, but I want to keep inside the truth. I never saw such noble plants before, and there can be no doubt but that this system of tub culture in the open air will be largely followed, seeing that the plants can be readily lifted into the shelter of a cool house or conservatory at blooming time. On another occasion I hope to go more fully into Mr. Hartland's plan of culture, but now content myself with noting its advantages. The preceding notes have been jotted down in the hope that someone or other of the many readers of THE GARDEN will favour us with their views. I hope to return to the subject again in more detail, but meanwhile am desirous of hearing what other amateurs have to say as to the distinctions and vagaries of these beautiful hardy flowers of the mid-winter season.

F. W. BURBIDGE.

"The English Flower Garden."—This book is in preparation, but will take some months to reprint, as there are many additions.

LILIUM LONGIFLORUM WILSONI.

LILIUM LONGIFLORUM is one of the best of the hardy Lilies, and this variety is perhaps the best of all its forms. A good clump of it, as photographed in Mr. Tillett's garden at Sprowston, is shown in our engraving. The engraver's art, however, great as are its attainments, fails to render satisfactorily the snow-white glistening brilliancy of the flowers. The bright shining foliage with flowers of the purest white and the expanding buds form a garden picture of refreshing beauty. The species is quite hardy with Mr. Tillett. The plants figured have grown in their present place for several years.

Autumn-blooming Crocuses.—Looking over the results of the past autumn, which has by no

ochroleucus, Salzmanni, a robust, free-flowering species generally, and one of the best, Clusi, and serotinus fared very little better. Until this year I have always been more or less fortunate with hadriaticus, Boryi, and cancellatus, but I believe that from these three species (large clumps of each) a dozen really perfect flowers could not at any time have been gathered. *C. sativus*, one of the very commonest of the autumn Crocuses, flowered very feebly indeed, and one shower of pelting rain destroyed the blooms. *C. medius*, a tall, handsome species, longiflorus, and Cambessedesi averted a total failure, these flowering when the weather happened to be favourable. From the above results, which I will take the first opportunity to remedy, I have learned a lesson, and that is, to plant the autumn-flowering Crocuses in the most sheltered spots available on the rockery, and always facing south if convenient. Some clumps, which I tried

beds, as well as for lines or rows of colour, to form a background for other kinds of flowers, such as Abutilons, Marguerites, Heliotropes, and Fuchsias. But I ought to add, that for the Dahlias themselves an evergreen hedge of some kind displays their merits to the greatest advantage. We give them positions of this kind, and as the habit of the plants admits of the branches being trained out and tied to the background—in our case a Cypress hedge—the mixture of colour is both novel and pleasing, and for this purpose alone they are worth cultivating. Many of the compact-habited types, such as *gracilis perfecta*, should be planted singly in large beds of dwarf-growing plants, such as Pelargoniums, in which positions they add variety of colour and an undulating surface that are infinitely more pleasing than the flatness so prevalent in bedded-out gardens. Some three or four of the varieties that are known as the Cactus section are useful for a similar purpose, but they are so late in coming into flower, that I question whether they will ever be very popular. The best are the scarlet Juarez, the creamy yellow Mrs. Hawkins, and the white Constance; this latter is the earliest to flower, and is invaluable for cutting.

The show and bouquet varieties are too stiff and formal; what few we do plant are relegated to positions where general effect is not so necessary. They are, however, well adapted for giving an abundance of flowers, as they stand for a long time after being cut. The single varieties, of which we require the greatest number of plants, are now being potted and plunged in frames filled with leaves that give out a little warmth, which soon starts the tubers into active growth, and as soon as the shoots are from 2 inches to 3 inches long, they are taken off with just a particle of the old tuber attached—technically called a “heel”—and inserted in 2½-inch pots and plunged in the same heating medium as the old plants. Here they quickly root, and make far better plants for a summer display than old stools or tubers. Provided the lights are thickly covered in frosty weather and always at night, linings round the frames for the production of top heat are unnecessary, and, in fact, undesirable, as it only conduces to a weakly growth. About 55° is a sufficiently high temperature, and this the bulk of heating material on which the frames stand ought to produce with the nightly coverings advised.

CANNAS.—On dry, gravelly, and sandy subsoils in the south and west of England Cannas will sometimes stand the winter. They have here gone successfully through that ordeal on three or four occasions, but having lost them two seasons consecutively, we have not since left them to the tender mercies of the winter, but always now lift and pack them closely together in Cocoa fibre or dry soil in a frost-proof shed. Some two or three of the varieties to be increased by offshoots are now being brought out, divided and potted, and started gently into growth. Those varieties, of which we only require the old stools, will not be potted up before the end of March, to be then grown on slowly for planting out at the end of May. Seeds ought to be sown at once, as they take a long time to germinate. This, however, can be hastened by soaking the seeds for a week, or even more, in saucers of tepid water, kept in that state by standing them on the hot-water pipes of a forcing house. A strong, robust specimen is unique as a lawn plant, and Cannas ought to be used in this manner rather than in the huge masses that they generally are. If planted



Lilium longiflorum Wilsoni. Engraved for THE GARDEN.

means been a bad one for hardy plants, I have been more forcibly struck than ever with the failure to bloom of the Crocus species. When plants, bulbs included, are grown out of doors, and all the care and attention necessary to their well-being given them, we expect and deserve an ample return for our pains. This year, however, though more open, and consequently more favourable in every way for autumn and winter-flowering plants blooming in the open without protection, my experience with autumn Crocuses has been very disappointing. *C. Sharojani*, the first to open, is a rare Crocus, and I believe found as yet in very few collections. It is the only orange species that flowers in autumn, and just as its blooms began to expand, the heavy rains of one night entirely destroyed my little group. *Vallicola* and *zonatus* were served in much the same way, and even *speciosus*, *pulchellus*, *nudiflorus*, and *asturicus* gave very little pleasure, unless at odd times, which indeed were rare. *C.*

on the rockery, nestling at the base of large stones with a southern exposure, flowered very satisfactorily, and hardly any of the flowers were injured by rain or cutting winds.—K.

FLOWER GARDEN NOTES.

DAHLIAS.—I have somewhere read a paragraph that the single varieties were fast going out of cultivation, but surely “the wish was father to the thought,” for as yet I have observed no diminution in the popularity of that section, but rather the reverse, as I think there is an increasing interest being taken in them. This is indicated by the numbers of new seedlings that are constantly being sent out, and that they are well adapted for decorative flower garden work, or bedding out, goes without saying. We use them here with excellent effect in the centres of large oval basket-shaped beds, and grouped in masses in the centres of large

to fill an entire bed, their beauty would be greater if each stood out separately, and if the bare ground is objected to, it can be easily clothed with a carpeting plant of some kind or other.

FUCHSIAS.—For some years now we have used these in quantity in the summer bedding arrangements. Their graceful habit of growth, free and constant flowering character throughout the entire season, and the restricted use that is made of them in most gardens, all contribute to make them desirable plants for the purpose. Old plants always flower most freely. I do not say the flowers are so fine as those on young plants, but size is a small matter when general rather than particular decorative effect is in question, and there is another advantage in having old plants, and that is, they have such woody stems, that no staking is required, and the plants are better adapted for the purpose for which they are most generally required, namely, as standards amongst more formal-growing plants. These old specimens are lifted in early autumn and treated exactly the same as Cannas, and they will now very shortly be brought out and be pruned back to the live wood. A pyramidal form of bush is that most desired; this is made as nearly as can be as pruning proceeds. The plants are then potted into the smallest-sized pots it is possible to get the roots, and are then started into growth very gradually—the slower the better, because more sturdy and strong will be the shoots, and, therefore, not readily injured by harsh winds or fierce sunshine when the plants are first put into the beds.

ROSES.—The bulk of our plants are still in full leaf, and occasionally we can still cut as nice a flower-bud as we can at the end of October and during November, but what will happen if we get severe winter weather is not pleasant to contemplate. In their present unripened state many of the plants would assuredly be killed. Mulching is being applied thickly, and this will save all the plants from the ground-line, and pruning will not be attempted till the season of severe frosts is over. A few plants that we have on a south wall have hard, well-matured wood, and part of these we have, therefore, pruned in order to get flowers very early. This wall can be easily protected with canvas or mats, which will be put over should a long wintry spell supervene between the bursting of the new wood-buds and the flowering stage. We have still a quantity to plant, and as soon as weather conditions are favourable this will be our first work.

W. W.

HOLLYHOCK SEEDLINGS V. NAMED VARIETIES.

THIS stately autumn-flowering hardy plant may find a place in any garden. It is a noble plant, and I well remember when a boy how I used to watch the rapid motion of the humble bees as they loaded themselves with pollen from the single varieties. Now, every cottager may have the most beautiful double varieties, pure white, rich clear yellow, maroon, crimson, rose, and other colours. Those who have the means and are desirous of maintaining a good collection must now set about propagating young stock from cuttings, or by grafting. I find they have a tendency to damp off in ordinary hotbeds, but do well in a forcing house if there is some provision made for bottom-heat. Each cutting should be taken off close to the stem with a heel attached, and be planted in fine soil in $2\frac{1}{2}$ -inch pots, one cutting in each. I use the potting soil in a medium state of moisture and press the cuttings into it firmly. They are placed in a close hand-light, and it is not safe to give them any water until it is seen that they are rooted. The top of the glass should be removed daily and be wiped clean with a dry cloth, replacing it in a few minutes. Another plan is to graft the cuttings on to a short length of root, about the same thickness as the cutting; merely tie the two together with a strip of matting and plant in small pots, the same as the cuttings. The top of the root should be close to the surface. Plants raised from cuttings or eyes during the previous summer and autumn, if they

are now in 3-inch pots in cold frames, may require to be repotted into 5-inch or 6-inch pots; these will be the earliest to flower, and the plants propagated from cuttings now will be the latest. Many persons object to the trouble of propagating hardy plants in forcing houses and coddling them in frames; if this is the case, they must fall back on seedlings—they are no trouble. The seeds are sown out of doors early in May, and the plants, after being duly pricked out into lines about 4 inches or 6 inches apart, may be planted where they are to flower in the autumn, either in masses or as single plants in the herbaceous border. The plants also come very true to their colours from seeds, that is, if these have been saved from flowers not likely to have been impregnated by bees. All that they require in the way of culture is a rich, deep soil, plenty of water in dry weather, and stout 5-foot stakes to which the centre stem has to be firmly tied.

J. DOUGLAS.

LIFTING OF GLADIOLI.

"DELTA," in his interesting notes in THE GARDEN, December 31 (p. 583), refers to corms growing vigorously among his Roses where he has planted none for ten years, yet when he left some through the winter in the ground they miserably failed. Permit me to ask "Delta" whether he considers those that bloomed among his Roses, seedlings, spawn, or continuous-blooming (of course, reproduced) old corms? The point is very important, and was referred to by Mr. James Douglas in your columns ten years ago, but, as I remember, not explained. Neither does Mr. J. Burrell, in THE GARDEN, January 7 (p. 7), and I think the statement has been misunderstood by "J. C. C." (page 8). He gives the quotation in full, and then adds, "This is just my experience!" His experience, however, has reference to where he made a sowing from seed fifteen years ago—I presume, quite a different matter from "Delta's." "J. C. C." says every year for the past fifteen years on the same piece of ground where he scattered the seed many plants come up and flower as strongly as those taken up and stored. Does he mean to convey that those are some of the original seedlings? He concludes with a statement that requires elucidation also: "What is remarkable is that the self-sown bulbs (corms) of the choicest kinds are as hardy when left in the ground as the common sorts." I have grown Gladioli for more than twenty years, and I find that flowers can only be had from fully grown and matured corms of the previous year. Seedlings produce flowers in some instances the second year, but generally the third. If seed after being sown does not grow the first year, it will not grow at all. I fancy it would be a mistake to think seed would remain dormant in the ground for one or more winters. Probably "J. C. C." does not mean this, though it might be inferred from his "having flowers for the past fifteen years where he sowed the seed then." The second method of reproduction is by spawn. Those that are shy in producing spawn will always be dear, especially if good exhibition flowers, and *vice versa*. This is the great point that regulates the catalogue price, as where hundreds or thousands of varieties are grown, as at Langport or Fontainebleau, cross-fertilisation is probable, and the variety wanted to be reproduced may come from seed quite different. Without wishing to anticipate the answer "Delta" may give to the above query, I may say, from noticing fine vigorous spikes of even the best varieties similarly coming up in my flower beds and borders where I planted none, I invariably attributed the fact to spawn from old corms that had fallen off when lifting or otherwise. The only other method (besides the natural production of one, two, and sometimes three new corms from the old one) of increasing the stock of Gladioli corms is by cutting them with a sharp knife into as many eyes as each contains. Rightly or wrongly, I am prejudiced against this method. Lastly, as to the hybrids of *G. gandavensis* being hardy in an ordinary winter, I do not believe it; anyone who thinks so can lift a few in November and leave them exposed, and note the

result. Besides, I have always maintained the lifting and drying merely completed the maturing process. I know a number of trade growers, and not one advisedly leaves them in the ground during the winter. Of course, like Dahlias, they might survive.

W. J. MURPHY.

Crommel.

GARDEN FLORA.

PLATE 633.

ODONTOGLOSSUM HARRYANUM.*

THE subject of our present illustration is a plant of quite recent introduction and which took the Orchid world by surprise, as it represents quite a new departure, differing from anything which had previously been discovered, its form and exquisite colouring causing it to at once take first rank amongst a genus already celebrated for the numerous beautiful species and varieties it contains. The opinion has been expressed that it is in all probability a natural hybrid, but I think all such ideas are erroneous, as I cannot imagine any two plants with which I am acquainted that could have produced the form and colour of the one now illustrated. The *Odontoglossum* under consideration is evidently entirely new and thoroughly distinct from all the other types in the genus, and consequently a series of modifications and hybrid forms from it may be expected when the district over which it is spread becomes thoroughly investigated. The exact locality whence this plant comes has not been disclosed, although I believe it to be from some part of the United States of Columbia. This, however, is rather a vague statement, as the area included by these words is a very large one.

It is little more than three years ago since the plant was first introduced by Mr. Horsman, a nurseryman of Colchester, from whom the entire stock was acquired by the Messrs. Veitch, of Chelsea. Two plants of this consignment flowered at Chelsea in the autumn of 1886, but as they bore only two flowers upon the spike, their beauty was not then apparent. It was named by Prof. Reichenbach in honour of Mr. Harry Veitch, head of the celebrated firm at Chelsea. In 1887 Mr. Sander, of St. Albans, received from one of his collectors a wonderful consignment of this species, which at once showed what a fine plant this is likely to be when it becomes thoroughly established in our collections. Since the above named consignment was received several other smaller batches of plants have come to hand, but I advise all those possessing examples of this species to take good care of them, and not to hold them too cheaply, as the species is said to be scarce in its native country, or, if not scarce, extremely local, and therefore home-grown examples are likely to increase in value. This plant does not appear to be difficult to establish, as I have seen numerous examples thriving well under somewhat cool treatment; several of these have bloomed from the imported growths, and some at the present moment are showing flower from the first small growths which have been made in this country. These, however, will not display the beauty of the species to its full extent, but they afford ample proof of its free-blooming nature. It is a bold-growing plant, somewhat resembling *O. hastilabium* both in growth and in the strength of its inflorescence. Pseudo-bulbs, oblong-ovate, compressed, smooth when young, becoming fur-

* Drawn for THE GARDEN at Mr. Sander's, St. Albans, July 26, 1887, by H. G. Moon, and printed by G. Severeys.

rowed with age; leaves 6 inches to 1 foot long, oblong-obtuse, leathery in texture, and, like the pseudo-bulbs, pale green in colour; scape 3 feet or more long, bearing from twelve to fourteen flowers, as shown by the scars borne on the spikes of the imported plants. The sepals and petals are chestnut-brown or chocolate, the former transversely streaked and tipped with deep, rich yellow, petals longitudinally streaked with purplish mauve and tipped with yellow; lip large and flat, three-lobed, the side lobes curved upwards, the front lobe pure white, passing into pale yellow with age, basal portion heavily marked with feathery lines of bluish-purple, whilst the crest is rich golden yellow. *Odontoglossum Harryanum* appears to thrive well under pot culture in a mixture of rough fibrous peat and Sphagnum Moss; it also appears to enjoy exposure to the light and a slightly higher temperature than the ordinary forms of *Odontoglossum*. This, at least, is the treatment under which I have recently seen some dozens of plants growing well and producing flowers, but experience with this species is at present very limited, and upon further acquaintance it may be found to thrive in equally as low a temperature as *O. Alexandræ*.

W. H. G.

ORCHIDS.

W. H. GOWER.

CHOICE DENDROBIUMS FOR BASKET CULTURE.

THERE are few plants more beautiful than a collection of Dendrobies when well flowered and properly grouped, and those with the pendent, stem-like pseudo-bulbs are by no means inferior to the other sections for free-flowering qualities and richness of colour. Most of this section are destitute of foliage at the time of flowering, so that one might suppose this would be a serious drawback to the effect; but so numerous are the blooms, and so rich and varied are the colours, that one becomes completely absorbed in their contemplation and perfectly oblivious to the want of leaves. These basket Dendrobies should be planted in rough peat and Sphagnum Moss, with a few nodules of charcoal added, the specimens being made firm, so that when the baskets are taken down the plant does not move about. They enjoy strong heat and moisture and good exposure to light when growing, but when the bulbs are fully formed the water supply should be gradually diminished until it is entirely withheld, and then the plants should be removed to a cool house, where they may remain until their buds commence to swell, or longer if they are to be retarded for any particular purpose. It must be borne in mind, however, that although I advise a total cessation of the water supply, this is not a rule without an exception; therefore if any of the plants show signs of distress by their bulbs shrivelling, a little water must be given to plump them up again. I prefer keeping them in the cool house until I see that the flowers are properly formed. These pendent Dendrobiums, if suspended near the glass, thrive admirably in the growing season in an ordinary stove in company with fine-foliaged plants, and they will be much benefited by sprinklings from the syringe when the other plants are bedewed, but I do not approve of hard syringing at any time. The following twelve distinct kinds are specially adapted for growing in hanging baskets:—

D. WARDIANUM.—This grand species was originally imported from Assam and flowered for the first time in this country under my charge in the

then extensive collection of the Messrs. Jackson at Kingston, from whence it passed into the Ruckerian collection at Wandsworth. Beautiful, however, as the Assam variety was considered, it has since been eclipsed by a much stouter growing form which produces flowers correspondingly large. This, a plant of which I recently noted in the collection of Mr. Measures at Streatham bearing seventy-three flowers upon two growths, was introduced from Burmah by the Messrs. Low. The individual blooms measure some 3 inches to 4 inches across; they are thick and waxy in texture, and last a considerable time in full perfection. The sepals and petals are waxy white, tipped with magenta, whilst the lip is similarly marked and ornamented at the base with a large blotch of rich orange, upon which near the base are two large eye-like spots of deep crimson.

D. PARISHI is an introduction of the Messrs. Low, of Clapton, from Moulmein, through the gentleman whose name it bears; the pseudo-bulbs are stout and pendent, from 1 foot to 2 feet long, bearing numerous flowers, the sepals and petals of which are of a rich deep rose colour; lip slightly paler, and blotched on each side of the throat with dark purple. It blooms during the summer months. The late Mr. Turner, of Leicester, once exhibited a plant of this species at a June show at Manchester bearing eighty flowers upon one growth.

D. CREPIDATUM.—This plant is a native of Northern India, and usually flowers in this country during the early spring months. It was introduced to cultivation between thirty and forty years ago, and although abundant in collections some few years ago, it is not seen so frequently at the present time. I was therefore much pleased recently at seeing some nice examples of it at Mr. Partington's, Cheshunt, where it has been kept quite dormant since its growth was completed. Its flower-buds are just pushing up, and promise to produce a grand display in a short time. The growths are pendent, upwards of 1 foot long, and the flowers are produced in pairs from the joints; sepals and petals creamy white, suffused and tipped with pink; lip same colour, with a deep yellow blotch at the base.

D. DEVONIANUM is a charming species, and appears to be a very plentiful plant in Assam, from whence I imported a great quantity a few years ago. The stems are very slender, from 2 feet to 3 feet, or even 4 feet long; the flowers are produced in pairs from the joints and are nearly 2 inches in diameter; sometimes fully three-fourths of the entire length is covered with bloom; sepals and petals creamy white, tipped with pink or magenta; lip broad, white, stained with a blotch of rich orange on each side and tipped with magenta; the entire edge is bordered with a deep mossy fringe, which renders it both distinct and extremely beautiful. The flowers are somewhat short-lived, especially if the plants are kept in the East India house during the time of flowering. I have found the life of the flowers much prolonged if the plants are hung in the intermediate house and kept shaded. On account of the very slender stems of this plant, it requires considerable attention during the resting season. It is a spring bloomer.

D. LITUIFLORUM.—This Dendrobium remained one of the rarest of the genus for some years after its introduction, and its native country was doubtful until, about twenty years ago, I imported a fine batch from Upper Assam, which caused it to become better known and more widely cultivated. The stems are swollen at the base, becoming slender and almost uniform in size throughout, 2 feet to 3 feet long; flowers usually in pairs, and about 2 inches across; sepals and petals spreading, deep purple, slightly paler towards the base; lip rich deep violet with purple throat, in the front of which is a broad band of yellowish white, the edge being margined with purple. Its splendid flowers are produced in early spring.

D. FALCONERI.—A very slender-stemmed species, with its joints much swollen. A native of Northern India, at some 4000 feet elevation. It is usually considered a shy-blooming plant, but I think this arises from its being grown in too high a temperature. The Messrs. Rollisson used to flower this

plant freely, and the majority of their plants were grown with the *Odontoglossums* and others at the coldest end of the Cattleya house. Its flowers are nearly 4 inches across; sepals and petals white tipped with purple; lip of the same colour, with a broad stain of deep, rich orange round the throat, and a large central spot of velvety-purple at the base. The gorgeous flowers open during the late spring and early summer months, and last about a fortnight in perfection.

D. SUPERBUM, perhaps better known by the name of *D. macrophyllum*, is a bold-growing plant, with stout pendulous growths, which often attain a length of 2 feet or 30 inches. The flowers are correspondingly large, frequently measuring from 5 inches to 7 inches across; sepals and petals rosy-purple; lip of the same colour, with the addition of a pair of deep reddish blotches at the base. The flowers appear in early summer, and yield an odour resembling that of Turkey Rhubarb, which is not perceptible, however, saving when approached closely.

D. PRIMULINUM produces stout pendent stems over a foot long; flowers large, mostly solitary from the joints; sepals and petals white, streaked and tipped with pink; the lip is large, creamy yellow, with a few purple streaks at the base. It flowers in spring.

D. CHRYSANTHUM.—An old and well-known species, yet a very beautiful one. It blooms at various seasons and just as its growths are finished, so that in this instance leaves and flowers appear together; the flowers are fleshy in texture and rich deep golden yellow in colour, the lip being ornamented at the base with a central spot of velvety blackish purple.

D. PIERARDI is another old plant, a free bloomer, and its flowers are produced through the winter months, thus rendering it a great favourite. The stems are slender, pendent, 4 feet to even 6 feet in length; flowers produced from the joints in pairs along the greater portion of their length; the sepals and petals bluish-white; lip creamy white, faintly tinged with sulphur-yellow.

D. MACCARTHLE.—This species is peculiar to Ceylon, and is by far the finest Orchid I know from that island. Stems slender, pendent, with a slightly swollen base; the flowers are large, but do not spread, as is usual in the majority of Dendrobies, and are produced on a short raceme bearing from three to five blooms; sepals and petals bright rose pink; lip rich deep purple at the base, tipped with rose-pink or cerise. It blooms in summer, and, unlike most of the Dendrobiums, the flowers last many weeks in full beauty.

D. AMENUM.—A charming, brilliantly-coloured kind and an abundant bloomer, the flowers yielding a grateful perfume; the stems are slender and about 2 feet in length; sepals and petals clear white, tipped with bright magenta; lip white, and stained at the base with yellow. It is a spring bloomer. Native of Northern India, at about 5000 feet elevation.

Odontoglossum blandum.—This is not only a rare plant in cultivation, but is said to have become very rare in its native country, which is near to Ocaña, in New Grenada, at upwards of 6000 feet elevation, where it inhabits the damp forests of that region. It is a small-growing plant, with somewhat the aspect of *O. navium*, another very rare species, but it differs from that plant in various ways, more especially in the greater breadth of its lip. The raceme is dense and nodding; sepals and petals are narrowly lanceolate, tapering to a point, creamy white, dotted and freckled with deep crimson; lip similar in colour, but with larger spots, and ornamented with two yellow ridges on the disc. This plant is now flowering profusely in Mr. Measures' collection at Streatham, where it is kept very moist and cool, conditions under which it appears to grow vigorously.—W. H. G.

Dendrobium Hilli.—This species is a near ally of *D. speciosum*, both being natives of Australia, the plant now under consideration having been sent from Queensland by Mr. Hill in 1860. It

differs from *speciosum* in its longer, more slender, and more erect pseudo-bulbs, which are crowned on the summit with several large, leathery, dark green leaves; the racemes are also much longer and pendulous, whilst the individual flowers have more slender sepals and petals. The plant is also a much freer bloomer than *D. speciosum*, the flowers being creamy white, saving a small blotch of purple on the lip. A good example of this plant bearing numerous spikes of bloom is now to be seen in Mr. Measures' collection at Camberwell.—W. H. G.

The brittle snake in the Orchid house.—The brittle snake (*Anguis fragilis*, Lin.), or the slow-worm, is a native of Britain, common in England, though not in Scotland; when full grown it is about 12 inches or 13 inches long, generally of a dark glossy colour, moves slowly, and has a beautiful snake-like head, with keen piercing eyes, is perfectly harmless, and can be made a pet. I find this snake a grand assistant to the green tree frog in the Orchid house, as his principal food is snails. All Orchid growers hate snails, as they destroy flower-spikes and young bulbs. Some years ago a friend of mine purchased a rare *Phalænopsis* for ten guineas. Next morning when he went to look at the rare plant he found to his disgust that a snail had made his breakfast off it—a most expensive breakfast, many will say. I would advise Orchid growers to give the slow-worm a trial. They can be purchased from any dealer in wild animals.—ALEX. PATERSON, M.D., *Fernfield, Bridge of Allan.*

***Utricularia nelumbifolia*.**—This singular form is, I believe, one of the largest of the known species, and I am pleased to see it has recently been introduced to this country in a living state by Mr. Sander, of St. Albans, who so recently imported living examples of the lovely blue-flowered *U. Humboldtii* from the Roraima Mountains, in British Guiana. The plant in question, although only now brought to this country in a living state, was discovered by Gardner, who, when travelling in Brazil about the year 1841, found it on barren rocky places on the Organ Mountains growing in the crowns of large *Tillandsias*. He describes it as sending out runners to the tops of the nearest *Bromeliad*. The roots of the *Utricularias* descend into the water which collects in the crowns of these plants, and there form another runner, which goes on to the next receptacle. The leaves are erect, and the exact counterpart in miniature of the so-called Sacred Egyptian Bean (*Nelumbium*). The raceme bears from six to nine somewhat distant flowers, which are said to be of a violet hue.—W. H. G.

Grubs on *Cattleya* shoots.—From Mr. Newman's description of the above in *THE GARDEN* of January 14 (p. 24), I fancy his plants are affected with the pest known to Orchid growers as the *Cattleya* fly. It is a small black fly, which deposits its eggs in the dormant buds of *Cattleyas* and *Lelias*, and the larvæ or grubs feed on the inside of the young growths until in some cases only a mere shell is left. These grubs after passing through the various stages become flies, and boring their way out of their prison assist in carrying on the work of destruction. I have seen as many as six breaks on a small piece of *Cattleya Eldorado*, and as each shoot was affected, this was so much strength lost. I know of no insect, not even excepting thrips, more deadly in its effects if its presence is unsuspected, but as soon as discovered and war declared against it there is none so easy to exterminate. The only sure cure I know of and one which I can confidently recommend is to go over every plant carefully, and with a sharp knife cut off every growth which appears to be affected and also destroy any stray flies that can be found. By doing this and watching carefully for any affected growths which may appear after the first operation, Mr. Newman will very soon rid his *Cattleyas* of this pest.—C. ROWE, *Nimfield Gardens, Dumfries.*

***Cypripedium Harrisianum vivicans*.**—The original form of this our first hybrid Slipper Orchid was much prized when it flowered. Numerous seedling forms of it have, however, proved much superior to the parent, but the variety *vivicans* is by far the finest of the kinds which have hitherto come under

my notice. The foliage is tessellated, but much less so than in other forms, and the polished flowers are very dark, the sepals and petals being rich, deep vinous-purple, and the large lip deep purplish crimson. It is now flowering with Mr. Measures at Camberwell.—W. H. G.

FERNS.

W. H. GOWER.

TRICHOMANES PLUMA.

THIS feather-like *Trichomanes* is an exceedingly delicate and beautiful species; it has a wiry creeping rhizome, clothed with black hairs, and



Trichomanes pluma.

the fronds attain a height varying from 1 foot to 15 inches; they are three or four times divided, the segments being very slender, as a glance at our illustration will show. Our figure was taken from a plant which was imported some time ago from the neighbourhood of Sarawak, in Borneo, together with other choice kinds, by the Messrs. Low, of Clapton, and I believe the same species was collected by Mr. Thomas Lobb when travelling for the Messrs. Veitch, of Chelsea. Messrs. Backhouse, of York, also included this superb plant amongst

the grand collection of Filmy Ferns cultivated in their nurseries at York; but it has always been an extremely rare species, if even it exists in our collections at all at the present time. If not, its rare beauty should be a sufficient inducement for its speedy re-introduction. Like all this class of Ferns, it requires an atmosphere heavily charged with moisture, exclusion from the sun's rays, and a temperature which does not fall below 60° at any season of the year.

Ferns in cases.—A neighbour of mine, who has been highly successful in growing Ferns in a case, prefers one of octagonal shape to that of square or oblong form, on the ground that he gets more views of the contents, but, provided they are the proper sorts and well planted, they will do as well in one as in the other. When planting his Ferns, my neighbour broke up some light coke into pieces about the size of a Walnut, and laid them at the bottom of the case to assist drainage. On this was placed a mixture of peaty soil and Cocoa-nut fibre, the proportion being two of the peaty soil to one of fibre. In this a few Ferns were planted, but not thickly, and they soon commenced to grow freely. Almost all our native Ferns will grow in a case of this kind, and not a few introduced species also, so the planter can make a choice to suit his own tastes. Water is seldom required, and if the door be kept nearly constantly closed, but little evaporation will take place. As a matter of course, the supply of water must be regulated by the season of the year.—R. D.

Lastreas.—In answer to "Newcastle," your three specimens, all of which are *Lastreas*, are rare and handsome species, and so seldom seen outside botanic gardens, that a notice of them may perhaps lead to their more extended cultivation. No. 1 is *L. vestita*, a fine bold-growing Fern, the fronds of which attain a height of between 3 feet and 4 feet (although as more frequently seen they seldom exceed 2 ft.) and nearly 1 foot across in the widest part. Stem stout and densely clothed throughout with long woolly chestnut-brown hairs; the fronds are pinnate, the pinnae nearly 6 inches long, the whole plant having a symmetrical character, which renders it quite charming. It comes from Brazil. No. 2 is *L. fusipes*, a native of Ceylon. It has somewhat the appearance of an *Aspidium* of the *cicutarium* section. It, however, has free, not netted, veins and a reniform indusium. As I have the same form, which was named for me by the late Sir William Hooker, I have no hesitation in giving it this name. It attains a height of 2 feet or more and a breadth of about 8 inches, the stem being bare for nearly a foot, and more or less furnished with somewhat large dark brown chaffy scales. It forms a handsome and effective plant. No. 3, *L. strigosa*, has fronds from 1 foot to 2 feet long, pinnate, light cheerful green. A special feature in this Fern is the long jet-black hairs which clothe the base of the stem. It comes from the Mauritius. This plant, although retained in the genus *Lastrea* by authors, should, I think, be removed to *Phegopteris*.—W. H. G.

NOVEL WAY OF SOWING SEEDS.

MANY methods of raising flower seeds have been described in *THE GARDEN*, but the following, relating to alpine *Auriculas*, and which I take from the trade list of a large Continental nurseryman, will probably be quite new to most of your readers:—

Sow from December till February in pans of sandy soil covered with snow, on which the seed is scattered. When the snow has disappeared, the surface is covered with chopped Moss, and the pans placed in a frost-proof frame.

We are justified in assuming that this plan has been found to answer. A trade grower would not recommend a way of sowing his seeds that would bring discredit on himself. It is well known that there is something of a stimulating nature in snow. Plants that have been covered with it for a week or more always seem to look very fresh and green after-

wards. Is it a wonder that snow stimulates the germinating powers of certain seeds, and that to ensure their quick and certain germination they should lay for a time within its direct influence? It is possibly so of many alpine plants, the seeds of which, I fancy, lie under the snow all through the winter apparently dormant, but really preparing to push through as soon as the snow goes. The advice above given to cover with chopped Moss is worthy of attention. Mr. Peter Henderson once gave some remarkable statistics relating to the comparative certainty of germination displayed by seeds covered with Moss siftings and those covered in the usual manner. The contrast was all in favour of the Moss, the disparity being so great as to be a serious item in the culture. The fault of soil—no matter how well prepared for the purpose it may be—is that it is liable to become hardened, and thus in a measure hinder the coming through of the seeds. Moss cannot become close, so that one need not be so particular as to the depth to which the seeds are covered. A little indiscretion in watering, too, is not so likely to produce evil results. There are certain plants that are found growing naturally where the seeds fall into pure vegetable matter. Christmas Roses, Primroses, and hardy Cyclamens are instances in point. In their case I believe that a considerable admixture of chopped Moss in the soil would promote the free vegetation of the seeds.

J. CORNHILL.

STOVE AND GREENHOUSE.

NEPENTHES.

IN the very able and interesting remarks in THE GARDEN of January 14 (p. 29), entitled "Pitcher Plants around London," "W. H. G." has given us much useful information about these singular plants, but as he has unwittingly promulgated a not uncommon error, perhaps he will be glad of the following particulars. The true *N. distillatoria* (Linn.), indigenous to Ceylon, is a dwarf grower with small pitchers; it is known also in this country as *N. zeylanica* and its variety *N. z. rubra*. Therefore, this could not be the species he describes as a bold-growing plant with large pitchers, growing on the roof of a house. The species cultivated at Messrs. Loddiges in 1825, under the name of *N. distillatoria*, as also elsewhere in Britain at that time, should be described as *N. Khasyana* (Wallich). I am aware it was figured in the *Bot. Mag.* both as *N. distillatoria* and also as *N. phyllamphora*, and Sir J. D. Hooker makes it a synonym of *N. melamphora* (Reinw.), but Dr. Masters has decided it to be *N. Khasyana* (Wall.). It is singular how very unfortunate the *Bot. Mag.* has been with *Nepenthes*; out of five species figured, only *t. 5109*, *N. ampullaria* (Jack.), is correct. *N. Hookeriana* (Low.) is figured at *t. 4285* as *N. Rafflesiana* (Jack.), the two species having changed places in gardens, most probably in consequence. "W. H. G." does not make his meaning plain to your readers when he states he does not remember any records respecting seedling *Nepenthes* earlier than those he raised himself in 1862-3. If he means true *N. distillatoria* (= *N. zeylanica*), probably he may be right, otherwise he is not, and the following may be interesting. Early in this century Dr. Carey sent seeds of *Nepenthes* to Wentworth House and to a firm of nurserymen in Liverpool which were supposed to be from Ceylon, but proved to come from the Khasyan Hills, in Bengal. These seedlings were widely distributed, and all the plants in this country up to the year 1828 were supposed to have their origin from these two sources. Dr. Lindley says there is a good account of the germination of *Nepenthes* seedlings in *Jameson's Journal* for 1830. *Loudon's Gardener's Magazine*, July,

1836 (p. 333), mentions both sexes of *N. distillatoria* (*N. Khasyana*) as having flowered and matured seeds from which many plants have been raised at Dr. Neill's, Canon Mills Lodge, Edinburgh. In a newspaper cutting I find Mr. Lindsay, the able curator of the Royal Botanic Garden, Edinburgh, when chairman of a meeting of the Scottish Horticultural Society, October 6, 1885, stated that the first seedling *Nepenthes* raised in Scotland was reared by Mr. Kelly, of Messrs. Dickson and Sons' nursery, Edinburgh, about forty years ago. Interviewing Mr. Lindsay on the subject, he says he has some remembrance of reading that Mr. Kelly was awarded either a gold medal or ten guineas by the Royal Caledonian Horticultural Society for his success in this matter. The reference has at the moment escaped his memory.

On another point in "W. H. G.'s" paper, I think the addition of the following localities will be of service to your readers. The most northerly, the Khasyan Hills, East Bengal; the extreme eastern locality, New Caledonia and island of Pinetorum; the extreme western, Madagascar and the Seychelles.

Nepenthes Loddigesii, I find from my notes, was a purple-spotted pitcher, introduced from Borneo in 1847, and long since lost to cultivation.

I only hope I may live to see a pitcher of *N. Rajah* grown in this country of the dimensions mentioned by "W. H. G." Up to the present the dried specimens I have seen fall far short of these dimensions. Indeed, I may say the same of other unimported species. The dried specimens of the following scarcely agree with their recorded measurements; nevertheless, the screw-like process which forms the peristome of *N. Edwardsiana*, *N. Harryana*, and *N. villosa* has a very extraordinary appearance, and with *N. Burbidgeae*, I should be very pleased to welcome them to European cultivation. By the way, St. John gives 5000 feet as the elevation at which *N. Rajah* is found on Kina Balu. Burbidge says 6000 feet to 8000 feet, not 500 feet, as mentioned by "W. H. G." Probably this is a printer's error.—WM. E. DIXON, Assoc. B.S., Edin.

Cyrtanthus McKeni.—This South African bulbous plant has been from time to time noted in THE GARDEN, not only for the beauty of its blossoms, but also for its persistent blooming qualities. That it is fully entitled to all that has been said in its favour on the latter point, I may mention that we have a couple of pans here closely packed with bulbs, and they have not been without flowers since September. No special treatment has been accorded them, as the pans simply stand on a stage in the warmest end of the greenhouse where *Pelargoniums*, *Fuchsias*, and such things are wintered. This *Cyrtanthus* forms a bulb about the size of that of a large Snowdrop, and produces long, Grass-like, evergreen leaves, while the flower-spike reaches a height of from 9 inches to 1 foot, and is terminated by a cluster of flowers. The individual blooms, which are tube-shaped, about 2 inches long, and of curved outline, are of an ivory-white tint and agreeably scented. Few bulbs are more easily cultivated, as they may be grown successfully throughout the year under the same conditions as a *Pelargonium*. Like a great many other bulbous plants, it flowers much more freely after the pots or pans in which they are grown are crammed with roots; therefore in potting them it is necessary to use soil that will remain in good condition for several years. We grow ours in deep pans, as the *Cyrtanthus* does not require a very large amount of soil. Care is taken to drain the pans thoroughly, and the soil used is good, sandy loam, with a slight admixture of thoroughly decayed manure. In potting, the bulbs are just covered with the compost,

and the whole is pressed down firmly. At no time of the year must this bulb be subjected to the drying-off process, but be treated entirely as an evergreen. Although our bulbs have been for some time so closely packed together that they are almost lifting each other out of the soil, there is no diminution in their vigour; indeed, this treatment seems to suit them perfectly.—T.

This is a plant that nurserymen should direct their attention to, for if it were known what a beautiful plant it is throughout the winter months, it would certainly become popular. It is one of the most continuous flowering bulbs that can be grown, and as its blossoms are pure white, and borne in elegant clusters on slender stalks, they are admirable for cutting. It is a Cape bulbous plant of evergreen growth, and begins to flower in autumn and continues till spring. At Kew it has been in bloom in the Cape house for several weeks past. What it would be if grown in quantity and special attention given it one can imagine. It is mentioned in the catalogues of a few nurserymen, but its value cannot be generally known. Even market growers, who are proverbially wary of trying unknown plants, might grow this bulb, as its flowers may be had at Christmas without forcing.—W. G.

Himantophyllum in flower.—Though *Himantophyllum miniatum* and its varieties are greenhouse plants, yet if the blossoms are allowed to expand in the greenhouse, they are not equal to those produced by plants that have been, just as the flower-stems were pushed up, removed to a warmer structure, and allowed to bloom there. The position has also a good deal to do with developing the flowers of the *Himantophyllum*, as when they open in a light position near the glass they are much better coloured than when partially shaded by neighbouring plants. I was led to observe the great change a little additional warmth brings about, by the flowers of some specimens which expanded in a greenhouse being so poor that it was suggested to throw the plants away. The plants were, however, given another chance, and the following season were placed in an intermediate structure to expand their blossoms, the result being a very great improvement on those of the preceding year.—H. P.

Amorphophallus Titanum.—This giant of the vegetable kingdom is the central figure in the Victoria Regia house at Kew, where it occupies the middle of the tank devoted to the great Amazon Lily. It is uncrowded by other things, so that visitors may not pass by such an extraordinary plant without noticing its stateliness and curious character. The specimen is in a moderately deep pan inserted a few inches in water and resting on a board, the surface of the soil in the pan having a covering of variegated *Panicum*. The stem is more like the trunk of a tree; it is several inches in circumference, and rises many feet in height, the colour being of a deep green, freely interspersed with large dull white blotches varying considerably in size. At a height of about 8 feet this huge stem divides into three, the immense leaf measuring in its native country 45 feet, and at Kew it is of great width; the leaves are deep green, and by their abundance form a striking head. It is not in bloom at the present time, but the spadix when it appears is noteworthy; it is purplish black, and of considerable height, the spathe having a width of over 2 feet. This *Amorphophallus* is a native of West Sumatra, from whence it was introduced to this country in 1878.—X.

Chinese Primulas as basket plants.—I have never seen *Primulas* grown in baskets before, but, judging from a specimen we have here, one can see what beautiful objects they would be for the winter decoration of the conservatory. We have a plant here which I look upon as quite unique in this way. It has at the present time 156 fully open white flowers resting upon a rich background of sixty-two beautiful bronze-purple Fern-like leaves, and all facing one way. The history of the specimen is as follows: The basket (an ordinary wire one) hung below a high shelf at the back of a greenhouse, and contained a plant of *Asplenium flabellifolium*. On this shelf Chinese *Primulas* are grown,

and some of them are allowed to seed there. One of these seeds dropped on to the mossy side of the basket and germinated there, and the plant was allowed to grow, for it was seen from the first that it would be a novel object if it grew well. The plant must be more than eighteen months old now, and has never been moved from its present position (which is about a foot away from the back wall) since the *Primula* was first noticed as a seedling. I am sure that any gardener having to keep a conservatory gay during the dull winter months would admire it if he saw it. I should think from the healthy appearance of the plant that its roots have ramified through the Moss in the basket and revel in it. If I were going to grow a number of plants in this way I should sow the seed on the outer edge of the basket close to the Moss, and allow the plants to grow without any transplanting. The plant under notice looks as natural and free as *Primroses* on a sunny bank in spring.—R. LLOYD, *Brookwood*.

Tree or perpetual-blooming Carnations.—Time lost now can never again be recovered; therefore lose no time in getting in the cuttings of these choice plants. The earliest batch of cuttings should be in by the end of the month, the best place for them being a house with a temperature of about 50° to 55°. I do not like a very high temperature, as this causes weakly growth. There ought to be a nice bottom heat, and the cuttings should be covered with a hand-light, as they thus root more quickly, and scarcely any of them fail. If a hand-light is not available, plunge the pots containing the cuttings up to the rims, and lay a square of glass flat down over them; the glass rests upon the labels with the cuttings immediately underneath, and they succeed equally well in this way. If they are plunged in an ordinary hotbed at this season no other adjuncts would be necessary. Thick cuttings of the main growths are the worst, and slips of slender growth taken from the sides the best. Light sandy soil, pressed moderately firm into 4-inch or 5-inch pots, with a sprinkling of sand on the surface, into which the cuttings are inserted, completes the operation. As a precaution, dip the cuttings into some soft soapy water to kill any green-fly which may, though unseen, be upon them. If any trace of it is upon the cuttings, the pest would multiply very rapidly in the warmer atmosphere.—J. DOUGLAS.

Camellia buds falling.—Some years ago I took charge of a choice collection of *Camellias*, all of which, growing either in pots or tubs were, with four or five exceptions, very healthy. They had, however, always shed their buds just before bursting, while those that did flower developed bad and imperfect blooms. I learned from those in the garden that the plants had not been out of the house since they had been purchased; therefore, the following year I determined to let them set their buds outdoors, and for that purpose I selected a spot sheltered from the wind, but exposed to the sun. I put the plants out as each one had finished its growth, arranging them so that the air could circulate freely amongst them. In this position the plants set a large quantity of buds (as I was told they had done before when kept inside), which were in time duly thinned out. My anxiety, of course, increased as flowering time came on to see if my experiment had the desired effect, which I was gratified to find it did, as very few of the strongest growing sorts threw any of the buds, and only those of more slender growth or perhaps badly rooted were unsatisfactory. An additional reason afterwards occurred which caused me to think my treatment so far was the right one, as in the course of time four of the largest plants, two white and two red varieties, were wanted for permanent places in the conservatory, from whence they could not be taken outside. These plants in two years also began to throw off most of the best buds, although they were as healthy as before. I therefore came to the conclusion that outdoor treatment, for part of the time at any rate, was one safe point to follow, and I would advise those who complain of their *Camellia* buds falling prematurely to try this experiment. I do not assert that keeping the plants always indoors

is the only cause of the buds dropping. Badly-rooted and unhealthy plants, unsuitable soil and bad drainage, or a sudden check in growth, too high a temperature, or neglect in watering, will all cause the buds to drop. I believe that in many instances *Camellias* are coddled too much, and, considering that they are a comparatively hardy class of plants, I am decidedly of opinion that to be successful no plant needs a more even temperature, and that at no time a high one.—THOMAS RECORD.

WORK IN PLANT HOUSES.

GLOXINIAS, SEED SOWING.—*Gloxinias* raised from seed come in very useful, as they flower during the autumn, when the older plants have become exhausted with blooming. But, to give seedlings a chance of gaining sufficient strength to flower well, the seed should be sown early, say between the present time and the middle of February. Drain a large seed-pan, and fill it with compost consisting of equal parts sifted loam and peat, with some leaf-mould and sand. Enough of the two last should be used to make the whole light and open, so that when the time comes for potting the seedlings off they can be removed without seriously breaking the roots. Press the surface smooth, and give it a slight watering so as to close up the interstices, as small seeds like those of *Gloxinias* are liable to get too deep to vegetate. Sow thinly, and cover with as much of the soil as will hide the seed, again pressing the surface smooth. Cover the pan with a sheet of glass to keep in the moisture, so as to avoid the necessity for giving much water until the seedlings come up. As soon as they are visible stand close to the glass; this is most necessary with seedling *Gloxinias*, as otherwise the stems and leaves get drawn, and the flowers are too thin and soft to be of any use for cutting. Though the drooping or half-drooping varieties of *Gloxinias* are not now so much in favour as the erect-flowered sorts, they are equally deserving of attention from their less formal appearance.

CALADIUM ARGYRITES.—The leaves of this *Caladium* improve the appearance of most cut flowers, whether arranged as a bouquet, in stands, or in baskets. By a little forethought the plants may be had in good condition during the greater part of the year. With this object, some should now be potted. When the leaves are to be used for the purpose in question, it is better to grow the plants in small pots than in large ones, as they can then be more conveniently stood on shelves or in other places near the glass. This is necessary to ensure the leaves being sturdy enough to keep fresh and plump when cut; without this they are of little use. Five-inch to 7-inch pots will be the best to use. The plants will thrive in either peat or loam, but in the latter the leaves have generally the most substance. Drain the pots well, putting some turfy material over the crocks to keep the soil from getting washed down. Avoid putting the tubers in as deep as is sometimes practised; if the crowns are barely covered it will be sufficient. A temperature of about 60° in the night, with a little more in the day, is better than giving them more heat, as anything in the shape of forcing tends to weaken the growth. Do not give much water until the tubers begin to make roots, as until then they are liable to decay if the soil is wet.

WINTER-FLOWERING STOVE PLANTS.—Any plants that have done flowering, such as *Sericographis Ghiesbreghtii* and *Plumbago rosea*, should receive less water, allowing the soil to become half dry, after which they may be cut close in. They should then be stood where they will have enough warmth to cause them to break slowly with a view to their furnishing cuttings to grow on to bloom next winter. Syringe the headed-in plants slightly once a day until they have again started into growth, after which give a little more water to the soil. The earliest lot of *Poinsettias* will now have done blooming. These also should be cut back. Young plants that were grown on from cuttings struck last spring may be headed down to within 6 inches or 8 inches of the bottom. Older examples should have their shoots removed to within a few eyes of

where they were headed in to last year. The soil must always be partially dry before the tops are removed, and it must remain in this state until spring, when the plants are again started. The stools may be put away anywhere where they can have a little warmth, but not so much as will excite them into growth. *Poinsettias* that have been kept somewhat cool, with the object of their succeeding the earliest-flowered plants, may now be placed where they will have more warmth. Treated in this way, their coloured bracts will not come nearly so large as when the plants are kept through the autumn in a high temperature, but they will be quite as useful. Either when allowed to remain on the plants or when cut, the bracts will keep fresh much longer than when subjected to the heat that is necessary in order to obtain large heads of bloom.

GARDENIAS.—Unless the plants have been especially prepared for flowering in winter, there is generally a difficulty in getting the flowers to open at that time. The comparative absence of sun stops the development of the blooms to an extent not common to other plants, and which no amount of fire-heat can make up for. But if from this time the plants are kept close to the light and a temperature of 68° or 70° can be maintained at night, there should be plenty of flowers in the course of a month. It is not advisable to syringe the plants much overhead, and this should be done early enough in the afternoons to admit of their getting quite dry before night, as if water hangs about the buds for any length of time it has a tendency to cause them to fall off. Keep the soil in a fairly moist condition, but not too wet, for at this season any superabundance of moisture at the roots would cause the buds to drop.

CUPANIA FILICIFOLIA.—Amongst the various plants that are grown for the beauty or effective character of their foliage, this species of *Cupania* holds a leading place, its large feathery leaves being quite distinct from those of other things. It is a quick grower, attaining a height of 10 feet or 12 feet in little time. Where there happens to be a roomy conservatory, this *Cupania* is very effective, as it will do kept during the summer months in a house where there is little or no artificial heat. The plant looks best when it is confined to a single stem. The foliage is not so enduring as that of some things, and so the specimens usually get bare at the bottom when they have made two or three years' growth, in which case they should be headed down to within 6 inches or 8 inches of the pots. Plants so treated make finer examples than young ones that have been struck from cuttings, as the growth that is made after heading down produces larger leaves at the bottom than younger plants are capable of doing. The best time for cutting back specimens that have got into the condition described is now, before the spring growth has begun to move. This will give a long season for the formation of new heads. Allow the soil to get partially dry before removing the tops, and afterwards stand the stools in a brisk heat and syringe overhead daily. Here they will soon push several shoots, all of which may be allowed to remain until they are 6 inches or 8 inches long, when all, except the one that is strongest and best placed, may be taken off and struck. After this, the plants should be turned out of the pots, and have as much of the loose soil shaken away as can be done without too much sacrifice of roots. Return them to the same pots, if these are large enough, and replace the old material with good turfy loam, to which a little sand has been added. If kept on through the spring and summer in a moderate stove heat in a light house, they will make handsome heads before autumn.

RHOPALAS.—These are well adapted for large conservatories where a limited number of specimens that grow tall without being bushy can with advantage be introduced. The leaves of *Rhopalas* keep fresh and healthy longer than those of most things, so that examples that have reached a height of 10 feet or 12 feet may be often seen clothed with good foliage down to the pots. When they get bare at the bottom they should be headed down. As with the *Cupania*, the present is the best time

for carrying out the operation. After letting the soil get partially dry, sever the tops about 10 inches or 12 inches from the bottom. There is no necessity for cutting lower than this, as the new leaves will be sufficiently long to come down over the tops of the pots, and the more old stem that is left the stronger the plants will break. Most of the Rhopalas do not require much more than a greenhouse temperature, but after heading down, they are better for being kept in heat for some time, as when so treated they not only make greater progress, but the leaves also come much finer. They will bear moderate stove heat. All the shoots except one that appear may be taken off and struck after they have got 6 inches or 8 inches long. Afterwards re-pot in the same way as advised for the Cupanias.

T. B.

KITCHEN GARDEN.

KITCHEN GARDEN NOTES.

PEAS UNDER GLASS.—Where there is plenty of house-room in the shape of shelves, benches, or borders in various fruit houses and not far from the glass, early Peas may be grown in pots. It will be found by no means a profitable crop, fifty or a hundred pots rarely affording more than two gatherings, but if these are available just when most wanted, they are certain to give more pleasure than any number of dishes later on. Both Chelsea Gem and American Wonder are suitable for pots, and may be at once sown thinly in lightly-drained 10-inch pots, firmly filled with rich loamy soil. They are not amenable to rapid forcing, but from the first should be brought on in very gentle heat, giving plenty of air as the plants grow. They ought to be lightly staked and have plenty of liquid manure from the time the pots are well filled with roots. We prefer to grow early Peas in rough pits, where they always do well. As these pits are at present filled with Strawberries in pots, and will not be available till the plants are housed or may safely be set in the open, we raise the Peas in boxes and plant out when about 4 inches high. The boxes are those used for bedding plants, and are filled with fine light soil, out of which the Peas may be shaken without much injury to the roots. The seed is sown about 1 inch apart each way, lightly covered, watered if the soil is at all dry, and then placed on the border of a late Peach house. Here the plants grow sturdily, and are ready quite as soon as wanted. Prior to planting, a slight hot-bed is formed in the pits, on this being placed about 10 inches of good loamy soil. When this is warmed through, deep drills are opened with a spade, the plants next shaken clear of the soil and laid in thinly, the roots being dropped to their full length into the soil, and firmly fixed and watered. The lights being put on and kept rather close for a time, a little protection being also given every night, the Peas quickly take to their fresh quarters and should be lightly staked. If the pits or frames are available now, the seed may be sown where the Peas are to be cropped. In any case, the rows should be not less than 15 inches apart, and between these may be grown a row of Early Paris Market Cabbage Lettuce, the latter alone well repaying for all the trouble taken with the two crops.

EARLY PEAS IN THE OPEN.—Autumn sowing is not often resorted to now-a-days, nor is this to be wondered at, seeing that it is possible to have them quite as early and with far less trouble by raising the plants under glass and planting out as early in the spring as the state of the ground and weather permit. Where slugs are troublesome it is almost impossible to preserve an even plant, and patchy rows are both unprofitable and an eyesore. The seed may be sown now either in 3-inch pots, troughs, turves, or boxes, as advised in the case of frame Peas, and be placed in a cool house to germinate, this being a far better plan than drawing them up weakly in heat. Being planted out before they become root-bound and lightly protected, very little check is given, and if not so vigorous as those sown where they are to grow, they are the quickest to mature a crop. Nothing is gained by sowing very

early either on warm borders or in the open. The first or second week in February is quite soon enough, and rather than sow before the ground can be got into good working order, we prefer to wait another fortnight. Most of the early varieties grow to a height of 3 feet or rather more, and the rows ought to be at least 3 feet apart. The earliest crops are usually taken from warm wall borders, though it does not follow that they cannot be grown as quickly in the open. In most instances these borders are much too narrow, and tall Peas are apt to smother for a time both the valuable wall trees and any crop that may be growing at the foot of the walls. This difficulty may be obviated and better crops of Peas obtained if the tall varieties are about 6 feet apart, and between these about four rows of the dwarf-growing Chelsea Gem, or, if preferred, American Wonder. Other spaces not needed for these could be devoted to Spinach, Lettuces, Potatoes, or Cauliflowers, and all, including the wall trees, will get plenty of light and shelter.

PEAS WITHOUT STAKES.—Most of the Peas that arrive early in the markets are grown in the open fields and without the aid of stakes. No doubt gardens much sheltered promote the formation of taller haulm than is the case in the fields, but it will be found, if the plan is given a trial, that unstaked Peas in gardens do not grow so strongly as those plants of the same variety that are staked. There is no better early Pea than William I.—in fact it is much superior to any of the small-podded, round-seeded sorts, and if the rows of this are drawn 2 feet apart, the seed sown in a single line, and the plants duly moulded up, a profitable crop will result. Peas are naturally of erect growth, and if unable to retain that position they will yet keep their points well above the ground. Caractacus, a good form of Sangster's No. 1, is also a reliable early Pea, and has long been extensively grown for the markets.

SPINACH.—In but few gardens are there good breadths of winter Spinach, and as it is always in demand, seed should be sown as early as possible on a warm border. It is usually sown either between the rows of Peas at this time, or between the intended sites of those to be planted out from boxes or pots, and being of quick growth, it is cleared off and used before the Peas unduly shade it. Round or summer Spinach is suitable for this sowing, fresh rows being sown as often as Peas. Victoria forms larger leaves and is less liable to run to seed prematurely—two good reasons for sowing it later on. If the ground about the winter Spinach is well stirred with the flat hoe occasionally, this will tend to promote the growth of large succulent leaves, so much desired by most cooks. Spinach Beet is more easily grown, and is very hardy and productive, but the quality is not equal to good Spinach.

BROAD BEANS.—Where warm wall borders are of limited extent it is rarely advisable to devote any portion of them to Broad Beans. Ours are sown early in February in a sunny, open spot, and are usually quite as early as we need them. The old Early Longpod, or any good selection of it, is the most profitable for the earliest crops, being much more productive than the more showy Seville Longpod. Beans delight in a firm, rich soil, and the seed may be sown or dibbled into double lines 3 feet apart or in single rows 2 feet apart. The plants ought eventually to be about 6 inches apart in the rows, as with plenty of room they branch strongly from the bottom. If extra early dishes are desired, sow the seed singly in 3-inch pots under glass, and harden off and plant out as soon as the weather and the state of the ground will permit.

EARLY CARROTS AND RADISHES.—Tender young Carrots are always appreciated, and a frame or frames may well be devoted to their culture. Shallow frames are the best for this purpose, and these should be set on a gentle hot-bed, say about 3 feet high at the back and rather less in the front, and they ought to face the south. Some of the shortest of the heating material ought in most cases to be thrown into the frame, so as to bring the 6 inches of fine sandy soil placed over this very near to the glass, this being necessary to prevent drawn and

weakly growth, the more sturdy plants being the first to mature. If there is no danger of eventual overheating of the soil the seed may be sown at once, or sowing may be delayed till the soil is warmed through. Form shallow drills with the aid of a short straight rod pressed into the soil and gently worked to and fro, and not less than 8 inches apart for the Carrots. Between these, also thinly in drills, may be sown the Radish seed, all being covered with a little fine soil. Our soil is usually moist enough, but when rather dry soil is used it should be moistened after the drills are opened and before the seed is sown. If kept close and dark the Radish seed soon germinates, and light and a little air must be admitted before the Carrots are visible, or otherwise the former will soon be spoilt. Protect every night. French Forcing Horn is the earliest Carrot, but Nantes Horn is more profitable. The red and white extra early forcing Turnip Radishes grow very rapidly, and Wood's Frame is also first-class for frame culture and early borders.

SUCCESSIONAL MUSHROOM BEDS.—Much of the success attending Mushroom culture depends upon the quality and preparation of the horse-droppings used in their formation. If daily collected from corn-fed horses and stored thinly under an open-fronted shed, and not allowed to heat till sufficient is obtained for one bed, a good start has been made. The next proceeding should be to throw all up into a square heap to ferment, the aim being to get rid of rank heat and poisonous gases without actually drying or robbing the manure of all its heating properties. Directly the centre of the heap is found to be unbearably hot to the hand, turn it inside out, at the same time forking away any wisps of hay, and separating any masses of manure. A little short straw need not be objected to. Repeat this treatment every other day if need be, or, at any rate, often enough to anticipate a white heat, this quickly spoiling the manure. Three weeks is not too much time expended on the proper preparation of the droppings. If at any time the manure is found too dry to ensure decomposition, it must be watered, and when the fresh bed is formed, the material should be warm, moist, but not wet, well separated, and perfectly sweet. A bed may be about 15 inches high at the back and rather less at the front. It should be heavily trampled or beaten down with forks as each layer is added, and neatly finished off. If a plunging thermometer is not available, pointed stakes may be substituted. These, if thrust well into the bed and occasionally examined, should denote, first, a steady rise to about 90°, and directly a marked decline is observable the time has arrived for spawning the bed. W. I. M.

CULTURE OF THE CAULIFLOWER.

The Cauliflower is at all times a favourite vegetable, but more particularly it is appreciated in early summer, and its cultivation receives attention at the hands of those whose aim it is to maintain an uninterrupted supply of good close heads as long as possible. In order to do this, autumn-raised plants, which are being wintered in 3-inch pots, and those pricked out in cold frames and under hand-glasses should be planted out between the rows of Peas in a piece of well-manured ground as early in February as the weather will permit. Draw the drills 3 inches deep and 24 inches apart. In these place the plants, disturbing the soil and roots as little as possible when turning them out of the pots. Press the soil firmly about the roots, then place a mixture of fresh soot and lime around the individual plants, in order to keep slugs at bay, following this with a protection of Spruce boughs—two to each plant. These, after an interval of a few weeks, should be removed from one side of the plants to prevent them making a weakly growth, and, weather permitting, a week or two later they can be removed altogether, and the plants be earthed up in due time. Cauliflowers suffer very little in the process of being transplanted, and a few plants turned out of the pots carefully and planted about the same time at the foot of south walls, will, if protected from the ravages of slugs and attended to in the way of giving water at the roots when needed, yield an early supply of small useful heads. Later plantings should

be made at intervals of a week or two from the plants pricked out in pits, care being taken to have as much soil adhering to the roots as possible, and transplant in the manner indicated.

JANUARY-RAISED PLANTS.—Sow at once near the glass in a pit containing a gentle bottom-heat a pinch of seed of some good sort. The seedling plants, as soon as they are large enough, should be pricked out in boxes filled with rich soil, be watered, grown on near the glass for a few weeks, gradually hardened off, and in due time planted out as already advised. Sowings of Early London, Walcheren, and Veitch's Autumn Giant should be made in heat at the same time as Early Forcing and Snowball, and in other respects be treated alike. The produce of these varieties will give a succession extending over several weeks. Sowings of the varieties mentioned should be made in the open on a warm border about the middle of April, May, June, and end of July, a week earlier or later according to the state of the soil. The young plants should be pricked out in nursery beds at 6 inches apart, and be finally transplanted before they get crowded in the beds. During a dry summer the plants should be kept well supplied with water at the roots. Plants resulting from these sowings will, if subsequently attended to as already described, yield a supply of Cauliflowers well into the new year. In summer the leaves should be bent over the flowers to keep them from the direct rays of the sun. In early winter the same practice should be had recourse to as a protection from a few degrees of frost. With the same object in view several heads with the greater part of the stems attached should be cut on the approach of frost and be placed on the floor of a cool house or shed where neither frost nor damp can harm them, and the Cauliflowers will remain fresh and in good condition for three or four weeks after being cut.

H. W. W.

DEEP SOWING FOR PEAS.

I THINK that, as a rule, Peas are not only sown much too thickly, but also too near the surface. I was much impressed with Mr. Henry Eckford's practice when visiting him at Boreatton during the summer. In testing his new seedlings (in all cases saved from flowers carefully fertilised), he sows the Peas 6 inches and 8 inches apart in the lines, and he also sows deeply. The result is really remarkable plants that branch freely from the main stem, and produce fine crops of very large pods. In this way he is able to ascertain what his new Peas are capable of, for they are thus subjected to a thorough test.

As a rule, Peas are sown only to the depth of 2 inches or 3 inches, and probably in the majority of cases at the shallowest depth; and when the freshly drawn-up soil over the Peas subsides to its proper level, they are not so deep in the soil as the sower often supposes. I know gardeners who say that if they sow to the depth of 6 inches the Peas will produce much larger crops than when sown $1\frac{1}{2}$ inches to 2 inches only. A good deal depends upon the nature of the soil. In soils of a cold and retentive nature Peas would be more likely to rot when sown at a depth of 6 inches, and, therefore, shallower sowing is desirable. Instances are recorded of this happening. In the case of light, free soils, at least 4 inches should be given the seed, and especially in the case of strong-growing varieties like Champion of England, Ne Plus Ultra, and British Queen. It is essential that these varieties should be of vigorous growth and stand well to produce good crops. The deeper the soil has been cultivated the deeper can the Peas be sown; but Peas root deeply, and, provided the roots can go down well into the soil, the seeds need not be placed so far down in it. I have heard of Peas sending down their roots to the depth of 3 feet, but it was in the case of soil that had been deeply trenched just previously and well manured. I never saw better crops of Ne Plus Ultra Peas than those taken from ground in which Celery had been grown the previous autumn and winter, the Peas having been sown in the lines occupied by the Celery after the ground had been well forked over. Here they rooted deeply and pro-

duced remarkable crops. Peas suffer from drought, and thus it is that deeper sowing is necessary in light land. Mr. Eckford mulches the soil well about his Peas, and they stand well, and appear to suffer but little from mildew. This is good practice, especially in the case of a dry summer like that of 1887.

R. D.

TREES AND SHRUBS.

W. GOLDRING.

THE CAUCASIAN WALNUT.

(PTEROCARYA CAUCASICA.)

THE chief difference between this and the true Walnut (*Juglans*) is in the fruit or nut, which, instead of being round and smooth, as in the common Walnut, has two wings on the outer shell or husk which envelops the bony nut; hence the name *Pterocarya*. The Hickory nuts (*Carya*) are also closely allied to this genus. The Caucasian Walnut is a very handsome and but little known tree, and, consequently, though often found in old gardens, it is seldom planted now-a-days. When fully grown it very much resembles the Hickory, having a wide-spreading growth and elegant leaves, composed of ten pairs of leaflets, which are of a beautiful deep glossy dark



Branch and leafless twig of Caucasian Walnut (*Pterocarya caucasica*).

green, being often on young trees nearly 2 feet in length. Most of the specimens one sees of it are not much more than large shrubs with a number of slender stems springing from the base. This generally arises from the young trees having been cut back in an early stage of their growth, thus inducing the development of a number of suckers. For this reason the trees seldom make a distinct stem, and, therefore, never rise much above shrub height. I have met with but very few really fine specimens, and unquestionably the finest I have seen, and which is probably the largest in England, if not in Europe, is that in the famous old garden at Claremont, Surrey, now the residence of the Duchess of Albany. This is one of the grand places for trees, especially those kinds that were popular about the beginning of the present century, and, therefore, contains some very fine ornamental deciduous trees of various kinds.

The *Pterocarya* at Claremont is growing in the old kitchen garden near—much too near—the range of vineries. When I last saw the tree it was at midsummer, when the foliage looked at its best, and the handsome spreading head, with branches sweeping the ground, had a very fine effect. Mr. Burrell, the gardener,

has kindly furnished me with the dimensions of the tree, which are as follows: Girth of stem at 4 feet from ground, 11 feet 3 inches; height, 46 feet; circumference of head, nearly 70 yards. This tree is said to have been planted so recently as 1844, and this assertion is corroborated by an old inhabitant. If such be the case, this *Pterocarya* is of rapid growth, for the annual rate of growth would be about 1 foot. Mr. Burrell tells me that it is a gross-feeding tree, having widely-extending roots, which run just beneath the surface. He had occasion to cut a trench fully 15 yards from the trunk of the tree, and there found a mass of roots which when cut developed tufts of suckers at their tips much in the same way as Elms do. The *Pterocarya* should, therefore, be always planted in an isolated spot, where its hungry roots cannot feed at the expense of its neighbours, and especially Vines, as is the case at Claremont.

The *Pterocarya* is one of the first deciduous trees to burst into leaf, which, however, is no merit, but the contrary, inasmuch as the newly unfolded foliage is liable to be damaged by late frosts. Four years ago the foliage of the Claremont tree was completely blackened by a frost that occurred on the night of April 23, just when the buds had expanded. This so checked the tree that it did not recover during the whole season, the foliage not being nearly so fine as usual. The best position for a *Ptero-*



Young leaf of Caucasian Walnut (*Pterocarya caucasica*).

carya, which is naturally a water-loving tree, is near the margin of a lake or stream, so that its roots may have plenty of moisture; though some people say that if planted in moist soil in this country it does not ripen its wood well, and this

may be true in some cases. In any place about a garden it is beautiful, and even when it is only shrub size, its long leaves, which are larger than on tall trees, have quite a sub-tropical appearance. It is a native of moist woods at the foot of the Caucasus, where it was first discovered by Steven, and subsequently introduced to Europe about the year 1782, but it did not reach England till some time afterwards. It was at first known as *Juglans fraxinifolia*, the Ash-leaved Walnut, and Koch, the author of "Dendrologie," still adheres to the name *Pterocarya fraxinifolia*; but Meyer's name, *P. caucasica*, is that by which it is best known in this country. Michaux called it *Juglans pterocarpa*, and other names for it are *Rhus obscura* and *Fraxinus laevigata*. According to Loudon, the tree was re-introduced into Britain in his time by Messrs. Booth, of the Floetbeck Nurseries, under the name of *Pterocarya caucasica*. Loudon also suggests that it should be grafted on the common Walnut in order to retard the foliage in spring, and, to induce it to form straight stems, he advises that it be grafted standard high.

Phillyrea Vilmoriniana.—This new shrub has proved itself to be one of the finest of Ever-

greens for this country, being perfectly hardy and a good grower in any ordinary soil. Some of our principal nurserymen are beginning to appreciate its value and are working up stocks of it. It is totally unlike the ordinary kinds of Phillyrea, which are all small-leaved, while *Vilmorinia* has leaves as large as those of a Caucasian Laurel, of thick texture, and deep green and shining. The growth is dwarf and spreading, and not nearly so slow as that of other species. It is, in short, a first-rate evergreen shrub, and one that will undoubtedly be much planted in future. It has withstood uninjured the severe winters of the past dozen years, notably those of 1879-80 and 1880-81. It goes by the names of *P. decora* and *P. laurifolia*, the last being more expressive of its character than the others. *P. Vilmoriniana* is, however, its correct name, being that given to it twenty years ago by Boissier, the author of the "Flora Orientalis." It was found growing in the mountain valleys at great elevations in Luristan, in Persia, and is said in a wild state to grow about 10 feet high, to which height it may attain in this country, seeing that it appears to enjoy our climate.—Q.

Japanese Wych Hazel.—The familiar Golden Jasmine and the Mezereon, hitherto the only flowering shrubs to be found in the open garden, have this week a beautiful companion, for the curious *Hamamelis arborea* has opened its myriads of flowers, which beset the leafless branches. It is a much showier shrub than the commoner American Wych Hazel (*H. virginica*), as the flowers have vinous-purple sepals and golden yellow petals, which, being long, narrow, and twisted, have a singular appearance. It is in bloom at Kew, and will continue for some time. Though the name *arborea* indicates a tree-like growth, it is nothing more than a shrub like *H. virginica*, though in Japan it is said to grow 15 feet or 20 feet high. The other Japanese species, *H. japonica* and *H. Zuccariniana*, are of smaller size. It is an interesting shrub for any garden, the more valuable as it always blooms in mid-winter.—W. G.

NOTES OF THE WEEK.

WE learn that M. C. Bultet, of Troyes, has been made a Knight of the Legion of Honour for his efforts in the promotion of horticulture.

MR. BURBRIDGE, Trinity College Gardens, Dublin, writes: I never saw such a rich promise of flowers and of fruits as there is in gardens now. Every bulb and bud got thoroughly ripened up by the hot summer.

American horticultural journals.—We learn that the *Gardener's Monthly and Horticulturist* of Philadelphia has, owing to the death of its publisher, Mr. Charles H. Marot, been sold to, and amalgamated with, the *American Garden* of New York.

Mons. Benary and the Pansy.—A very showy plate of the Pansy, the most gorgeous yet devoted, perhaps, to this modest flower, comes from Mons. Benary. We regret, however, that the plate in question does as much as it can do to vulgarise the Pansy, as many plates and cuts do.

Lily of the Valley tree (*Andromeda floribunda*).—Mr. J. Crook, Farnboro' Grange, Hants. has sent us flowers of this shrub to show how well it can be forced. It has, therefore, a double use, as it is in the open ground a lovely thing when in full bloom. More might be made of this *Andromeda* for winter-flowering.

Crassula Septas is a little plant from the Cape of Good Hope, and resembles the London Pride (*Saxifraga umbrosa*) in its growth, foliage and flowers. It is of about the same size, has rounded fleshy leaves toothed at the edges, and spikes of white flowers proceeding from the rosettes of leaves, and is an interesting plant at this season. It is now in flower at Kew among other Cape plants.

Iris alata.—I have lately seen several notes about this beautiful plant, and it may be interesting to some to know how it does here. It seems to be perfectly at home under a light at the foot of a south wall. In this position, with the glass on during winter, air being given according to the weather, several small plants have grown to good flowering size, and this winter have flowered well.—R. I. LYNER, Cambridge.

Oxera pulchella.—We have received from Mr. Ross, of Pendell Court Gardens, Bletchingley, a spray

of this beautiful plant, which was recently certificated by the Royal Horticultural Society. It is the most graceful and beautiful flower we have seen for many a day.

Dendrobium Fytchianum roseum.—This is a charming variety recently introduced from Burmah, and now flowering in Mr. Williams' nursery, at Hollo-way. In habit and growth it is the exact counterpart of the species, but the flowers, instead of being white, are beautifully suffused with a delicate shade of soft rose colour.

White Freesias are in demand, and this will continue to increase as the public become acquainted with their thorough usefulness. Small bunches of the lovely, pure white *Freesia refracta alba*, if sent into the market in sufficient quantity, would compete severely with the *Polyanthus Narcissus* and others that are now held in high esteem.

Zygopetalum Mackayi.—Mr. Rainbow, Broughton Hall, Yorks, has forwarded a fine spike of this handsome Brazilian Orchid. There were five flowers on the spike, and these represented an excellent form; the lip large, spreading, and beautifully pencilled with radiating purple lines; the sepals and petals boldly blotched with rich chestnut-brown on an olive-green ground.

Double Chinese Primula Marchioness of Exeter is one of the best varieties of its class, as the plants are at the present time crowded with perfectly double rosette-like flowers, large, full, and of an exquisite blush tint. A good one with a little Maiden-hair Fern is sufficient for a button-hole. If all the double varieties were only as free-flowering as this and the old double white, we should see fewer single kinds.

Highbury Fields are about to be beautified, as we learn that the Metropolitan Board of Works, urged on by the Islington Vestry, are about to do something towards making the Highbury Fields ornamental. It is the intention of the Board to form paths round the two northern portions of the ground, to plant trees and plants there, and to similarly improve the southern fields. The estimated cost, exclusive of labour, is over £1200.

Kensington Gardens.—We learn that a new portion of Kensington Gardens has been thrown open to the public by the opening of a gate near the Palace Gardens. This has been done with the permission of the Queen. The new entrance has been rendered additionally valuable by the completion of new paths, the removal of a long high hedge forming the boundary of the gardens towards Palace Gardens Road, and the partial removal of the brick wall in the high road on the north side of the gardens, and the substitution of open iron railings. New seats have also been provided.

Hardy flowers at Tottenham.—Now that January is almost over, hardy flowers are appearing and will become more plentiful as the days lengthen. The following kinds are in bloom in an open border in the Hale Farm Nurseries, Tottenham: *Crocus chrysanthus*, *C. alaticus*, *C. Korolkowi*, *Elwes' Snowdrop* (*Galanthus Elwesi*), *Iris Histrio* and *Muscari azureum*. The latter is rather a new plant from Asia Minor, and one of the prettiest kinds of the genus; the flowers are very similar to those of the Grape Hyacinth (*M. commutatum*). *Iris Vartani* is also in bloom. This is an exceedingly pretty *Iris*, closely allied to *I. Histrio*, but it has rather smaller flowers, which are of a pale lilac colour, beautifully tinted with purple. This, I believe, has not previously flowered in England.—G. R.

"Turner Memorial" prizes for 1888.—An idea prevails that the prize money available from this fund should be set apart to give prizes for florists' flowers only. This is an error. The expressed wishes of the committee were, that as the late Mr. Turner had a mind in active sympathy with every branch of horticultural work, and had introduced new varieties of fruits and vegetables as well as flowers, prizes should be given for fruits and vegetables. Acting on this assumption, the trustees have decided to give a fresh prize of £10 at the Grand Yorkshire Gala, York, 13th to 15th June, for a collection of ten distinct varieties of fruits. The society will give £5, £3, and £2, as second, third,

and fourth prizes. At the Crystal Palace, on October 11 to 13, the following prizes for twelve dishes of vegetables, distinct: first prize £4, second £3, third £2, fourth £1. These prizes are open to gentlemen's gardeners only.—JAS. DOUGLAS, *Hon. Sec. to "Turner Memorial" Fund.*

Memorial to the rosarian, Francois Lacharme.—M. Lévêque, on behalf of the committee in Paris and Lyons organised for the purpose of raising a memorial over the grave of this noted Rose grower, has asked me to distribute some circulars inviting the co-operation of English Rose growers. Naming the request to some members of the National Rose Society, it was suggested that it would be a graceful act if the contributions of the English growers took the form of a medallion with an English inscription on the tomb or monument, and on conveying this suggestion to M. Lévêque, he writes that they would gladly accept such a contribution, and would give the English memorial a place of honour. Either Mr. D'Ombraïn or I would be happy to receive any contributions to this fund, which I need hardly recommend, so well was Lacharme's name known to all rosarians. Subscriptions of 5s. to 10s. would suffice for all that is necessary.—GEORGE PAUL.

Death of Mr. John Day, of Tottenham.—It is with regret we have to announce the death of this gentleman, whose devotion to Orchids was widely known. He was a great enthusiast in the particular hobby he had taken up, and such Orchids as *Lælia Dayana*, named in his honour, will keep his memory green in the minds of horticulturists. At one time he had one of the finest collections in the country, this being dispersed in 1880. He did not, however, give up his favourite pursuit, but formed a collection smaller than the former, and only restricted to species and varieties of great rarity. So great was his love for Orchids, that it was his favourite pastime to make coloured drawings of the plants, spending considerable time in visiting collections famed for rarities and choice species. He also travelled abroad, visiting India, Ceylon, Jamaica, and Brazil, to gain a further knowledge of the plants by seeing them in their native wilds. We can ill afford to lose such an ardent specialist.

BOOKS RECEIVED.

"The Journal of the Linnean Society." Longmans, Green, and Co., London.

"Fifth Annual Report of the Metropolitan Public Gardens Association." 1887.

"The Farmer's Friends and Foes." By Theodore Wood, F.E.S. Swan, Sonnenschein, Lowrey and Co., Paternoster Square.

Names of plants.—*Carlyon*.—See THE GARDEN, December 3 (p. 505).—*W. Gibbs*.—Pale form of *Cattleya Triana*.—*H. D. Celine*. *Forestier*.—*Shrub*.—*Elæagnus pungens aureo-variegata*.—*A. G.*—*Clematis montana* is a climbing species, with buds at the base of the flowering branches. *C. Viticella* is a shrub with climbing tendrils or petioles. This species rarely, if ever, climbs, and flowers always terminate the branches, while *C. montana* flowers at the axils and continues growing.—*R. B. (Southampton)*.—The flower is not a *Hydrangea*, but appears to be a head of *Laurus tinus* (*Viburnum tinus*); the other spray is a *Grevillea*, probably *G. alpestris*.—*T. W.*—1, male cone of *Araucaria imbricata*; 2, cone of *Pinus pungens*; 3, ditto of *P. parviflora*.—*W. W.*—1, *Oncidium Phalænopsis*; 2, *Pilumna nobilis*.—*Shirley*.—1, *Onychium japonicum*; 2, *Adiantum cardiochænum*.—*Nero*.—1, *Bartamia crispata*; 2, *B. ithiphylla*; 3, *Hookera lucens*; 4, *Dicranum adiantoides*; 5, *Bryum hornum*.—*F. B.*—1, *Saccolabium bellinum*; 2, *Masdevallia icthodes*.—*Record*.—1, *Cattleya chocoensis alba*; 2, *Maxillaria picta*.

Names of fruit.—*Learner*.—2, Waltham Abbey Seedling; 3, Besspool; 5, Lewis's Incomparable.—*F. Bridger*.—Pear not recognised.—*Colonel Lockwood*.—We cannot tell what your Apples may be. They do not seem to us of any value, as there are so many far superior.—*B. E. C. Chambers*.—Yellow Apple, a fine specimen of Warner's King, well preserved; small Apple, not known.—*Pedro*.—Apple Hambleton Deux Ans; small Pear, Bergamote d'Esperen; other Pear, Vicar of Winkfield.

WOODS & FORESTS.

FORESTRY.

IN order to grow trees in the most profitable way, it is best to grow them in large blocks. Trees planted in large quantities thrive better and give a quicker and better return than such as are planted in small numbers as belts and small plantations. This arises in a great measure from the shelter which the trees afford each other, and if thinning is properly attended to in the case of mixed plantations or where large timber is the object in view, the trees naturally attain fine straight stems with very little taper. As this is a point of much importance in successful tree culture, the advantage of such a system can be seen at a glance. When trees are properly thinned they require very little pruning, as the side branches gradually lose their vitality and fall to the ground, and it is only in cases where trees produce double leaders, or in the case of fracture by wind that pruning becomes necessary. When trees are grown in quantity and managed in this way the expense incurred for pruning is very trifling; whereas trees in small masses and isolated positions produce a larger quantity of branches, and consequently require much more attention in the way of pruning and training, and being more exposed they make less progress and often receive considerable damage during a storm.

The great regulator of all commercial enterprise is the price to be obtained for the article. In illustration of this I may state that the price which I have realised for fine clean Ash timber, the produce of large plantations, was 1s. 6d. per cubic foot; whereas timber of the same age, but grown in belts and small blocks, only fetched, as a general rule, 1s. 3d. per foot, while that of trees growing here and there only realised 1s. per foot. These are the actual prices which I have received for timber grown under the conditions specified, and I think it is conclusive evidence of the utility of growing trees in large quantities. But 1s. 6d. per foot does not represent the full advantage to the proprietor in this case. Trees grown in large blocks are generally clean, measurable timber for a distance of about three-fourths of the stem; whereas trees grown in less quantities only average about two-thirds of a clean stem, and isolated specimens in many cases average only one-third. These are all points of much importance in tree culture, and well worthy of the due consideration of extensive landed proprietors in the formation of their plantations. A great deal of this class of timber is used for shafts and handles, and when it can be supplied in quantity for any length of time it is an inducement to carpenters and turners, who use the wood extensively, to erect their machinery as near the plantation as possible, and thus render the cost of carriage in a rough or unprepared state very trifling. This is a matter of much importance, as I know that a consumer in the immediate vicinity of the plantation from which I supplied the timber saved about 4s. per ton in this way for carriage alone. When the timber is delivered from the plantation, it is cut up and made into shafts and handles of different shapes and sizes, and then packed up and sent off to its destination, where it is fitted on a variety of tools and implements, according to its make. By this system the owner has always a steady market, a fair price for his timber, and ready cash. One of the great drawbacks to successful and profitable tree culture in this country is the heavy charge for carriage made by railway companies. As a general rule, their present rates should be reduced at least one half, and in the case of rough,

unprepared timber it should be brought down to even a lower scale. The cost of carriage in this country has always been a vexed question both to seller and buyer, and until some legislative steps are taken in the matter, I fear it will continue to be so.

As an example of the evils of this high rate of carriage, I may state that in many cases the turner can have wood suitable for his requirements from Norway at a cheaper rate than I can supply the same class of timber and send it a distance of some forty miles by train. The foreigner in this case cuts his wood and allows it to become dry and seasoned with the bark on. He then cross-cuts it into suitable lengths according to order, packs it into bags, and sends it off to its destination. By this means the weight and bulk, and consequently the cost of transit, are considerably reduced. On every hand we have abundant proof that, in order to grow timber in this country for profit, great economy must be the rule of the planter, from the time of the formation of his plantation until the trees arrive at full maturity. Large as well as small plantations require to be properly fenced at the outset, and the cost of fencing per acre varies to a large extent according to the size of the plantation. The cost of fencing small plantations is always higher in proportion to that of fencing a large area; consequently this is another inducement to proprietors of waste land to plant their trees in large quantities, in order to reduce the expense of the formation as much as possible at the outset. It is also more economical to purchase large quantities, as in this way trees can be obtained at a far cheaper rate.

J. B. WEBSTER.

The Douglas Fir as a timber tree.—Considering the widespread interest awakened by the first thinning of the trees of *Abies Douglasi* at Taymount, perhaps the following will be of interest to a large number of your readers. The plantation of Honey Hill, Scone Estate, consisting of 13 acres, was laid down in 1857, and is therefore now thirty-one years of age. The soil is moor, with a strong retentive subsoil, and is much exposed to the west and north winds. It was enclosed with an upright paling, proof against hares and rabbits. The trees were planted in lines at 9 feet apart, and 9 feet between the lines. The nurseries were of Larch and Scotch Fir in equal numbers. All made a successful and rapid start, but during the Tay Bridge gale ninety-six trees of the *A. Douglasi* were blown over. Some of these were set up again; but the greater number were cut over, and their places filled up with fresh plants. In consequence of so many *A. Douglasi* trees having been blown over, the nurseries are not yet all removed. This plantation is at present undergoing a regular course of thinning, which consists chiefly in removing nurseries that are interfering with the trees of *A. Douglasi*. The difference in the comparative growth of the *A. Douglasi* and Larch is worthy of notice. I measured three of the former:—

			cub. ft.
First tree ...	30 × 11½	27	6 7
Second tree ...	30 × 12½	32	6 7
Third tree ...	30 × 12½	32	6 7

The largest Larch tree in the plantation contains 12 cubic feet, which for the age is a large growth in Larch; but the *A. Douglasi* trees yield a cubic foot for each year of their growth. The sale of the thinnings of the plantation at Taymount took place on the 23rd ult., and they were sold at about the same rate as those of Larch. The largest class sold at about 1s. per cubic foot—WILLIAM M'CORQUODALE, in the *Perthshire Constitutional*.

Carex divulsa.—In THE GARDEN of Dec. 24 (p. 594) "M. A." recommends *Carex divulsa* as an excellent subject for covering bare places under trees in winter. I have used it as such, and found

it to be in every way suitable for this purpose. It is very hardy, as I have planted it successfully at an elevation of upwards of 1000 feet above sea level. It thrives well under trees and is adapted for planting either on the flat surface of the ground, or in masses on small mounds of earth or rock where a little soil can be procured to cover the roots. When the plants are established in this way their glossy green leaves during winter are very pleasing and attractive.—J. B. W.

Preserving wood.—The Ellead Floral Company of St. Louis write us in regard to the merits of a new process for preserving wood, and which they believe will be of value to builders of green-houses, which of all buildings are most subject to decay through the alternate soaking and drying they are subject to. The company have the past summer built a Rose house 20 feet by 104 feet, constructed entirely of the prepared wood (Pine), as a test of the material. They have, of course, so far been able to ascertain only that the chemicals used are not injurious to the plants, which they state have made good roots and splendid progress. The prepared wood is guaranteed to last three times as long as that not treated, and the treatment costs but little. The wood is prepared by impregnating it with a solution of chloride of zinc and sulphate of lime. It is placed in large metal cylinders and steam introduced until the wood is heated to the boiling point, thereby destroying the fermentable elements and the sap, after which the steam is blown off and the solution above named is let in and heated by means of steam coils, being left to operate on the wood under a pressure of 60 lbs. to 100 lbs. until impregnation is complete. One cubic foot of white Pine or Cypress will absorb from 6 lbs. to 7 lbs. of the solution. It is known as the zinc-gypsum process. Works for preparing the wood have been erected at St. Louis and are conducted by a company styled the American Wood Preserving Company. The value of anything of this kind can only be demonstrated by the lapse of time, and the result of this experiment of the Ellead Floral Company will be looked for with interest, as the value of the process—if the claims made are verified—cannot but be great to builders of plant houses.—*American Florist*.

SHORT NOTES.—WOODS AND FORESTS.

A covert plant.—The Royal Fern makes a good covert plant, and when grown in damp, boggy situations, under the shade of trees, it often attains a large size. It is said to be rather scarce in Ireland, and is only recorded as having been found at a few places in the south of that country. I have, however, found it in the Lough Neagh district, in the north, notably at Anagarriiff Lake, co. Armagh.—J. B. W.

Rabbits destroying trees.—In going through the woods and plantations here (where rabbits are, unfortunately, very numerous) I found that during this mild winter many of the trees, such as Ash, Oak, Laburnum, Alder, all the Hollies and Laurels, and also several Beech trees, measuring from 4 feet 6 inches to 5 feet in circumference, had been peeled round to a height of 16 inches. As I have never heard nor seen the like before, and always understood that the Laburnum and Laurel were rabbit-proof, I shall be glad to know if any of your readers have noticed the same.—J. W. PRING, *Linghome, Cumberland*.

The White Cedar (*Cupressus thyoides*).—"A. D. W." in THE GARDEN, January 21 (p. 68), does not give the size of the tree he describes. We have a specimen here more than 50 feet high with a spread of branches of about 40 feet, the stem at the base being 8 feet 6 inches in circumference, and at 2 feet from the ground 7 feet 8 inches, where it branches off into two main leaders and other large branches. It is in perfect health and heavily laden with its small grey cones, the ground also being covered with them. Although it is described as growing naturally in damp localities, the specimen is growing in pure loam, with a subsoil of volcanic rock on rising ground with a southern aspect, but well sheltered from north, east, and west winds. It seems, therefore, that shelter is most essential, as the brittleness of its wood and heavily-berried branches cannot withstand the gales we are subject to.—J. GARLAND, *Killerton, Exeter*.

. With the above note was sent a healthy, heavily-berried branch of this Cedar.—ED.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE UGLY PINCUSHION BOUQUET.

TO THE EDITOR OF THE GARDEN.

SIR,—How much longer will any lady with the slightest pretension to taste persist in carrying to ball or party that great mass of jammed-together blossoms stilted on wires and petticoated in lace, or, worse still, in a sham lace paper, and miscalled a bouquet? A good bold handful of fresh and fragrant blossoms and foliage, as choice and dainty as may be, when cut with long stalks or stems, arranged loosely, simply and naturally, and bound together by a bit of ribbon or a silken string, would serve every purpose for which the mushroomy masses of blooms known as bouquets are now used. As it is, every one bouquet is very much like another, and competition itself is limited to emulation as to mere size or to the money value only of the flowers of which the bouquets are made.

What I would like to see is a revolution as to this old fashion in bouquets. When I spoke to a professional florist on this point the other day, he said that bouquets were "good for trade," but I believe that the bold handful of any one or more kinds of choice flowers tied up gracefully in posy fashion would prove far more profitable to the florists in the long run than the ugly confection or heap of flowers now in use. The posy would lead to more kinds of flowers being used, and an assemblage of fair women might be a "flower show" of the sweetest and best. As it is, the "bouquet" has only one form, and that a bad and heavy one. The flowers come upon one with irritating uniformity—Violets, Rose buds, Stephanotis, Tuberoses, Camellias, Gardenias, white Lilac, or perhaps a few Orchids are used for what are to be expensive arrangements. Each flower has its head nipped off as if it were a venomous snake, and the head is then impaled on steel wire as if to carry out the resemblance to the heads of traitors formerly exhibited on our old city gates or walls. But in the bouquet they are jammed together in a mass, and nearly, if not all, their individuality of grace, form, and exquisite shades of colour is gone, never to return. After I had seen the florist, I spoke to a lady, who, agreeing with me, said, "You must get the Queen or the Princess of Wales to carry posies instead of bouquets."

But I think that ladies will consider the immense difference from all points of view—cost, grace, lightness, sweetness, and the great impetus they would give to floriculture if they would throw over the "big mushroom" and carry our garden flowers in their simple grace and beauty.

VERONICA.

* * It would be a great step this, but the posy itself was a "jam," so we think the best

way would be not to use the word posy—cut flowers is name enough. Let a lady wear her favourite flower, or two or three in simple association, and give up the dumplings! There is a shocking waste of time and energy in making ugly arrangements of flowers; they all prevent the beauty of the flowers being seen. Will any lady readers of THE GARDEN kindly give us their ideas on the point?—ED.

GROWING OUR OWN SUGAR IN OUR APPLES.

CIRCUMSTANCES have hitherto prevented me from assisting in the present praiseworthy effort put forth with such vigour in THE GARDEN to select the very best Apples and Pears for general cultivation. But there is one point of such importance, that I hasten to back you up in at once, and that is the great necessity of growing our own sugar in the fruit instead of purchasing it; and this not merely or chiefly because home-grown sugar is the cheapest, but the best. The sugar which we add to our Apples only robs them of their specific and delicate aroma, reduces their quality, and renders them insipid and common-place. For example, cook a Beaufin or a French Crab in sugar, and you have a pulpy mass, or pieces of coloured matter that may be Apple, Rhubarb, or Swede Turnip, as the eater may fancy. But cook a Ribston, Blenheim, Cox's Orange, or Newtown Pippin, or even King of the Pippins or Cockle Pippin, and each will be found not only most agreeably sweet, but so specifically distinct as to form a different dish. The finest Apples for cooking are, without doubt, the Ribston and the Newtown Pippins at their best, and both are not only greatly deteriorated, but half-spoilt in flavour by any additions of foreign sugar.

I have, in fact, long held the opinion that the best eating Apples are also the best cooking ones. Convenience, the possession of kitchen varieties, and the perversity of cooks in heavily dredging all Apples with sugar frequently overthrow one's convictions, and go far to ruin the best Apple pies and puddings. As a fact, the popular custom of adding paste and sugar to most cooked Apples is largely responsible for the loss of most of their richest and most delicate aroma, as well as the source of their unwholesomeness to so many consumers. Butter, batter, dripping, and sugars of the rankest, roughest character, but little superior to molasses—in the name of all our finest Apples, why should these be allowed to destroy all the most delicate and delicious flavours of our choicest Apples? No; if we wish to enjoy the latter in perfection, let us either roast them in their skins, or skin and core and place in a pipkin, as you did the Newtown Pippins, and enjoy a feast of Apples pure and simple, and free from the suspicion of paste, treacle and fat.

I knew a lady once so determined to eat her Apples pure, that she would seldom eat them only roasted or baked entire. Beginning with the old Keswick Codlin, she went on to the New Hawthornden, Cellini, Alexander, King of the Pippins, Cox's Orange Pippin, Ribston, Calville Blanche, and wound up with Court Pendu Plat. All were enjoyed in their season, but the feast of aromatic pleasure culminated in the Calville Blanche grown on the bottom of Peach walls. The rule for all was little or no sugar, and that paste ruined the flavour of Apples.

Few things would forward the growth of our own sugar in our Apples more than if the heads

of houses would see to it that no sugar is allowed to be added to the Apples before cooking or eating. This practice would not only improve the flavour of any Apples that needed additional sugar, but would open the eyes of the people to the enormous consumption of sugar in reducing all our Apples to a sort of dead level of mediocrity of flavour. Even the most common-place Apples are improved in being cooked or stewed in their own juices, adding sugar to taste afterwards. But by growing only the finest Apples an enormous saving of sugar will be effected, while the most wholesale deterioration and destruction of Apple flavour, through the abuse of sugar, will be prevented.

D. T. F.

STANDARD PEARS FOR BRITAIN.

No. 1.—THE JARGONELLE.

APART from early Pears, of which a few may be grown by those who care for them, the Jargonelle is the earliest of our standard Pears. We should like to have information concerning it from our fruit-growing readers in every county (both in England and Scotland) as to its hardiness, bearing qualities, the best style of cultivation (whether against a wall or in the open), and the most suitable stocks.

Why is it not grown more in the south of England?

How far north in Scotland is it profitably grown away from walls?

Has it in some places been driven out of cultivation to make room for new or untried varieties?

How does it thrive in Ireland and the west of England?

We have evidence of the great value of this Pear for nearly four centuries in our country, and any information that will enable people to grow it better and enjoy it more will be very welcome to us. Next week we shall give its history.

TOO MANY PEARS.

REFERRING to my suggestion that you should ask your readers in all parts of the kingdom to send you a list of twelve sorts that each sender has practically tested as being in all respects good, and that from such data a list of the twelve best for all parts might be compiled, I fail to see in what way, as stated by you at p. 46, "such an idea is to blame for the poor show of fruit." To me it seems as if the very opposite must happen if a collection of varieties be weeded down from one hundred kinds to a dozen, and that by persons having special knowledge of the varieties of Pears, as, of course, it must be inferred that none others would send you lists. I quite approve of the effort you are making to get the names of kinds that will turn out good in all parts of the kingdom, but I am not so sanguine as you appear to be as regards getting even a dozen, and with less than that it is ridiculous to suppose a constant supply could be had the season through. For argument's sake I will take your list of five (p. 69) that you have already selected, and my opinion is the same as your own as regards four of them. As to Jargonelle, though of excellent quality and productiveness, it rots almost before it is ripe, and therefore, in my opinion, is perfectly worthless. A few lines lower down, in the same column, Mr. Bunyard—than whom there is no better fruit authority—falls foul of Winter Nelis and Marie Louise "because the trees are very tender." Hampshire climate, therefore, beats Kent, for they are not tender here. Another argument in favour of my suggestion is of

your obtaining the names of the best sorts over as wide an area of the country as possible. I am longing to see your list of five increased to a dozen, and to take one kind off is not the way to do it; but I substitute a better, and give you Williams' Bon Chrétien for Jargonelle, and my other seven are Fondante d'Automne, Beurré Superfin, Thompson's, Glou Morceau, Huyshe's Victoria, Olivier de Serres, and Bergamotte d'Esperen. W. WILDSMITH.

NOTES OF THE WEEK.

Bougainvillea speciosa.—Mr. Frederick Miller, Northdown House Gardens, Margate, has sent us two magnificent sprays of the beautiful *Bougainvillea speciosa*. The vivid rose-purple colour of the flowers is most striking by reason of the dense mass of bloom.

Narcissus cyclamineus.—Mr. T. S. Ware, of Tottenham, has sent us a pot of this Narcissus to show how useful it is at this season. An excellent engraving of *N. cyclamineus* is given in THE GARDEN for May 28, 1887 (p. 483).

Cypripedium Morganæ is again flowering in Mr. Williams' nursery at Holloway. Not only can this plant claim to be the grandest hybrid yet obtained, and one of the very finest of all the Slipper Orchids, but it is one of the freest bloomers in the whole genus. —W. H. G.

Chinese Date Plum (*Diospyros Kaki*).—We have received from Mr. G. F. Wilson, Heatherbank, Weybridge, a fruit of the Kaki, or Chinese Date Plum. It resembles very much a medium-sized Tomato fruit, as brilliant in colour, and with a Plum-like flesh. It is said that the Chinese use them as sweetmeats after they have been sun-dried.

Cyclamen coum.—The most beautiful spring flower now at Oakwood is *Cyclamen coum*; it is growing in the full sun in a bed containing old mortar. After many experiments, I am sure that this treatment suits hardy *Cyclamens* better than any other we have tried. Both flowers and leaves are finer and brighter in colour. —GEORGE F. WILSON, Heatherbank, Weybridge Heath.

Violets and Lilies of the Valley.—I have enclosed a bunch of Swanley White Violets and a few sprays of Lily of the Valley for your acceptance. The Lilies are from crowns prepared at Lifton Park. —G. H. MOUNSDON, Lifton Park.

* * A beautiful gathering of double, highly fragrant Violets and Lilies of the Valley. Such flowers are delightful at this season. —Ed.

White African Lily (*Agapanthus umbellatus candidus*).—Some time ago I noticed in THE GARDEN some remarks on the white *Agapanthus*, and the difficulty of obtaining it. I send you a head of bloom of the above variety, which you will see is pure white. This, of course, has been forced. I will send you later on a head of bloom cut from a plant in the open, so that you may see that glass is not necessary to have the flowers white. We have grown it now some seven or eight years. It is easily cultivated and may be readily forced, while each bloom may be cut and wired, thus rendering the plant additionally useful. —E. PETERS, Guernsey.

Primrose flowers.—I enclose a few Primrose blooms to show how well they open in a cold frame. We have had blooms out of doors as early as this, but very rarely are they fit to gather for at least another month, owing to frosts or gales of wind disfiguring them. Last autumn I lifted sufficient roots to fill a good-sized frame, planting them in the soil from which Melons had just been cleared. They are now a mass of bloom, and most useful at this dull period of the year for many purposes. After a spell of mild weather sharp frost has set in, and this morning the thermometer stood at 17°, or 15° below freezing point; it is to shelter these early-flowering plants that cold frames are so valuable. I have no doubt but that many of your readers would like to try them in pots. —J. GROOM, Gosport.

A yellow Cyrtanthus (*C. lutescens*).—A short time since we made a note of *C. McKeni*, remarking how beautiful it is, and how valuable it must become as a winter-flowering plant. The yellow *Cyrtanthus* may be said to be the counterpart of the white except in colour. The flowers are about the same size and borne in the same way, but are,

instead of white, of a beautiful clear yellow. It stands out conspicuously from the numerous plants to be seen in bloom in the house at Kew devoted chiefly to plants from the Cape of Good Hope. This bulb seems to be deciduous, as the leaves are only partially developed, whereas *C. McKeni* flowers after the leaves are fully grown. The flowers are produced in clusters of about half a dozen on the top of stems about 9 inches high. The bright and clear yellow flowers are a marked contrast to those of the white-flowered species. The hybrid, *C. hybridus*, a cross between *C. sanguineus* and *Vallota purpurea*, is also again in flower.

The D'Arcy Spice Apple.—Mr. Bunyard sends this from Maidstone. A delicately flavoured, tender-fleshed Apple, of which more ought to be known. It is worth eating. But King of the Pippins is the most popular Apple, at least according to the report of the Apple congress—"what does it matter so long as it sells and looks well outside?"

Masdevallia racemosa Crossi.—This is a natural hybrid, and seldom to be met with in such perfection as we lately saw it in The Dell collection, where it is now in bloom. It is placed in the coolest house, and thrives vigorously in a very moist situation, growing well in a basket. Its blossoms are of a brilliant orange-scarlet, very effective, and borne well above the foliage. Out of several recent importations but few plants have arrived in a living state, owing to the thin, fleshy nature of the stems. —A. D. Herts.

Violets from Mayo.—Herewith I send you some flowers of the Violet, Coolcronan Hybrid, which is blooming with great freedom. I have had the plants in flower for nearly two months, and they are planted in a cold frame, always kept open by day. I have also Pau Anemones in full bloom, also many of the common single sorts.

* * The flowers received were large, paler in colour than those of Marie Louise, and finer than those of the well-known Neapolitan. Their full fragrance is delicious; a small bunch scents a room. —Ed.

Flowers at Pendell Court.—Amongst the interesting plants in bloom at Pendell Court, Bletchingley, are a few things worthy of special note. The beautiful *Astrapea Wallichii* adorns the stove with its drooping umbels of scarlet flowers, and in the Lily house *Canna Nouttoni* is flowering freely; this and the better-known *C. Ehemanni* make a charming couple when planted by the edge of a tank. They throw up robust leafage and fine spikes of flowers. *C. Nouttoni* has narrower, more glaucous leaves and brighter-coloured flowers than *C. Ehemanni*. Another fine plant now in flower is *Billbergia decora*, a most handsome Bromeliad; it has large, boat-shaped leafy bracts of a beautiful warm rosy colour. There is also in bloom the scarlet *Spiranthes speciosus*.

Snake's-head Restrepia (*R. ophioccephala purpurea*).—This is a very singular little Orchid, and one that I do not remember having seen in flower before. Though called a *Restrepia*, one cannot see the relationship at first sight between it and the well-known *R. antennifera*. It is a good deal like the latter species in growth, the leaves being thick and rounded. The flower comes from the top of the leaf-stalk, and is about an inch across, the two rounded sepals being like a gaping mouth. The colour is a bright vinous purple, with mottlings of white at the base of the uppermost one. It is, I believe, also called a *Pleurothallis*. A true Orchid lover, such as the late Mr. John Day, would have been delighted with this little gem. It may be seen in the Kew collection, and it promises to last a long time in bloom. —W. G.

The Loquat flowering in Worcestershire.—I beg to enclose a spray of the Loquat (*Eriobotrya japonica*), gathered from a tree growing in the open air at Levant Lodge. I believe there is no record of this plant having flowered so far north as this before. The plant at Kew, which has been there many years, has, Sir J. Hooker tells me, never bloomed. Mr. Kent planted two little trees here about ten years ago—one is against the front of the house facing the east, which has grown well, but has shown no sign of

flowering; and the other against the kitchen wall, which has a south aspect and forms part of a courtyard; the house gives it protection from the north and east winds. This tree flowered once before, about three years ago, in March. It has now been in blossom since September, giving out a most fragrant scent whenever the sun shines. It has had no screen but such as is provided by its large evergreen leaves. I thought that some of the readers of THE GARDEN might be interested in this account. A few blooms are forming fruit, but it cannot be expected that the fruit will be matured. —EDITH KENT.

* * It will be interesting to see if the fruit matures. There is a record in THE GARDEN, April 2 (p. 345), of a Loquat in the gardens of Stawell House, Richmond, bearing a fine crop of fruit. About a dozen bunches were on the plant, each bunch composed of from five to ten fine fruits. But this is in a southern county, and therefore warmer than Worcestershire. —Ed.

Callas are extensively grown for the market, and the bold, handsome, Lily-like flowers never want buyers. It is at this season that they realise the best prices; and to have them now it is necessary to give plenty of stimulants and a moderate amount of heat. In the Swanley Nursery are plants in rude health throwing up many spikes, each bearing a flower of fine proportions and exquisite colour. The propagation is effected by the side shoots that spring up round the base of the plant, and these are taken off, potted up, and when well established planted out for the summer in trenches. Here they gain strength for a full display of flowers in the winter. When autumn comes they are potted up and kept in heat. Manure water is given, and this induces handsome foliage and finely-developed spathes.

Clematis indivisa.—A plant of this beautiful New Zealand *Clematis* is trained under the glass in one of the houses in the nursery of Messrs. H. Cannell, Swanley. One of the special points of usefulness in this plant is its quick growth, as it covers a comparatively large space in a short time, the graceful twining shoots being crowded with white, fragrant flowers, that when seen in a mass are delightful. It is of such a free-blooming nature, that one specimen will afford considerable material for filling *epergnes*, &c. In its native home of New Zealand it is said to be very common, smothering lofty trees with its rambling growth, and doubtless hedges, as is the wont of our own native Traveller's Joy (*C. Vitalba*). Those who have not yet got *C. indivisa* should include it, as it is easy to grow in a large greenhouse, or a small one for that matter, only restriction would be necessary. A coloured plate of the variety *lobata* was given in THE GARDEN for Oct. 27, 1877.

Iris fimbriata might be appropriately called the greenhouse Iris, it being the only one of the many Irises in cultivation that is always grown in the greenhouse. It is a very beautiful plant, flowering in the middle of winter and at other seasons, but for winter alone it is invaluable. It has evergreen foliage resembling that of other broad-leaved Irises, and the tufts are gracefully reflexed. The flowers are about 4 inches across and of a lovely pale mauve colour, with blotches of bright yellow. The erect stigmas are finely fringed; hence the name *fimbriata*. It is also called *I. chinensis*, as it is a native of China. It requires ordinary greenhouse culture, and may be grown to perfection with but little attention; in fact, it only requires potting at wide intervals, as it seems to flower most abundantly if the roots are pot-bound. It is especially adapted for planting out in a cool house.

A new race of greenhouse Rhododendrons is being promoted by Messrs. Veitch, of Chelsea, and it is likely that good results will be obtained, as the object in view is to induce a greater compactness of growth and bushy habit than is characteristic of the Javanese varieties that have now proved their usefulness in many ways. If these have one fault it is their leggy, rambling habit, but by selecting hybrids from this section and crossing them with the Sumatran *R. Curtisii*, *R. Teysmannii*, &c., it is hoped to accomplish the desired end. From what we could see of the many seedlings

this will be secured, and one variety we noticed showed a great advance. This was the result of a cross between Teysmanni and Lord Wolseley, a hybrid of the Javanese section. The flowers were deeper in colour than those of the species, full, large, and altogether of exceeding beauty, the head comprising several blooms. Here we get the colour of the species, and, as pointed out a short time ago, the species gives the colour, and also, where it is scented, a desirable fragrance. One variety was agreeably sweet, this having *R. Curtisi* for one of its parents, which is slightly fragrant, and has the bushy habit now wanted in the new group. We have so far, as the result of the intercrossing of the Java and Sumatra *Rhododendrons*, an intermediate race as regards flowers, with a compact habit of growth in the plant. And there is plenty of material to work upon now that the Javanese hybrids have been raised to such a high condition, as they seem ever improving, the flowers showing a remarkable diversity of brilliant and soft-toned hues, with an evenness, substance, and boldness that render them of immense value. As will be seen from the report of the last meeting of the Royal Horticultural Society at South Kensington, one of the new race of hybrids, named *Primrose*, was certificated, and there are others in store for us.

Cape Ivy is the popular name given to one of the climbing species of *Groundsel* from the Cape of Good Hope. It is *Senecio macroglossus*, and is more like an Ivy in growth than any other plant, the leaves being of similar size and shape as those of some of the forms of Ivy. The flowers are 2 inches across, in shape like those of an Ox-eye Daisy, and of a clear yellow. They are borne on slender stalks, and hang from the long twining stems in a most elegant way. It is a pretty plant to festoon a pillar or rafter of a greenhouse, and being a winter flowerer, it is appreciated. It ought to become commoner than it is. It adorns one of the rafters in the Cactus house at Kew at the present moment in a most charming way.

Cineraria cruenta, although by some considered rather weedy, has its uses, and one is for supplying cut flowers during the early part of the year when *Primulas* and *Cyclamens* are the chief things available. It is also interesting as the type of the great race of florists' varieties, very few of which, we venture to say, have the brilliant colour, more like magenta than anything else, but perfectly pure, that characterises this Tenerife species. In the Swanley Nursery there is a batch of plants commencing to bloom and a few specimens showing a good head of flowers are most acceptable at this season for beautifying the greenhouse, conservatory, or apartment. The plants are propagated by division, and only care is necessary to have them in good condition at this season. It should be a favourite of all who require pleasing flowers during the winter months.

NOTES FROM HANTS.

AFTER five years' absence a correspondent sends us the following notes: "I arrived here after my long illness too late in the autumn to see the shrubs with their leaves on, but I think the brown stalks of the *Comptonia* are a witness to its still growing well. My doctor will not trust me near a tree till I get stronger, but, alas! I fear I never shall be strong. Continual over-exertion both from planting in the fields, and finally sight-seeing in old Rome, have 'finished' me, and I have to go mostly in a Bath chair to give directions for cutting down and transplanting. The loss in herbaceous things here from my long absence is woeiful; and, alas! the labels. I took great pains with them. My rustic gardener could not read, and thought that so long as a label was stuck in I should not be aware that (*e.g.*) a *Peony* was not a *Maple*. There has been dreadful havoc among them. Still, it was pleasing to find that the *P. lasiocarpa*, *Nordmanniana grandis*, *Sabiniana*, *nobilis*, *Douglasi*, *Pinsapo*, *Laricio*, and *orientalis* had grown into splendid trees. One of the loveliest is the (improved) *Hemlock Spruce* (*Abies Mertensi* or

Albertiana). Then the *Ilexes* have made a wonderful growth; from being stubby little bushes they have quite an Italian aspect. I think, however, that the variety *I. Fordi* is more interesting than the ordinary one. I had such a lovely *Fordi*—perfect, though it had been transplanted (a severe trial for an *Ilex*), and, imagine—the day before Christmas Day, hearing a noise as of chopping, I caught the two sons of my 'respectable' tenant high up in its branches, cutting down with an enormous chopper their own Christmas decorations in my own private plantation. What lovely plantations suffer from the callous roughness of English urchins is untold. They have shaved my lovely Swedish *Junipers* and cut off tops of the rarest things.

"Among herbaceous things which have shown their capacity for survival under most adverse circumstances, I note some *Pelargoniums*, especially *Andrews* and a blue one (I think, *Endlicheri*), but of these herbaceous things I can hardly give a good account until the spring. *Sternbergia lutea* is still in flower with me. I wonder if you have ever seen the *Anemone ranunculoides* growing really well in this country. On my last journey home from Rome I visited *Rousseau's Les Charmettes*, near Chambéry. The lane bank was covered with them. I imported some in my portmanteau, but fear, in the *laissez aller* here, they may be no more. Builders trampling down the garden have finished what absence from home began. They tumbled a brickbat into the centre of a lovely *Chamaerops* which was really thriving in the open. The Himalayan *Bamboo* has done gloriously here, and has quite a sub-tropical aspect; likewise a set of spiny shrubs which I planted in a semi-public thoroughfare, to see if they would resist cows and stray creatures of all sorts—*Caragana spinosa*, *Berberis stenophylla*, *Darwini*, *dulcis*, *Colletia ferox*, *Olea ilicifolia*, *Picea cephalonica*, *Berberis asiatica* (the pearl-like berries were lovely this autumn), Spanish *Gorse*. Some of the *Crataegus* have not done well; of course they were mostly grafted, and their heads are scarcely bigger than when I put them in years ago. *Crataegus Oliveriana*, *mexicana*, and *punctata rubra* have died, and *C. Aronia*, which London says is good for tarts, will, I fear, make my mouth water for a long time to come, as it grows so slowly.

"Among *Hollies*, *Shepherd* appears to me a very fine variety, its broad leaves and well-clothed stems making a capital screen." M. A. ROBB.

CHRYSANTHEMUMS.

E. MOLYNEUX.

MANAGEMENT OF YOUNG PLANTS.

THE cuttings first inserted will now have formed sufficient roots to allow of their being transferred to larger pots. This is easily determined by turning one or two out of the cutting pots and examining their roots, and if these have reached the sides of the pots and commenced to circle round the ball of soil, they are ready for their first shift. It is not wise, however, to allow them to become pot-bound, as this would cause a check to that free growth so desirable. A steady rate of progress is what is desired to guarantee ultimate success; therefore commence to pot those earliest rooted and follow on with the remainder when ready. From the cutting pots in which they are now growing they should be shifted into pots $3\frac{1}{2}$ inches wide. I prefer to give the sizes of the pots in inches, for the reason that the cast sizes vary so much in different potteries as to be misleading to many, as scarcely two are alike. Great care must be taken that the pots are quite clean. I recommend a small shift at this time in preference to a large one, as by placing them in small pots the whole mass of soil is thoroughly filled with roots, and the plants occupy less space. Carefully place the crocks in the bottom of the pots, over these putting some of the rougher parts of the com-

post, which should be composed as follows: two parts fibry loam, one part leaf-soil, and one part of spent Mushroom bed materials, with a free use of sharp silver sand. If the loam is inclined to be heavy, add crushed charcoal, which will render the whole porous. In preparing the soil, I examine it carefully so as to remove small worms, which often do much damage. The soil when used for potting should be neither too wet nor too dry, which will be the case if the different parts are under cover. If the soil is in a proper condition, the plants must be potted firmly, and if it is moist, no water will be needed after potting for a day or two, after which the plants must not be neglected in this respect, but watered when required. After potting, return the plants to the shelf close to the glass. I prefer this position to a cold frame, for the reason that should sharp frosts prevail directly after the plants are placed therein, they will not root properly, as perhaps light is excluded from them for several days at a time, owing to the bad weather. As soon as the roots reach the outside of the ball of new soil, the plants are ready for removal to a cold frame, as at this stage the plants will grow freely; therefore, they need air and all the light available. A cold frame with a southern aspect is suitable, and it should be so placed that when the lights are tilted to give air, winds from the north or east do not blow directly across the plants. To prevent the ingress of worms to the pots, make the drainage so that superfluous water may pass quickly away from about the pots, and to raise the plants as near the glass as possible, nothing is so good as a thick coating of ashes upon which to stand the pots. Place a neat stake to each to secure the plants in an upright form, as some have a tendency to hang down. Allow sufficient space, so that they do not touch each other; keep the frame rather close for a few days, gradually admitting air on favourable occasions, always on that side opposite to which the wind, if there is any, is blowing from. On very fine days remove the lights entirely, as by this means the plants are kept sturdy and dwarf, more so than they would be if allowed to become drawn up weakly, either by overcrowding or a want of air. Every night the frame should be covered over with double mats.

Judging by ballot.—The frequenters of the National Chrysanthemum Society's November exhibition will be pleased to see the decision arrived at by that body at the annual meeting respecting the judging of Chrysanthemums by ballot as tried at the last November exhibition in competition for the valuable prizes offered by Mr. H. Cannell. No doubt the idea was a novel one, and likely to attract attention, but such a method of deciding the qualities of Chrysanthemums does not commend itself, for the reason that it is much too slow. I know that upon the occasion in question I left the exhibition building at 5.30 p.m., and even then the result was not made known. Fancy an exhibition of the size of the "National" being judged on the ballot principle! New inventions which present no improvements upon old methods ought not to be put forward. The present method of judging by points appears to me to be the best method available, as each bloom gets full value accorded, and mistakes seldom occur.—A. B.

Sweet-scented Chrysanthemums.—The best way of growing the sweet-scented Chrysanthemums so as to enhance their perfume as much as possible will, I believe, consist in judicious starvation. Of course, I know size of flower will be well-nigh impossible under these circumstances, but if odour is to be the object, a free larder is not the way to get the most of it out of any given variety. The single and semi-double flowers like *Mrs. Langtry* and *Dick Turpin* seem to point towards these classes giving

more perfume than Dr. Sharpe or Progne, but when starved a little both these last-named varieties also produce semi-double flowers, and I have often noticed that they are then more fragrant than when perfectly double. The larger proportion of the plants common in the desert of Arabia are highly odorous, and we know that starvation or drought is a factor in developing aroma in Melons and other tropical and sub-tropical fruits. If we are to offer prizes for fragrance or odour in the Chrysanthemum, let it be for fragrance and not for size or quality of the blooms. It would be easy to offer three prizes—one for single flowers, one for Pompon flowers, and one for large blooms, scent or perfume in all cases to be the standard or test of excellence. I also believe that the colour of the Chrysanthemum, is enhanced by starvation and full exposure quite as much as is perfume, so that by offering prizes for perfume we shall be likely to kill two birds with one stone.—F. W. BURBIDGE.

Chrysanthemum culture.—In Mr. Beckett's admirable paper on the cultivation of the Chrysanthemum in THE GARDEN, January 7 (p. 8), he says, in speaking of the cuttings, "these at all times should be clean cut, and not rooted suckers." Will Mr. Beckett tell us *why* rooted suckers should not be used, as I notice on p. 9 of the same issue "J. C. C." says that suckers make the earliest and best plants? If "J. C. C." would also inform us why, in the production of early plants, suckers are preferable to cuttings, he would assist in clearing up a matter upon which there appears to be a doubt. I should have thought that striking the cuttings four in a pot, as recommended by Mr. Beckett, was not so advantageous to the plants as inserting them singly, or even two in a pot, the check caused by dividing the plants when potting them off being liable to injure the future development of the plant. From the last week in March, when the Chrysanthemums receive their shift into 6-inch pots, to the first or second week in June seems rather a long time for the plants to remain in the small pots, as in that time the roots would have become so matted as to cause a check, and thus, in the case of the incurved varieties, at least, spoil the quality of the blooms. One other point in Mr. Beckett's paper, I note, does not coincide with the writings of other noted growers—that of "taking the buds," as he terms it. Mr. Beckett says, "I have always found from the last week in August to the second week in September the best time when the flowers are required about the middle of November." I note that other writers recommend a much earlier date for the selection of buds of some Japanese varieties. Does Mr. Beckett consider that the date he names is early enough for Boule d'Or and Meg Merrilies, for instance, two varieties which other writers say require earlier bud-selection than the bulk of the sorts of this family?—INQUIRER.

SHORT NOTES.—CHRYSANTHEMUMS.

Pompon Maid of Kent.—This is one of the best white varieties that I am acquainted with. The habit of growth is dwarf, while it blooms at a time when the bulk of the Pompon varieties are past their best. To secure the best results from this variety the plants should have their points pinched twice or thrice during the early season's growth, allowing all the shoots to produce flowers. The flower-buds ought not to be thinned.—S.

Blue Chrysanthemums.—One of the London daily papers lately stated that "a wreath of blue Chrysanthemums" was sent from Paris to the tomb of Napoleon III. Were these dyed Chrysanthemums, or have our friends across the Channel really got a blue Chrysanthemum or an approach to it? Probably, however, it was some other flower, perhaps the blue Marguerite, as *Agathæa cælestis*, now in flower, is called.

Chrysanthemums in the west.—The cultivation of this extremely popular class of plants has received quite an uncommon impetus in the west of Cornwall during the past few weeks. We learn that an exhibition has been arranged to take place at Truro next autumn, but we believe that no prizes will be awarded at this prospective exhibition. A Chrysanthemum Society has just been formed at Penzance, the

minimum subscription being 10s. From the names of the officers who have been appointed, we have no doubt that this society will have a long and successful career.

Chrysanthemum cuttings.—Now is a good time to take the cuttings of Pompon, Anemone-Pompon, and single varieties. For "bush," or decorative plants, if space is at all limited, two cuttings may be inserted in one pot. These, when rooted, can easily be divided by breaking the ball of soil in the middle, and placing the plants singly in pots. In some cases the two plants as struck may be grown together throughout the season, the only difference required in their growth being that rather larger pots must be used than when the plants are grown singly and in smaller pots; the number of branches must also not be so large. Select short stocky cuttings, avoiding all such as are weak or sickly, and insert them in the usual way as to soil and position. Keep the handlights close until the cuttings begin to callus, when air should be admitted freely.—E. M.

Chrysanthemum Mrs. C. Carey sporting.—During some seasons a particular variety of Chrysanthemum seems to sport in a remarkable manner. The variety in question appears to have sported freely during the past season. From Guernsey I have received blooms of a pale yellow variety named Guernsey Hero, which, from the description given in THE GARDEN, Jan. 21 (p. 66), seem identical with the flowers shown at the late Aquarium show by Mr. T. S. Ware and named Governor of Guernsey, but as I did not see those there shown, I am unable to say positively. The blooms submitted to me were excellent in every way, being medium in size, with long, narrow-pointed florets, the centre ones upright, while the outer ones have a downward tendency. The colour—pale yellow—is particularly attractive. I am told that it has appeared in four collections during the late season. From Berkshire comes another sport with deep lilac flowers, and much larger than those of its parent, and the florets do not incurve as do those of the parent variety. In form and colour it somewhat resembles the old variety Sultan, but is fuller than that kind, the florets also showing a tendency to droop more than those of Sultan. As a late-flowering kind it is a grand acquisition.—E. M.

STOVE AND GREENHOUSE.

GLOXINIAS.

WITHIN the last few years the named varieties of this lovely class of plants have almost disappeared and seedlings have taken their place. Previously a good display could only be secured by purchasing named varieties, and this meant a considerable outlay, as the seedlings could not be depended upon on account of their tendency to revert to their normal character. However, by continued and careful selection the good varieties have now become more fixed in character, and at the present time seed may be obtained which will produce flowers as good as any of the named sorts and give a great variety of colours. The seedlings also have the advantage of being of a more vigorous habit of growth than many of the named sorts, which have become weakened by continued propagation from the same stock. The present is a good time for sowing the seed. In preparing the pots for seed it should be remembered that the plants must be pricked off as soon as they are large enough to handle; therefore, instead of filling the pots half full of crocks, it is better to use only a few crocks and then fill the pots about three parts full with loamy soil. This will prevent the light sandy soil, which is used for the surface, becoming dry so quickly, and, consequently, surface-watering will not be necessary (after the pots have had one good watering) until the seed has germinated. I like to place the seed pots as close to

the glass as possible, as the seed will not germinate so quickly as when placed in a warm shady position, but the seedlings will be much stronger and less liable to damp off. Of course, they require a little extra attention, but in a house where a moist atmosphere is maintained, they will be safe enough. As soon as the seedlings are sufficiently developed they should be pricked off, an operation which requires a little care; every plant should be saved, for if only the strongest are saved there will sure to be a preponderance of purples and dull reds, as these always take the lead. If a greater number of seedlings are obtained than can be grown on into good flowering plants, the surplus might have sufficient attention to get a bloom or two so that the best varieties may be selected, and these will be useful for growing on for an early batch the following year. They may be gradually dried off as soon as they have flowered, and after the foliage is withered the corms should be kept in a dry place until they are started into growth again. The first batch should be started early, and others started later for succession. With a little management a regular succession may be kept up throughout the summer and autumn. By raising seedlings every year and selecting the best varieties, an excellent stock may be maintained. If any variety of special merit is obtained, the stock may be increased by the usual method of propagating from leaves.

GENERAL TREATMENT.—To grow Gloxinias successfully, they should, from the time they are started, be kept as close to the glass as possible, and only have sufficient shading to prevent the bright rays of the sun scorching the leaves. They like a moist atmosphere and rather a high temperature during the early stages of their growth, but as they come into bloom the temperature may be reduced, and if brought into flower in a cool house the flowers will be of greater substance and last much longer than when developed in a shady, moist place.

POTTING.—The corms should be started in small pots, and potted on as soon as they have started into active growth. They should be in their flowering pots before they have made too much growth, otherwise it will be difficult to pot them without damaging the foliage. Various composts are recommended for Gloxinias. I like good fibrous loam, leaf-mould, and peat in equal parts, with a little well-rotted manure and a liberal addition of sand. The size of the pots will depend upon the plants, but one-year-old corms may be flowered well in 5-inch pots. I have had plants in this size which have produced over twenty good blooms, but when grown in small pots they require great care in watering and a liberal supply of liquid manure from the time they first show their flower-buds. If allowed to get too dry or otherwise receive a check a great portion of the flower-buds will remain dormant. Of insect pests, thrips are their greatest enemy. Moisture will go a great way towards keeping thrips off, but if they make their appearance, regular fumigation is the only way to check them. Fumigating will not damage the flowers if it is done carefully and there is no moisture on them at the time. A.

Peristeria elata.—G. W.—The very finest examples, and those which flowered the most freely, were grown in a compost consisting of peat, leaf-mould, and loam in about equal parts. The pseudobulbs should be raised above the rim of the pot, but the plant should be potted in the same manner as an ordinary stove plant, leaving ample room to supply water, of which it enjoys an abundance when growing, both to its roots and overhead. It also requires strong heat when growing.—W. H. G.

THE FLAMINGO PLANT.

(ANTHURIUM SCHERZERIANUM.)

THE accompanying illustration represents a fine example of this beautiful, showy, and dwarf species, grown by Mr. Lucas, Belmont, Taunton. Few plants have so long retained their popularity and improved in the size of flowers more rapidly

described as a singular little plant, remarkable amongst its congeners for its small size and the brilliant colour of its spadix and spathe. The spathe is described as "ovate, about an inch long, and bright scarlet." Now we have numerous forms of this species—some pure white, deep crimson, and curiously mottled. Of

plant bearing spathes upwards of 6 inches long and 4 inches wide. The plant was first found in Guatemala by M. Scherzer, and afterwards in Costa Rica by Herr Inspector Wendland, of Hanover, who first brought it to Europe in a living state, and he states that he never saw it producing large, showy spathes in a state of



The Flamingo Plant (*Anthurium Scherzerianum*). Engraved for THE GARDEN.

under cultivation than this species. In 1861 I brought the first plant to England, a present from Herr Inspector Wendland, of Herrenhausen, in Hanover, to the Royal Gardens at Kew. In the following year it flowered, and was figured in the *Botanical Magazine* (t. 5319), where it is

these last a coloured plate appeared in THE GARDEN, Nov. 13, 1886, and the chief varieties of this species are described in detail. Its increase in size is very remarkable, for although on its first flowering its spathes were only 1 inch long, we now have forms of this

nature, so that its increase in size and variation in colours would appear to be entirely the result of cultivation. W. H. G.

Justicia speciosa.—Among easily-grown plants that flower at midwinter this should find a place,

for with but little care and attention neat bushy specimens can be obtained that at the end of the year will be quite a mass of cheerful purple-coloured blossoms. Cuttings taken in the spring and early summer root in a few days, when they may be potted off and shifted into larger pots as required. During the height of summer they may be kept in a cold frame, the object being to encourage as dwarf and sturdy a growth as possible. For this reason the young plants should have the points of their shoots pinched out frequently during their earlier stages. One great advantage of maintaining a stock of such easily-grown subjects as this is, that should the flowering specimens be used for indoor decoration and receive injury therefrom, it is not of much consequence.—H. P.

Zephyranthes carinata.—I once saw this plant in Penang, and shall never forget it as long as I live. On our voyage out to Singapore we stopped two days at Penang, and I had letters to Dr. Veitch, then colonial surgeon of that island. I left my letters, and was invited to breakfast with our ship's doctor next day. We went out through Cocoa-nut Palms and orchards of Mango, &c., the roads fringed with hedges of Bamboo and covered with the white *Thunbergia fragrans*, with here and there a bush of *Mussaenda frondosa*. Dr. Veitch's house stood back from the road in a meadow, and in the Grass, in irregular clumps, this soft, rosy Zephyr flower was very abundant. The flowers looked like champagne glasses made of rosy Venetian instead of white glass, and there were hundreds of them and of their buds set off by the surrounding verdure. Peter Wallace told me they were used to edge the garden walks in Ceylon.—F. W. BURBIDGE.

Rhododendron Princess Alexandra.—This, one of the tube-flowered section of greenhouse Rhododendrons, is one of the most vigorous-growing, as well as the freest-flowering, of this beautiful class of plants. We have three small bushes that are scarcely ever without bloom, as every new growth is terminated by a flower-bud. On account of its vigorous growth, this *Rhododendron* is often employed as a stock on which to graft the more delicate varieties of this section. One that succeeds far better when grafted than on its own roots is *Duchess of Edinburgh*, whose bright-coloured blossoms form so conspicuous a feature at this season; indeed, if asked to name the three most useful and distinct varieties of this section, I should give *Princess Alexandra*, blush-white; *Duchess of Edinburgh*, orange-crimson; and *Princess Royal*, pink. I gathered some pods of seed from one of our plants of *Princess Alexandra*, and of those that have already flowered the whole of them show no variation whatever from the plant from whence the seed was gathered. Seedling plants often bloom when not more than a few inches high. The seed from which our plants were raised ripened in early spring, and was, therefore, sown at once, when it quickly germinated.—H. P.

Cyrtanthera magnifica and **C. Liboniana.**—These two fine Acanthaceæ are rarely to be met with now-a-days, and even in places where they are grown they seem to be rather neglected. Years ago they were oftener seen in cultivation, and I have heard old gardeners speak highly of them. The number, however, of gorgeous and newly-introduced plants has drawn them out of the field. *C. magnifica* produces large, terminal crown-like corymbs of a delicate soft rosy pink colour, each floret being curved and inserted in greenish bracts. The leaves are ovate-acuminate, of a pale green, produced by a whitish pubescence, which is plentiful on the whole plant. *C. Liboniana* much resembles the former, and is as attractive, although its habit is a little more straggling. The flowers are of a much more decided hue, being nearly red, and disposed in the same way. The plant is glabrous, the leaves larger, deep green, and tinged on the obverse side with a dull metallic purple, this colour being extended to the petioles, stems and bracts. Both *C. magnifica* and *C. Liboniana* are easily propagated from cuttings. When timely pinched, in order to induce a bushy growth, and kept in an intermediate house, the plants soon form free-flowering and attractive specimens. Some of

them are always in flower, but especially in the autumn and the beginning of winter, when they are very useful for the conservatory and the house. When planted out in the winter garden they grow vigorously and reach a height of 5 feet or 6 feet; the leaves of *C. Liboniana* measure then 10 inches or 12 inches in length by 5 inches or 6 inches in width. When loaded with blossoms in spring these shrubs present quite a sight, and form an effective undergrowth for large *Ficus*es and *Palms*.—J. SALLIER, *St. Germain en-Laye*.

FLOWERS FOR MID-WINTER.

The above subject suggests itself through a question asked by a correspondent in *THE GARDEN*, January 7 (p. 20), as to the supply of flowers to succeed *Chrysanthemums*. This is a want felt by a great many gardeners now that the demand for flowers at all seasons has so greatly increased.

Chrysanthemums, by the wealth of flowers which they yield, their infinite variety of forms and hues, and the ease with which they are obtained, have in a measure spoiled our taste for the flowers which follow. A good supply of *Chrysanthemums* can be kept up until the end of December, after which the blooms will be small and poor in quality.

The secret of obtaining a good supply of flowers at mid-winter is the thorough preparation of the plants during the preceding summer. Strong growth must be encouraged and the blooming powers, as it were, stored up for future use. Although there are many kinds of plants which may be grown to produce bloom during the winter, I shall only mention a few, which, provided the plants have been duly prepared, can be relied upon to yield a good supply at the time above mentioned.

Marguerites are worthy of particular attention. Cuttings of them should be struck at once and grown on in pots until they can be planted out of doors at the end of May or beginning of June. A place fully exposed to the sun where they may be planted 4 feet apart should be chosen. Do not stop the shoots after planting, but keep all the flower-buds picked off closely as they appear until the plants are lifted, potted, and taken under cover. This should be done about the end of September, when the plants will in some cases be 4 feet through. After lifting, place them in a cool house—an early vinery or Peach house will do. During December and January they will produce quantities of flowers, which are always acceptable. We have a score of such plants at the present time, from which we could cut many flowers, notwithstanding the quantity previously gathered. The old double white *Primula* stands unrivalled as a winter flower. Although excellent single and double varieties can now be raised from seed, all must yield the palm to the old variety for quantity of bloom and purity of colour. Some find a difficulty in growing it satisfactorily. With us the treatment is simple and produces the best results. Any time during February I take the necessary number of plants required for stock, clear them of flowers and old leaves, and fill the space between the surface of the soil and the plant with Moss, into which the offsets root. In about a month the offsets may be severed from the old plants, potted into single pots, and placed under hand-lights in a warm house or in a propagating frame. They are sprinkled occasionally to prevent flagging, and there need be no fear of damping if the cuttings are kept fresh and erect. When the roots touch the sides of the pots, the plants are then removed to a more airy position and repotted.

During the summer season a cool pit or frame is a suitable place in which to grow double *Primulas*. We finally shift them into 6-inch pots, in which size they make fine plants. All the flower-heads should be pinched out as they appear until the plants are housed in September. When repotting, ample drainage should be provided. A layer of lime rubble placed over the drainage forms a good rooting medium and is a safeguard against over-watering, as anything approaching stagnation of the soil is fatal to *Primulas*.

TEA ROSES can be had at all times during the

winter from well-prepared plants. Young ones, no doubt, give the largest blooms, but for quantity we obtain the best results from large bushes. During summer the plants should occupy a position fully exposed to the sun. The roots must be attended to, repotting or surfacing as required, and encouraging a good growth by frequent applications of liquid manure, not too strong. At the same time keep all the buds picked off. It is a great temptation to leave these buds to open. This is frequently done to the detriment of the plants, and consequent loss of blooming power in the winter. In October the plants must be taken under cover, and a batch placed in warmth as required. The most troublesome enemy to *Roses* under glass is mildew. A good preventive against this is frequent syringing with a weak solution of Gishurst or weak soft soap and water.

THE CYCLAMEN has become one of the best and most reliable of winter flowers. It is surprising the quantity of bloom which a batch of good plants will produce. I do not favour the giganteum strain, but prefer those with compact clusters of leaves and numerous flowers which rise well above the foliage and remain erect without artificial support. When a strain of this description is obtained, a few plants of the best habit and blooming qualities should be set apart for producing seed, and an excellent stock will in time be obtained. The seed should be sown as soon as ripe, and if not too thick the seedlings may be allowed to remain in the seed-pans during winter. About February pot the seedlings off into single pots and treat them to a moist, warm atmosphere, being careful that they do not become drawn. When large enough to be repotted into 5-inch pots, remove the plants to a pit with a cool bottom, shade them from bright sunshine at all times, and syringe them every afternoon. In this position they will grow into nice plants by the end of September. As good results may be obtained the second year by shaking out and repotting the corms if these are not subjected to the drying-off process.

For giving flowers of bright colour double zonal *Pelargoniums* are excellent. They require a light position in a warm house to bloom satisfactorily, and if this is at command a good supply of bloom is readily obtained. The plants must be grown for the purpose during the preceding summer and autumn, and must not be allowed to flower until wanted. They are best not stopped after July, but allowed free growth, merely keeping the blooms picked off. Two good varieties are *F. V. Raspail* and *Guillon Mangilli*.

EUPHORBIA JACQUINÆFLORA, if planted out in a stove, will well repay for the space devoted to it. When established it grows freely and blooms profusely during the winter months. Brown scale is a most troublesome pest to this plant; therefore, before planting out in a permanent position, be sure that this insect is not upon it, as it will be almost impossible to clear it off afterwards.

I will conclude my select list of winter flowers with the *Arum Lily*. It is a noble flower, and one we cannot well have too many of. Some growers plant out the crowns during summer; others grow them all the season in pots. Good plants may be grown either way if the operation of planting out or repotting is done early. After the plants have finished flowering, care should be taken to preserve the old foliage; also, when they are divided, this should be tied up until it turns yellow. The *Arum* delights in plenty of water at the roots, and liquid manure may be freely used to encourage the formation of stout crowns, which will not require much forcing to cause the flower-scapes to develop.

Hindlip.

A. BARKER.

Amaraboya splendida.—A short time ago I sent a note to *THE GARDEN* giving a brief description of two other lovely members of this most beautiful family of *Melastomads*, recently figured in the Belgian periodical, *L'Illustration Horticole*, on plates 4 and 9 respectively of the first volume of the fifth series of the work, under the names of *A. princeps* and *A. amabilis*. I mentioned at the same time a third variety, *A. splendida*, a portrait of

which is now given on plate 34 of the same volume of the work. It is, indeed, a most beautiful and apparently easily-cultivated shrub, requiring only the temperature of a cool greenhouse. This third variety comes nearest to *A. amabilis*, of the two previously described, but has flowers at least twice as large, with a diameter of about $6\frac{1}{2}$ inches. The handsome flowers seem to be freely produced in bunches of from three to four at the extreme tips of the branches, and are of a deep shade of carmine at their outer edges, shading off to pale rose colour, and becoming nearly pure white towards the centre of the flower. The prominent style is also of a bright deep red, surrounded by yellowish stamens. The foliage of the plant is also extremely conspicuous and handsome, of a bright shade of light green above and of a light shade of red underneath. This fine plant when distributed by Messrs. Linden, of Brussels, should be eagerly sought after by all lovers of flowering greenhouse shrubs.—W. E. GUMBLETON.

The Wreath Lily (*Myrsiphyllum asparagoides*).—This beautiful evergreen climber is far too seldom seen. Puny specimens in pots are frequently met with, but these give a very poor idea of the beauty of the plant when planted out and well established in a suitable situation. A mistaken idea prevails that it is too tender for an ordinary conservatory and that it belongs more to the stove. A good position for it is planted against a wired wall in a temperate house. The border should be well drained and the soil sandy loam; very little attention is needed beyond an occasional watering, or having a few of the strongest shoots tied; the weaker ones will cling to these. The beautiful glossy foliage assumes almost every shade of green. The plant makes fresh growth annually in July or August, and the old shoots should be cut away or taken down before the new ones get too far advanced. As it grows rapidly, the trellis is soon covered again. If used freely with cut flowers, it brightens otherwise formal or heavy arrangements. The roots at the base of the stems resemble a cluster of miniature *Dahlia* tubers with the tips curving downwards after the manner of *Ranunculus* roots. These tubers are quite white and fleshy at first, though when exposed to the air they soon turn brown and gradually lose all their moisture. From under these spring black fibrous roots which fill the surrounding soil. A plant in the north-east corner of a tall span-roofed conservatory here covers a space of 14 feet by 5 feet. The partly shaded position suits it well. It is now showing hundreds of its tiny flower-buds, which will presently open and give an agreeable perfume. They are greenish white and something like the flowers of the common *Asparagus*. Altogether this is a most desirable plant, and as interesting as it is useful.—JOHN C. TALLACK, *Livermere Park, Bury St. Edmunds*.

Freesias in flower.—Within the last few years these beautiful bulbous flowers have become comparatively popular, and it is probable they will be still more extensively grown than they are at the present time. The *Freesias* have been largely cultivated in Guernsey for some years, but the English market is now extensively supplied with bulbs imported direct from the Cape of Good Hope. These bulbs generally reach this country early in the autumn, when they may be at once potted (or at all events those that are required for the earliest batch), as, in order to maintain a succession, it will be better to divide them into two or three portions and allow a fortnight or thereabouts to elapse between potting the different batches. A good open soil, consisting of about two-thirds loam to one of well-decayed leaf mould, with a little sand, will suit them perfectly. If six or seven good bulbs are potted in a 5-inch or $4\frac{1}{2}$ -inch pot, they form, when in bloom, neat little specimens. A greenhouse temperature and a situation well exposed to the light will suit them thoroughly, and as the flower-stems appear a few can be shifted into a warmer structure, in order to have them in bloom earlier than the bulk. If care is exercised a succession will be maintained for a considerable period, and just now the beautiful clear white fragrant blossoms attract greater attention than *Hyacinths*, *Tulips*, *Narcissi*, or

other well-known subjects. In potting the bulbs it is as well to keep those of one size together, as by this means they flower in a more regular manner than if large and small ones are put into one pot. As they do not need much root room, good sized masses may be formed, if required, by filling large pans with them. The bulbs in this case should be about an inch apart. *Freesias* can be readily raised from seed, as the young plants quickly make their appearance, and, unlike many other bulbous plants, do not take a long time to reach a flowering size. I had a quantity of seed and sowed it in early spring in some light sandy soil, and protected it by a frame. The young plants soon appeared above ground, and grew away throughout the summer. When they lost their foliage the bulbs were allowed to remain in the same quarters. Care was taken during the winter to protect them from frost, and in spring, before starting into growth, a slight top-dressing was given. Many of the plants bloomed beautifully in little more than a year from the seed.—T.

WORK IN PLANT HOUSES.

BOUGAINVILLEA GLABRA.—This is the most free-flowering of the *Bougainvilleas*. It will do well in an intermediate temperature, especially when planted out. It is most useful when grown in pots, as then the plants can be moved to a cooler place when in bloom. There are different ways of treating it. When the plants are started early, say at the beginning of the present month, and they are pushed on in a warm stove, they will produce two full crops of flowers before autumn. Examples that have been at rest since autumn, and have the soil quite dry, should have the balls well soaked by plunging the pots for several hours in a tub of tepid water. If the specimens have much weak wood in them it may be cut out, as this species only blooms from the young growth, and it is only the strong shoots that flower freely. Plants that are in large pots should be turned out, and have some of the old soil shaken away, replacing it with new. Train the branches round the trellises that are intended to support them, keeping them well down over the lower part. The plants will bear a night temperature of 60° to 65° at the time of starting. Syringe overhead once a day, and from the time the young shoots appear until the flowers are three parts grown, the former should be kept in an erect position; if not, they will break back in place of extending and setting bloom. As soon as the plants have got fairly into growth, the roots will require plenty of water, and care should be taken that the soil does not get too dry, otherwise many of the shoots will receive a check that will cause them to set a few flowers prematurely in place of producing a full crop. No shade is required at any time of the year. When some progress has been made give manure water freely once or twice a week.

BOUGAINVILLEA SPECIOSA AND B. SPECTABILIS.—These strong-growing species do best planted out in an intermediate house, where they can have plenty of head-room. They will also succeed in a higher temperature, provided the atmosphere is not kept too moist during the summer and autumn, so as to interfere with the wood getting well matured. Without this they will not bloom. These kinds should not be pruned until after they have flowered, as, unlike *B. glabra*, they bloom from last year's shoots, only making a few inches of growth before the flowers appear. See that the soil of the border is thoroughly soaked, and to make sure of this it should be examined, as, after being kept entirely without water at the roots, as these kinds require to be during the season of rest, it takes more water to moisten the soil than is often supposed. About 2 inches of the old soil should be removed from the surface of the border, replacing it with new, to which a liberal addition of rotten manure has been made.

CLERODENDRON BALFOURI.—There are few plants so accommodating as this *Clerodendron*, as it will bear starting early in winter, or may be kept at rest if not required until later on; consequently with a sufficient stock a succession of flowers can be had for several months. It usually takes from

eight to ten weeks to get the plants into flower from the time they are started in a moderately warm house. With more heat they will come in less time, but the flowers are not so enduring when the growth is hurried. Soak the soil well before starting the plants, as without this they will not break evenly. When once the shoots have pushed irregularly nothing will induce the eyes that have remained dormant to move. Young plants that are to be grown to a larger size may be repotted into larger pots before they commence to make growth. Old specimens that are already in pots as large as it is advisable to give them should not be repotted until after they have flowered, when they ought to have their branches shortened back to within a few inches of where they were cut in to last year. After they have again started they should be turned out and have half the old soil shaken away and a portion of the roots reduced, replacing them in similar sized pots in good turfy loam well enriched with rotten manure.

SHRUBBY CLERODENDRONS.—Old plants of *C. fallax*, *C. Kämpferi*, and *C. fragrans*, that were cut close in last autumn after they had done blooming, will by this time have made young shoots several inches long. They should now be turned out and have half the old material shaken away, shortening any long, straggling roots. Put them in pots of a similar size to those they have been in. Use soil of a like description to that recommended for *C. Balfouri*.

CROWEAS.—Although these are greenhouse plants, yet to have them in bloom at the time when the flowers are most useful, viz., from September up to near the end of the year, it is necessary to start them in heat about this time. Shorten back last season's shoots to within about 6 inches of where they were cut in last winter. The plants will bear a stove heat, but an intermediate temperature will answer for them. Stand them where they will get plenty of light, as without this the young growth will be weak and deficient in substance. Syringe overhead once a day, and keep the soil a little drier than usual until the growth has begun to move freely. When the young shoots are an inch long any plants that require larger pots should be shifted. Though *Croweas* root freely they do not attain a large size; consequently they do not need very much root room. Small examples will flower well in 6-inch pots; for large specimens 12-inch will be big enough. They will thrive in either peat or loam. I prefer the former where it can be had of good quality. Add enough sand to keep the soil open and porous, as the plants should not be shaken out at any time.

AZALEAS.—It often happens that *Azaleas* after being forced early are allowed to remain in a cool conservatory or other house where there is not enough warmth to help the young growth that has already begun to move. The result of keeping them too cold at this time is that the shoots come thin and puny, neither attaining the strength that is necessary to enable them to produce a full crop of bloom, nor length enough to admit of the requisite amount of wood being cut with the flowers. As soon as the bloom is over the plants should at once be placed where they will have a genial growing temperature of something like 55° in the night, with a proportionate rise in the day. Syringe overhead freely once a day. Stimulants should be given without delay. Previous to putting the plants in heat they should be examined to see if they are free from thrips. If these are discovered, even in small numbers, the plants should be dipped in, or syringed with, Tobacco-water, or fumigated with Tobacco. It is better not to pot any that require more room until the growth has made some progress, as the roots of *Azaleas* do not begin to move until the shoots have attained some length. More plants should now be put in warmth to keep up a succession of flowers. Where a portion of the stock is required to bloom as late as possible, the plants should be kept cool without allowing them to be frozen, and as soon as the weather becomes more sunny they should be shaded.

EPACRIS.—As the plants go out of bloom they should be immediately cut in. If this work is de-

layed, the young growth that starts directly the flowering is over has to be sacrificed, and in this way there is waste of strength. All last year's shoots should be shortened back to within from 4 inches to 6 inches of where they spring from. Previous to cutting in allow the soil to get as dry as it is safe to do so, and give the plants comparatively little water until some growth has been made.

ERICAS.—Plants that flowered during the autumn or early part of winter should be cut in at once. It is necessary to cut back the shoots of these soft-wooded, free-growing varieties much closer than in the case of the slower-growing sorts, and there should be no delay in carrying out the operation. As soon as the plants have done blooming they will begin to make new growth, the formation of which will be a waste of strength if the cutting-in is, as often practised, deferred until later on. The autumn and winter-flowering Heaths that have been grown by those who cultivate them for sale need careful handling to get them to do well after they have bloomed, as in most cases the plants have been over-stimulated by the use of concentrated manures, through which many die off. As soon as the flowers fade the soil should be kept drier previous to cutting in. One-half or two-thirds of last summer's growth may be cut away; this will not be too much, as when the branches of these erect-growing varieties are left long the plants soon get too tall. Continue to keep the roots a little drier until some growth has been made, when water may be given more freely. Later on the plants will require moving into larger pots. T. B.

FLOWER GARDEN.

THE CHRISTMAS ROSE.

(HELLEBORUS NIGER)

How many gardens are there, I wonder, that are without even one good tuft of this charming hardy winter flower? Yet when one reads flaming descriptions of wondrous novelties in nursery catalogues, it would be difficult to say more than can be said in praise of the Christmas Rose.

A white winter Buttercup, with large pure white, salver-shaped blooms on stout stems; stamens abundant, and tipped with yellow or gold; pistils ivory-white, pink, or even purple; leaves handsome, evergreen, and spreading—above all, flowering freely at midwinter out of doors, and thriving in all soils save the very driest and poorest.

Surely such an advertisement for a new flower would cause a great demand for the treasure.

Had it not been for the taste and enthusiasm of the late Miss F. Hope, who first drew attention to hardy winter flowers, and latterly to the exertions of nurserymen who have searched out and collected the various good forms of this Hellebore, many of us would still be in ignorance of the beauty of this flower. One especial reason for the neglect this plant fell into was the prevalence of inferior varieties in old gardens, which year by year produced but stunted and inferior flowers, and caused a general belief that the Christmas Rose was either an inferior flower, or that it was so difficult to grow, it was not worth while bothering about. In Yorkshire, at any rate, this has been the case, and it is only in gardens where the Bath or Scotch varieties have been obtained through friends in past years that I have ever seen a specimen of what the Christmas Rose should be.

To those who declare they cannot grow Christmas Roses I would say, Are you not growing an inferior variety that never can produce good flowers? In most cases I am convinced that this is the reason of their want of success, and consequently detail my own ex-

perience, which has ended in success, after attempting vainly to make "a silk purse out of a sow's ear."

The fortunate possessors of a good collection of Christmas Roses are enjoying a feast of beauty this winter that must surely encourage others to plant yet more of this gem that braves the winter darkness and brightens the smokiest town garden.

It is remarked on all sides how abundantly these flowers have been produced this winter, and I think there can be little doubt that the heat of the past summer is a chief cause. When we remember how abundantly this Hellebore grows on the wooded shores of the Italian lakes where the Grapes hang in purple clusters on the hillsides, it is evident that it cannot dislike heat, and yet in our far colder climate it is often said you should grow the Christmas Rose in shade. I suspect this is that fatal thing, a half truth—that is to say, it is quite true that if you plant a Christmas Rose in a hot, dry border, and never water or look after it in any way, it will dwindle and die to a certainty; while, on the other hand, if planted in shade, it will grow and flower more or less freely. Yet if you plant it in a sunny and sheltered border, and mulch and water it freely in summer, that plant will soon outgrow and out-flower the plant in the shade treated in the same way.

What does injure the Christmas Rose is drought, and if the leaves perish through drought the flowers will be stunted and undersized, and if repeated several seasons, the plant will die or linger on in a flowerless state. Another common cause of injury is damage by slugs eating the young leaves in spring, or the rising flower-buds in autumn. This at any rate can easily be prevented by a few handfuls of sand, horsehair clippings, or sawdust round the collar of each plant when necessary; and the only other cause of injury I have noticed is damage to the large leaves by winds. So low-growing a plant can easily be sheltered, even in the windiest situations, but a naturally sheltered position is always the best.

No plant is more indifferent to soil, for it will thrive not only in stiff clay and in barren sand, if only it be well looked after as to watering, but equally well in limestone soils and peat; while a deep sandy loam that is never sodden with wet or parched with drought will produce the very finest growth and flowers. Next to injury caused by drought, that caused by transplanting must be mentioned, so that impatient gardeners should be reminded that they cannot expect perfect beauty of flower until after two years of undisturbed growth. Once established, let well alone, and year by year an increasing harvest of beauty will reward the cultivator.

A striking proof of the oblivion into which the Christmas Rose had fallen is exemplified by the complaint that it seldom or never flowered in time for Christmas; while as a matter of fact the largest, and perhaps finest, variety of all, that called maximus, begins to flower early in November, and is generally past its best by Christmas-tide. This variety is well marked by its very large leaves and mottled stems, with pink-tinted flower-buds on long, sturdy red-brown stalks, that overtop the highest leaves before the flowers expand. This is the sturdiest and most vigorous of all. By December the variety Mme. Fourcade, with coarsely serrated leaves and white flowers, which shelter themselves under the broad leafage, will be in full beauty, and also the variety Riverstoni, with more slender stems and deeper-coloured foliage, which makes a marked contrast by its

extra long-stemmed flowers, whose only fault is they are less solid and lasting than those of the earlier maximus.

There is also a dwarf variety with widely open starry petals, pure white at first and gradually turning purple, and with a very bright purple stigma, which contrasts very prettily with the yellow stamens. This also flowers before Christmas, and I would suggest that those who have this form should take care of it, as it is not common. Next in order of flowering comes the Manchester variety, sometimes called angustifolius. In the bud and early state this is remarkably pure and white; the stems of both leaves and flowers are pale green, but the petals are rather flimsy, and soon lose their first beauty, to my eye. The leaves of this variety curl up somewhat at the sides, so that it is recognisable out of flower.

A similar, but greatly superior variety, which flowers very early in the year, is Juvensis or St. Brigid. It has magnificent pure white flowers, two or more on a stem when well grown, with extra bold footstalks and green stems and leaves, as in the Manchester variety, but without the curled-up look at the edge of the leaf. In my judgment, this variety ranks with maximus for excellence. A variety called both H. niger scoticus and also the Bath variety deserves especial mention as being the most profuse flowering of all. Its flowers are widely expanded, solid, and well shaped, pure white inside and slightly tinted with pink outside; stems shorter than in the preceding variety, and marbled with brown-red. For all purposes this is most useful, lasting so long and throwing up such a succession of pure white flowers. It is the type of a good H. niger, and is doubtless common in many parts of England where the good old Christmas Rose is most loved. By the middle of January the latest varieties of H. niger will be opening. One with a distinct pink tinge which is called ruber, and is tinted prettily enough, but beyond being distinct it has not the merit of the previous varieties; and, to crown the whole, there comes last of all a very handsome and vigorous variety, with large serrated leaves and fine pure white flowers of the same shape and style as those of H. maximus, whose stamens are of deeper yellow than usual. This variety goes by several names, always ending with major, but I dare not take it upon myself to say what is its most fitting title.

Thus, from early November to mid-February we can enjoy a constant supply of these beautiful white or tinted "Roses" with no protection save that of a hand-glass, which in mild or sheltered situations is unnecessary. When this is fully realised, there can be little doubt that each garden will have its plot or its clump of Helleborus niger of one variety or other.

In conclusion, I would ask why the name of Hellebore came to be applied to this plant when the Hellebore of commerce and classical fame is *Veratrum viride* or *nigrum*? A query was raised the other day as to the name Primrose by one who did not realise that *prima rosa* was the first Rose or flower, a name deserved by this, the first "Rose" of the year.—EDWARD H. WOODALL.

— The enclosed Helleborus niger—type is it?—has never been thought worthy of cultivation. Indeed, in your columns it was designated only fit for the rubbish-heap or for botanical collections. I send you foliage and blooms from a clump 3 feet in diameter, growing in a tub, but out-of-doors in order to retard the bloom. It is perfumed as of Hyacinths, but very slightly. It is none of your latter-day importations, but has been

in the south of Ireland for two hundred years at least. If it is common niger, people ought not to condemn the plant, because I find it is one of the most useful to cut from late. The flower has a delicate pink tinge or bluish-white, seen particularly when it is held to the light. Notice also the thickness of the petals, and that the stems are mottled; while the foliage-stem is apple-green, and the leaves cut like a saw.—W. B. HARTLAND, *Temple Hill, Cork*.

* * The flowers and foliage are those of *H. niger* major. We have carefully compared them with those of specimens we know to be true to name.—ED.

FLOWER GARDEN NOTES.

PLANTING SHRUBS, &c.—Since the fog we have had suitable weather for this work. In most places there is generally some to be done annually, and when circumstances do not favour early autumn planting the work ought to be done as soon as possible in the new year. Many years of practical experience and close observation of the results of early and late planting on soils of a light and medium texture have caused me to regard early planting as of the utmost importance. What I mean by early is from the end of October to February. Last year owing to the drought such work was impossible, but, fortunately, the open weather since has helped us to bring up arrears, and we shall shortly finish for the season. By putting the plants in early and mulching the surface root-action begins at once, and the plants get a firm hold of the soil before harsh easterly winds—always prevalent here—cause a check in growth that takes an entire season to recover. The planting we have had in hand has, this season, been almost of what I call a repairing and improving description, such as the moving of large ponticum varieties of *Rhododendrons* from the lawn clumps to less important positions, these being replaced by smaller plants of named varieties, light colours and latest flowering kinds having the preference. The first are desired by reason of there being a superabundance of dark colours, and late-blooming sorts are useful for lengthening out the flowering season. Ghent Azaleas are much in favour, and some of these are also being planted in separate clumps, and meanwhile the space between them will be furnished with Lilies, Gladioli, and biennials, such as Foxgloves, Canterbury Bells, Wall-flowers, and Sweet Williams. Though the place is made, and therefore some difficulty experienced in finding suitable positions for additions to the pinetum, we generally manage to squeeze in a few every year, and the sorts added to the collection this year though not new are rare to us; they are *Abies concolor*, an improved form of *A. lasiocarpa*, *Abies polita*, several varieties of variegated *Cypresses* and *Thujas*. As to preparation of ground for planting, the natural soil suits them, but being poor the first requisite is a good supply of well-decayed manure, or, lacking that, a treble quantity of decayed vegetable soil, which we have in plenty in the form of leaf mould. The ground is then broken up as deep as is required to get through the thin pan of sand or gravel underneath. Shrubs of all kinds do extremely well in the prepared soil without any other attention whatever, but an occasional surface-dressing of fresh soil is advisable in the case of any that it is desired to grow on as rapidly as possible, as it also is for such naturally slow-growing kinds as *Abies Pattoni*, *Thujopsis dolobrata variegata*, and all the *Retinosporas*.

PLANTING BARE BANKS.—At page 27 allusion is made to the furnishing of a bank with shrubs of various kinds, which piece of planting has proved so great a success that another piece is being treated similarly, namely, being furnished with *Cotoneasters*, *Periwinkles*, Japanese *Honeysuckle*, &c., amongst which are placed spiral-growing shrubs, such as *Junipers* and *Retinosporas*. I am aware that the covering of banks with Ivy, Laurel, *Berberis*, *St. John's-wort*, &c., in place of turf has long been practised; but why not go a step further in the direction of the beautiful and less formal way of treating such banks as that here indicated? By far the best example, of which for want of a better name I shall call the one-plant style of treating such

banks, is to be seen at Devizes Castle, Wilts. Some extra steep inclines, as well as parts of the ruins of a former castle, are most perfectly clothed with *Cotoneasters*, and as the plants are never clipped, but only a strong branch here and there occasionally cut off with a knife, they berry freely. But, what is of still greater importance, is that this very partial pruning is conducive of so extremely a natural, and therefore beautiful, effect, that the banks and walls must be seen in order to give an opinion of their grandeur.

MIXED FLOWER BORDERS.—All through the drought of last summer, though little artificial watering was done, this department of the flower garden was a great success both in appearance and usefulness. We had an abundance of cut flowers, and, as generally happens, success tends to, or rather increases, the desire for still greater success; hence at the present time we are busy planting double quantities of various kinds of bulbs and plants as were planted last year. Gladioli in mixture, *Hyacinthus candicans*, and *Lilium auratum* are the bulbous plants most in favour, and Gladioli are planted in clumps of from three to nine, according to the space available, *Hyacinths* being put in groups of three, and Lilies the same. The soil is deep and

course other foliage has to be used with the flowers, and nothing looks better than the silvery sprays of *Panicum variegatum*. The wall is planted alternately with climbing *Roses* and the *Jasmine*, which are not allowed to become mixed. The *Roses* are now, of course, nearly leafless, so that the *Jasmine* shows up to the best advantage.

CERASTIUMS.—The varieties *Biebersteini* and *tomentosum*—small white-foliaged kinds—were at one time used quite as extensively for summer bedding as any plants of dwarf carpeting habit. For some few years past they have been superseded mainly by green carpeting plants and the white-foliaged *Antennaria tomentosa*, and it is by reason of the partial failure of this last that I purpose to give another trial to the *Cerastiums*. The *Antennaria* has now for several seasons died off most mysteriously, and having failed to find a remedy to prevent this, I shall give up growing it. Both the varieties of *Cerastium* here mentioned are equally effective, but require a little more clipping to keep the growth dense. To some extent this is obviated by having dwarf plants to start with, and these are procurable at this time by splitting up the old plants and planting only short cuttings which are inserted in light soil, half leaf-mould and half sandy loam, in



The Alpine Forget-me-not (*Myosotis rupicola*). Engraved for THE GARDEN.

well enriched with manure, and planting would probably be as successful without the sand with which it is customary to surround the bulbs. I do it from a belief that in its roots form in greater profusion, and in wet soils it prevents the damping or rotting of roots till they are of sufficient strength to resist damp. It is rather early to plant out in soils of that description, but ours being naturally well-drained, early planting is desirable. The bulbs then get well established before there is the slightest chance of a check occurring through drought. All our spare spring-flowering annuals and biennials are also to be planted in these borders, and as soon as the planting of all the kinds is finished any spaces left will be sown with Sweet Peas and *Mignonette*, the remainder being reserved for planting out a few summer flowers, such as *Dahlias*, *Hollyhocks*, tall *Pelargoniums*, *Heliotropes*, *Zinnias*, *Stocks*, and *Asters*.

THE WINTER JASMINE (*Jasminum nudiflorum*).—This mid-winter flowering plant is comparatively little grown. Here, on a north wall some 10 feet high and 30 feet in length, there are hundreds of flowers which are of great service for vase and table decoration. The flower-stems being leafless, of

cold frames. If kept moist—never wet—they soon root, and when they start to grow, clip out the points, and a branching habit is secured. These *Cerastiums* are as useful for the winter as for the summer, and were they not of a colour that is much needed for the beds in winter, the probability is they would have no place in our summer arrangements.

W. WILDSMITH.

ALPINE FORGET-ME-NOT.

(*MYOSOTIS RUPICOLA*.)

A LITTLE gem among alpine plants, growing in close, dwarf tufts from 1 inch to 2 inches high, smothered with flowers of the loveliest blue. It is best grown from seed sown where it is to remain, care being taken to save seed from the dwarfest plants in order to preserve its true character.

Broad-leaved Saxifrages (*Megaseas*).—I do not think that half enough use is made of these most useful and ornamental plants. There is much variety both of form and colour amongst them, and

they are, as a whole, not at all particular either as to soil or position. We have the rather erect-habited, deeply-tinted foliage of *crassifolia*, which is also the earliest to bloom; then the semi-prostrate orbicularis; the deep-habited *purpurascens*, with its nearly liver-coloured leaves; and the very robust wavy-leaved *cordifolia*. In fact, all the forms in cultivation are in their way distinct, not alone in foliage, but in the colour of their flowers. I think, however, the greatest amount of variety is to be found amongst a batch of seedlings raised between *M. purpurascens* and *cordifolia*. I have every degree of stature, from a few inches high to stately plants even more robust than *cordifolia* itself, plain leaves and leaves deeply corrugated, erect leaves and quite prostrate ones, some that grow into compact ball-like masses of foliage, and others whose foliage is spare and open; leaves that are uniformly pale green, and others deep olive; others, again, which are tinted and bronzed with rose and crimson of all shades. These plants, in contrast with the glaucous masses of *Carnations*, *Pinks*, &c., grassy *Libertias*, and similar winter foliage, are most ornamental. Then there is the flowering season besides, which in the range of varieties extends over a long period. The *Mega-seas*, in fact, form a group possessing many good and no bad characters, and deserve much more extended cultivation.—T. SMITH.

The Japanese Hop.—It is likely that *Humulus japonicus* will prove a useful plant to amateurs and others who require effect as soon as possible. The note on this at p. 54 of THE GARDEN, Jan. 21, aptly describes the climber, as when the foliage is untouched by small marauders, such as slugs, it is bold and handsome, the twining nature of the plant giving it elegance and grace. I saw last summer a rustic arbour covered with it, and the growth was so dense that nothing could be seen through it, proof indeed against a sharp shower of rain. Amateurs who have only a small plot to indulge their taste for gardening should make a note of it, as it is only necessary to sow the seed and wait for the results. In large places it might be made use of for covering unsightly spots, as outbuildings, sheds, &c.—E. C.

The Cardinal flower (*Lobelia cardinalis*).—I have tried several ways of preserving the roots of this charming plant throughout the winter, in order to be able to divide and increase them in the spring. But the difficulty always has been to prevent the centre of the stool from becoming rotten, and thus causing the young growths clustering about the old stock to decay. I tried them in boxes, laying the roots therein and simply shaking off the greater part of the soil and placing the boxes in a cool house. Another way was tried, viz., placing the roots in a cold frame, using dry soil only, and withholding water during the winter. In both instances the result was the same—loss of a part of each clump. I have found the following plan the most successful, viz., dividing the roots into single shoots and cutting away any pieces of roots showing signs of decay. The roots were laid thickly in boxes in soil just moist; consequently no water has been required. The boxes were placed in a cold frame and air admitted freely on all favourable occasions. At the present time new leaves are being formed, and the plants will be shortly transferred to other boxes, allowing more space to each plant, and returning them to the frames. Towards the end of March the roots will be planted singly in a prepared bed of fairly rich soil over a 2-inch thickness of spent Mushroom bed manure, into which the roots will penetrate. At planting time—early in May—the plants can be lifted with a good ball of soil attached to each. Provision will be made to protect the plants while they are in the prepared bed from sharp frost by means of old lights or straw hurdles.—S.

Clematises dying off.—The way in which Clematises sometimes go off is as puzzling as it is vexatious. In some soils they are more liable to fail in this way than in others. Frequently the plants die soon after they have started into growth, and I fancy that they are often killed by over-kindness. Several years in succession I planted

the sweet-scented *C. flammula*, and curiously enough all the specimens died off. They were planted in good soil, and were well watered when the soil appeared dry. They died off just as they appeared to be starting into free growth. It happened that one plant was quite forgotten and never had any water all through the dry summer. I was much surprised to see that this one had made a fair growth, being to all appearance well established. The moral I draw therefrom is that Clematises should get but little water till they are well established. They naturally grow in dry situations; the roots are fleshy, and probably remain inert when frequently drenched with moisture in spring and early summer. There is then nothing to nourish top growth when hot weather sets in. A lady of my acquaintance has for some years been trying to establish Clematises of various kinds for the purpose of clothing some rustic work. The soil was well prepared, but the result is a miserable failure. I find, however, that from the time the plants began to grow they were copiously watered, and I attribute the want of success to a too cold and wet condition of the soil. If any readers of THE GARDEN should have had failures in this way, I would counsel them to try the dry system. I believe that in a general way Clematises would be better without water until the middle of the summer, when they have come into full leaf and root-activity.—J. C. B.

THE FROST PLANT OF RUSSIA.

I WOULD like to inquire about this wonderful flowering plant, which is said to exist in certain parts of Siberia. About ten years ago various accounts of it were published, and, I believe, seeds of it were obtained by people in Boston, Mass., who had snow brought from the White Mountains and the coast of Labrador in which to cultivate the curious polar exotic, but beyond the fact that signs of success were encouraging there, I have heard nothing of it since.

The plant was first discovered, I think, amid the perpetual snows of Northern Siberia, in 1863, by the eminent Russian botanist, Count Swinokoff, who afterwards cultivated it successfully at St. Petersburg. It is said to come forth about the first day of the year, grow to the height of 3 feet, and flower on the third day, continuing in bloom about twenty-four hours, then dissolving itself. It has a stalk 1 inch in diameter, upon which are three leaves $1\frac{1}{2}$ inches wide, which are covered with infinitesimal frost or snow-cones. The flower is shaped like a star, with petals 3 inches long and half an inch in width at the broadest part, forming an exquisite basket-work of frost. The seed resembles a pin's head. This imperfect description I gather from an account received by J. Stamffer, of Pennsylvania, in 1877. If among all THE GARDEN readers something more definite is known concerning this strange plant as to the genus or character, I hope they will communicate such information for the benefit of plant-lovers in general.

There is a formation often seen in California, known as the Snow plant, which has been described as a convoluted fountain or a crystallised bushy shrub, but little seems to be known as to its precise character. Mr. Stamffer advanced the theory that such formations might be caused by bulbs in the soil, the congelation of vapour being deposited successively upon itself or the stems of last year yet remaining, and thus presenting a sheathing of frost. He says the *Cunila Mariana*, known as the Maryland Dittany, is often found in December with the base of the stem surrounded with shell-work of pearly ice. Dr. Darlington, in his "Flora Cestirca," accounts for it thus:—

In the beginning of winter, after a rain, very curious ribands of ice may be observed attached to the base of the stems, produced, I presume, by the moisture of the earth rising in the dead stems by capillary attraction, and then being gradually forced out horizontally through a slit by the process of freezing.

But if these plants are taken up, a vigorous scaly root-bud will always be found developing at the base. Hence, Mr. Stamffer concludes that the frozen soil being covered with snow, the expanding bud gives out caloric or warmth to generate vapour from the moist

soil, which, arising around the stem of the plant, becomes congealed into hoar-frost, assuming the diversified and beautiful forms like shell-work, Tulips, radiated petals, or snow crystals, depending upon the atmospheric conditions existing at the time. In few of the fact, which, I think, is now generally admitted, that vegetation is never totally suspended even in the coldest season, and that the process of germination generates a certain degree of heat, this explanation of this phenomenal plant-formation does not seem wholly improbable. Surely this whole subject is one of peculiar interest, and worthy of more extended and careful investigation.

Kingston, N.Y.

H. HENDRICKS.

ROSE GARDEN.

T. W. GIRDLESTONE.

MINIATURE ROSES.

MINIATURE Roses are often recommended for the front or margins of beds, but they are comparatively rarely seen, and even where they are met with they are not always treated with sufficient boldness to produce the best effect. Some years ago it was not possible unreservedly to advocate the claims of miniature Roses owing to the fact that most of them bloomed but once a year. Spong and De Meaux, for instance, charming as they are, are not seen to much advantage after the end of June, and the even more attractive and brilliant Burgundy, although a mass of bright carmine flowers for a brief space, quickly resumes its habit of sombre green. Since the appearance, however, of the so-called *Polyantha* hybrids, which originated from crosses between *Rosa polyantha* and some Tea-scented varieties, we have had miniature Roses which bloom literally from May to November, as so many Hybrid Perpetuals are vainly supposed to do. Of course, this name of *Polyantha* is, botanically speaking, a great blunder; *Rosa polyantha* is simply the *Rosa multiflora* of Thunberg re-named by Siebold and Zuccarini sixty years later, a confusing proceeding, which was unfortunately repeated by other botanists. Other synonyms under which this Rose has been described are *R. thyrsoiflora*, *R. intermedia*, and *R. Wichurae*. Horticulturally speaking, however, apart from the difficulty of abolishing established names and the consequent desirability of philosophically accepting the inevitable, the name of *Polyantha* is now not altogether indefensible. The species ought unquestionably to be called *multiflora*, and *multiflora* only, but to the gardening mind this name from long association conveys an idea of something rambling in growth, exceptionally vigorous, more conspicuous as regards bulk than in beauty of flower, and, above all, only once-blooming—and to endeavour to attach this name to the recent race of dwarf perpetual-flowering miniature Roses, which has sprung direct from the species through the influence of the Teas, would almost certainly produce most undesirable confusion. Considering also that these hybrids have almost as many characteristics of their Tea-scented parents as of that after which they have been called, the new race might well be allowed a new name, and, retaining *multiflora* for the species and its similarly scandent and non-autumnal varieties, the dwarf perpetual forms might continue to be known as *Polyantha* hybrids, or, better still, as *Polyantha* Roses. The meaning of the two names is identical, and these dwarf forms are certainly many-flowered enough, and though it may not be quite logical to call them by a name different to that of the climbing members of their family, yet, for horticultural purposes, to class together Roses so widely different (from a gardener's point of view) as *De la Grifferaie* and *Mignonette* would be a blunder hardly less than

the retention for the solitary species *R. multiflora* of its various synonyms.

Whatever it may ultimately be decided to call them, the fact remains that these miniature Roses may be made exceedingly effective in the garden when planted in masses. A double row of a variety round a bed or irregular groups in the front of larger plantations of Roses are conspicuous throughout the entire season, being never flowerless from May to November, and most of the time being sheeted with bloom. The first variety came in 1875 from J. B. Guillot fils, of Lyons, the celebrated firm that has sent out so many fine Teas and their progeny, including *La France*, under the name of *Pâquerette*, so called from its resemblance to the little white Easter Daisy so popular in Paris, and it was followed six years later by *Mignonette* from the same raiser. These two varieties are not yet surpassed for making an effective display in the garden, and are admirably adapted for association together from their close resemblance in habit, stature, hardiness, and their constant production of immense trusses of very double flowers about the size of a shilling, differing only in colour, the first-named being pure white and the latter pink. Cultivated in pots too, either as dwarfs or as miniature standards on short stems, they are charming, and first-class certificates were awarded in London to plants of *Mignonette* exhibited in this way from Cheshunt.

Another very distinct variety is *Perle d'Or* (Dubreuil, 1883), with lovely little orange-yellow buds, but showing far more of the Tea-scented character than the others in the form of the flowers, the smaller, less compact trusses, and in the foliage. One or two more in the same line have now been produced. Although this preponderance of the Tea influence will no doubt bring variety of colour, it will be a pity if the valuable characteristic of the myriad-flowered truss be lost or considerably reduced, and this is a point to which raisers will do well to give careful attention in the selection of seedlings.

Other varieties are *Anne-Marie de Montraveil* (Veuve Rambaux, 1880), pure white, each flower very perfectly formed and very double, fragrant and good; *Cécile Brunner* (Veuve Ducher, 1880), rose, with a yellow tinge in the centre; *Jeanne Drivon* (Schwartz, 1883), a white flower, edged rose, individually larger than the majority; *Miniature* (Alégatière, 1884), rosy white, the smallest of all, and very fragrant; *Floribunda* (Dubreuil, 1885), lilac, in immense trusses; *Princesse Wilhelmine des Pays-Bas* (Soupert et Notting, 1885), pure white, but sometimes disfigured by a green centre, and with too much name to become generally popular. The same raisers in 1886 sent out *Kathe Schultheis*, yellowish white, with a salmon centre, but flowers larger and fewer in the truss, more after the Tea-scented type again; and for 1887, in addition to *Georges Pernet* (*Pernet fils-Ducher*), rose, with a yellow-tinted base, a variety again comes, after a second interval of six years, from J. B. Guillot fils, under the name of *Gloire des Polyantha*, a seedling from *Mignonette*, on which it is said to be a great improvement. The little flowers are produced in trusses of sixty to eighty, and of a bright rose colour with a white base, the petals sometimes having a central stripe of red. According to the reports of rosarians who have seen the novelty in bloom at Lyons, it promises to be not only one of the glories of the *Polyantha* Roses, but also of the Rose garden.

WILL "D. T. F." kindly give a list of the Roses that smell "like semi-putrid water or bad meat," to which he refers in his article on seedling Roses in *THE GARDEN*, Jan. 28 (p. 70)?—T. W. G.

NUT-BROWN BRIERS FOR BUDDING.

BELIEVING with all my heart with Dean Hole that the Brier is the stock for the Rose, I would counsel all who have not yet collected a sufficient stock to finish their Brier hunting, grubbing, and replanting as soon as possible. Not a few would say that all this is already advice two months or more too late. Agreed; still, better late than never, and Briers may yet be grubbed up and replanted with a fair chance of success. A good deal now, as at all seasons, depends upon the selection of subjects and their present and subsequent treatment.

Very much has already been written about all this, but Briers are not likely to lose their interest, unless in the one estate of seedlings for Teas, nor to have their powers or resources exhausted until our era becomes whitened with the hoary age and whitened Roses of well-nigh three thousand years. Hence we will go on in the spirit, if not the actual words of our Rose Dean, that Briers, even tall Briers, are not doomed, and that nine-tenths of the most perfect Roses grown in Britain are grown on the Brier roots of our hedgerows. As the Brier has taken on the major portion of the Teas since these words were first written, we might almost extend the reign of the Briers to nine-tenths and three-quarters.

But there are Briers and Briers, and marvellous differences among those of the common Dog Rose. Some of these differences are very obvious, such, for example, as those of age, size, height, colour, and all these should be noted more or less carefully if you would possess the very best Briers as stocks for your Roses. These, however, are all surface or above-ground qualifications. Others more vital than either are not seldom overlooked, such, for example, as whether the Briers are rootful or rootless, and whether the latter are alive or dead, healthful or diseased. Only a few days ago I came across a man trimming Briers and cutting them back to within an inch of the base of the stems. Root-stocks there were none; the majority of them seemed as if they had been slit off from old stools, and to have left all their roots—if they ever had any in their primitive root-runs—in some far-away hedge bank or ditch-side. The most marvellous part of the matter remains to be told. This practical Brier hunter and manipulator assured me that it was of no manner of consequence whether the Briers had any roots or not; they did all equally well whether planted with or without roots. As it was impossible for me to test the measure of this rough-and-ready Brier-trimmer's plan by practical results, persuasion or remonstrance seemed utterly hopeless. After witnessing the savage and reckless cruelty of these trimmings, one can hardly marvel at the very high percentage of sick and dying Briers so often seen in budding grounds.

Depend upon it, the more roots, real or rudimentary, the better; also the less they are frozen or air-dried, the greater likelihood of the Briers breaking strong and making clean and vigorous growth. Returning to the surface, or above-ground features of Briers, the first points of vital importance are their age and size. The younger the better, if the stems are sufficiently strong and well matured. Possessing these two qualities, annuals are preferable to two-year-old Briers; two better than three, and so on. Youthful vigour, sufficiently consolidated, goes for a great deal in the selection of Briers. The vigour makes them straight as well as healthy, and though a crooked Brier might take on a Rose-bud as readily as a straight one, it is not worth while to mount our sweet Roses on deformed or decrepit stocks unless, indeed, the intention was to sweep them out of our gardens altogether.

The height of the stock is quite immaterial, unless on æsthetic or artistic grounds, or a mere affair of convenience, and the tendency of late years is to get our standards back closer to the ground. There is still, however, admirable nooks, corners, and niches in most gardens for tall standard weeping or bush Roses. True, the latter are mostly formed by being grown up from dwarfs. But unique and very telling bush Roses may also be formed by growing downwards as well as upwards.

Bush Roses thus formed from the vantage crowns of Briers 4 feet or more high are equally distinct from the ordinary bushes grown from the ground in the usual way, or common weeping or standard Roses. The majority of Briers for budding range from 18 inches to 3 feet, but for special purposes this maximum may be doubled.

Unless in the greater difficulty in ensuring stability and rigidity of top, stem, and root, and in working and training tall Briers, they may be grown as successfully as shorter ones. But a mean of about 2½ feet or 3 feet is the convenient height, as it brings up the Roses within easy reach of our sight, smell, and touch—in a word, placing them in the plane of our most perfect pleasure.

The colour of our Briers is noted last here, though in hunting for them it will probably be placed first by the practically wise in such matters. And this brings us back to our starting point—nut-brown Briers. So superior are these to all others, that one is almost tempted to write that none others are worth having. Briers with green or jaundiced-looking yellowish stems are to be wholly avoided, and the browner the bark of the stems, the higher the ratio of successful breaks and takes. As to the causes of the great diversity of colour among Briers of the same species, and the potency of brown in promoting success, I should be glad to have the opinions of other rosarians. But the superiority of nut-brown Briers may be accepted without further discussion. D. T. F.

Roses from cuttings.—I see in *THE GARDEN*, January 21 (page 50), that Mr. Douglas is much troubled with suckers from his Roses, and as a remedy recommends growing them from cuttings instead of using stocks of *Manetti* or *Brier*. The great secret of the *Manetti* is its mode of preparation before being planted. The plan that I adopt is to make the cuttings about 8 inches or 9 inches long, removing every bud except two or three at the top, and by not using the part too near the base where there are sure to be some buds not very distinctly shown. I have grown some thousands and never found more than one or two per cent. throw up a sucker, and those that have done so have arisen from a bud being accidentally missed at the time the cuttings were made. To save any further trouble I throw such plants away when they are lifted in the autumn. I struck several hundreds of cuttings in the above way nine years ago, and the following year budded them. About 90 per cent. of them grew and did well, and when I saw them during the first week in July they were in full bloom, many of the bushes being 3 feet through and covered with Roses on every shoot. The collection numbered about thirty sorts. From the time they were put in they have not thrown up a single sucker.—W.

China Roses for autumnal blooming.—"R. D." does well to call attention to the unique merit of these for this purpose in *THE GARDEN* on page 28. Of all Chinas, too, there is none to equal the common blush or pink for this purpose. It is at once hardier, more free-flowering and more useful than any of the others. The old crimson is the next most useful, but is less durable in bud, and somewhat lacking in substance and form. The other varieties named by "R. D." are also good, but they do not yield the quantity throughout the summer, and especially in the autumn and winter, as the two more common varieties, the pink and crimson China Roses. We cut the latter plentifully up to Christmas last year, and by a little preparation and manipulation the buds were considerably improved and smartened up. Bunches of them were cut almost as soon as the buds showed colour and placed in water near the light in an intermediate house at a temperature of about 50°. Under such conditions they expand of a more delicate colour than in the open, and the flowers are altogether fresher and cleaner. The outer petals are also removed in cases where they are soiled or battered. These China Roses thrive well in groups on beds or lawns, or in shrubberies or hedges, or on walls of any aspect, those of an east or north aspect yielding the rich-

est returns in winter. We used to protect our beds or groups of these Roses; but for late cuttings they are most satisfactory if left to their fate throughout the southern, western, and eastern counties of England. The frost occasionally hits them rather hard; but by cutting out the injured portions pretty close back to the root-stocks, strong branches will break forth from those that will bloom freely throughout the late autumn and winter, and these are the seasons when China Roses are the most useful. In the full season of Hybrid Perpetuals and other choice Roses, the Chinas are scarcely, if at all, noted; but when the former become scarce, then are the Chinas welcome.—Hortus.

AMERICAN NOTES.

Carnation E. G. Hill is a splendid variety. Flowers scarlet, very large, while the calyx does not burst.

Most of the recently built greenhouses are heated by steam. While many of the florists would not throw out a hot-water apparatus to make room for steam, they prefer to use steam in their new houses.

English Ivy seems to do pretty well about Philadelphia. I saw it covering walls some 15 feet or 16 feet high. Protection from bright sunshine in summer or winter, also from winds in winter, is what it most needs.

Lilium Harrisii.—Along the front in a bed inside a large greenhouse I noticed a dense row of green leaves. "What have you there, Mr. Craig?" "That is *Lilium Harrisii* from scales. I just sowed a row of them there, and now they have made nice little bulbs. In the spring I will lift them and send them to Bermuda to be grown into flowering bulbs."

Church decorations.—Churches of all denominations did a good deal of decorating at Christmas, and among those of the Episcopal faith there was a spirit of generous rivalry that made the hearts of the flower men gay. Flowers were used as well as green material. Holly was never more plentiful, and some small dealers held it at ruinous prices. For instance, wreaths were sold for 1s. A year ago they brought two and three times that sum.

The New York Flower Mission intends extending its work by placing plants, window boxes, and growing baskets in the homes of the poor. The Five Points and Bottle Alley, which are the most notorious haunts of vice, will get their share. It has been proved that plant cultivation works more reform than tracts; hopeless drunkards having been interested in this way and turned over to right living.

Coloured flowers in funeral work.—The use of coloured flowers in funeral work has now become almost a rule instead of an exception, as was formerly the case. Bunches and wreaths of General Jacqueminot and American Beauty Roses have been frequently ordered for funerals, and on a recent occasion of this kind in Chicago, fully two-thirds of the flowers were coloured. At a recent funeral in Philadelphia there were large plateaux of American Beauty and La France Roses, Lilies of the Valley, and Violets.

Mistletoe, as a rule, was in miserable condition, arriving in almost every instance all broken up and unsaleable. At the present rate it will not take long to break up the Mistletoe trade here completely. The purchase of an original case of Mistletoe is nothing but a lottery, with the chances ten to one against the buyer. If our cousins across the water wish to retain a market for their Christmas Mistletoe in this section, they must improve upon their packing.

Chrysanthemums from seed.—Mr. William Houston, gardener at the Central Prison, Ont., raised some 300 fine plants of Chrysanthemums from seed, and when in bloom, during November, they made a superb show. While some of the blooms were not equal to those of existing kinds, the majority, in the opinion of those who saw them, were considerably superior to any of the named kinds grown at the same place. The seed was sown in boxes in March last, the seedlings potted

off singly about April 15, and placed in a cold frame, and planted out in the open ground the second week in May. The plants were very liberally fed.

Roses.—Papa Gontier is doing well. In many cases it has supplanted Bon Silene. American Beauty is extensively grown in Europe; they may rant and rave about its proper name and origin, but we will not. Itself and name are here to stay. Madame Cusin was not very popular last year, but it is in demand this season. Madame Gabriel Luizet is a great favourite and much grown, but in the meantime as dormant as a Jacqueminot. The Puritan Rose has its friends and foes, but the general opinion seems to be that it will come better after the new year. At this season we often find it badly affected with mildew and spot, and its blossoms opening imperfectly. The fragrance is delicious. We do not yet know how best to treat it; possibly we will have to grow it in a house by itself.

Berberis Thunbergi is a first-rate Japanese shrub. It is very hardy, the earliest of all to start into growth and bloom in spring, and it keeps its foliage in autumn later than other deciduous varieties. Its habit is compact and bushy, height under 4 feet, foliage small, but bright and very abundant, and assuming a beautiful autumn tint. Its most striking beauty is its bright scarlet fruit, which is produced in the greatest abundance in autumn, and hangs on to the bushes all winter, only very severe frost shrivelling it a little. Would not this Thunberg's Barberry, when laden with scarlet berries, be a capital plant for use in Christmas decorations? Instead of cutting it, we could grow the plants in pots and use them in that way. It is easily propagated, and the smallest plants fruit abundantly.—*American Florist*.

TARDY GERMINATION OF SEEDS.

It is a source of great inconvenience, and often loss, when seeds germinate irregularly, as related by "J. C. B." in THE GARDEN, January 14 (p. 27). I believe this unsatisfactory state of things is generally due to the condition of the seeds rather than the time of sowing or the after-treatment. Seeds that usually germinate very regularly will be troublesome if not properly ripened off. There are some seeds which require great care in ripening them so as to ensure their germinating evenly. While over-drying is usually the reason of irregular germination, the cause may sometimes be traced to the seeds not being sufficiently matured when sown. In support of this, I may mention that on one occasion, when sowing a batch of Mignonette for pots, I ran short of seed, and had to use some which had not long been collected. The result was that a few seeds germinated about the same time as the seed which had been properly harvested, and the remainder came straggling through at intervals of a fortnight. Seed from the same crop germinated well after it had been thoroughly ripened. I have also seen other instances where newly-collected seeds have not germinated satisfactorily.

There are many kinds of seeds which are better for being exposed to the sun for some time after they appear to be ripe. On the other hand, there are some that require very little drying, and which are liable to perish if exposed too long after they are ripe, or if they do not actually perish they get hardened and dry, and consequently germination is much retarded. Primula seed, for instance, requires some care. The seed-pods should be gathered from day to day as they ripen. If the seed has changed colour when gathered it will require very little more drying, and should be cleaned and stored away without delay, keeping it in a tin box in a cool, dry place until required for sowing. Auricula, Cyclamen, and the seeds of most plants that delight in cool, moist places require very little drying. If the conditions under which plants grow and reproduce themselves naturally were fully considered, it would be an instructive lesson to those who seek to imitate Nature. Take the wild Clematis: here is a plant the seed of which appears to be perfectly ripe early in the autumn, but it remains on the plants,

fully exposed to the sun and air, for a considerable time, germinating best in a moist, shady place. Or take our native Primrose: this is usually most prolific where growing on banks partly covered by deciduous bushes; the plants come into flower early in the spring, while the sun can penetrate the leafless branches, and by the time the flowers are fertilised they are completely shaded with green leafage. Under these conditions the seeds are matured, and spring into growth as soon as the sun can again penetrate the leafless branches in autumn. Again, many annuals ripen their seeds in the summer in exposed positions, and after they have fallen they remain on the dry ground, fully exposed to the scorching rays of the sun until the elements change. Although they may have lain for weeks they spring into new life with marvellous rapidity as soon as a little showery weather comes. Most gardeners can vouch for this, especially where a few of our native annuals have been allowed undisputed possession of the soil. A.

GARDEN FLORA.

PLATE 634.

THE SCARLET MALLOW.

(HIBISCUS ROSA-SINENSIS FULGENS.*)

THIS plant belongs to a very extensive genus, many of the species and varieties being remarkable for their gorgeous beauty, but their flowers are somewhat short-lived. The family comprises plants both of annual and perennial duration, and are fit subjects for the decoration of the open-air garden, the greenhouse, or the stove. A beautiful example of the first section in *H. grandiflorus* will be found in Vol. XXVII. of THE GARDEN (p. 108), whilst in Vol. XVI. (p. 486) will be found the portrait of an exceedingly beautiful variety of African origin (*H. schizopetalus*) which bears flowers of quite exceptional shape, and forms a charming ornament when trained upon the roof of a stove.

The China Rose (*H. Rosa-sinensis*) is a very old inhabitant of our gardens, having been cultivated by Miller as far back as the year 1731. In the year 1791 an excellent figure of this species appeared in the fifth volume of the *Botanical Magazine* (t. 158). It appears to have been extremely popular with the Chinese, being extensively cultivated by them. A striking proof of the high estimation in which it has been held for ages by the Chinese is the prevalence upon their screens, fans and paper hangings of representations of this flower.

Of late years the various kinds of Hibiscus have lost somewhat of their popularity in the private gardens of this country, notwithstanding the fact that we have many forms both with single and double flowers, and of various shades and hues of colour. In the gardens of the Rev. Canon Bridges, at Beddington, in Surrey, the Hibiscus is extensively cultivated, and the entire back wall of one house is covered with this variety; the shoots are trained upon some wire-work placed a few inches from the wall, and the plants are seldom without flowers at any season of the year. A few of the other single-flowered varieties of this species are

MAGNIFICUS, in which the petals are rosy magenta, suffused with crimson, and blotched at the base with rich, deep chocolate.

DENNISONI.—A dwarf growing form, in which the flowers are wholly of a creamy white.

COOPERI has its deep green leaves mottled and striped with various shades of red and white. It bears scarlet flowers.

* Drawn for THE GARDEN by Miss E. Lowe, at Colonel Beddome's, May 2, 1887, and printed by G. Severeys.



SCARLET MALLOW (HIBISCUS ROSA-SINENSIS VAR. FULGENS)

Besides these, there are numbers of double-flowered varieties of great beauty, some of the best kinds being

COLLIERI.—Flowers large and full, yellowish buff, with a bright crimson base.

MINIATUS SEMI-PLENUS.—A handsome flower, semi-double; the petals undulated, brilliant scarlet, deeper towards the base.

BAPTISTI.—Flowers crimson, flaked at the base with creamy white.

VIVICANS.—Flowers very large, crimson-scarlet throughout.

KERMESINUS.—Flowers large and full; colour rich bright carmine.

A few other kinds which I have grown, but not seen recently, are—

H. MANIHOT.—A native of China, bearing palmate leaves, which are deeply lobed, and large single yellow flowers nearly 6 inches across. This variety usually blooms during the summer months.

H. RADIATUS.—A showy plant from 2 feet to 3 feet high; leaves palmate, the lobes being serrated; stems and petioles clothed with recurved prickles; flowers yellow, upwards of 4 inches in diameter. The variety *radiatus purpureus* resembles the type in growth, but the flowers are rosy purple, stained at the base with crimson. It comes from the East Indies.

H. SPLENDENS is a native of Australia, but appears to enjoy the temperature of the stove; the stems and petioles are covered with a short downy pubescence; leaves downy on both sides; flowers nearly 6 inches across, bright rose colour, prominently veined with a deeper hue.

H. HUGELI QUINQUEVULNERUS is a compact-growing greenhouse plant with from three to five-lobed palmate leaves, deep green above, paler beneath, and slightly hairy; flowers about 4 inches across, clear rose colour, stained at the base with deep blood-red. Swan River district, Australia.

All the above-named plants will be found to grow and flower freely if planted in a soil composed of peat and loam, with a small portion of sharp sand added. They may be kept as small plants, but the varieties of *Rosa sinensis* form splendid objects for covering a blank wall, as they retain their foliage well, and are almost perpetual bloomers. These varieties are for the most part natives of the islands in the Pacific Ocean, and require the temperature of a stove or intermediate house. They are readily increased by cuttings of the young shoots inserted in a frame with gentle bottom-heat.

W. H. G.

FRUIT GARDEN.

W. COLEMAN.

PLUMS FOR PROFIT.

As few people care to carry all their eggs in one basket, and all soils are not alike adapted to the culture of Apples—the fruit just now first and foremost in all men's minds—it may be well to draw attention to the Plum. I do not mean choice tender varieties requiring walls or biennial root-pruning in walled gardens, but good hardy sorts suitable for orchard planting, sure croppers, and best adapted for market purposes. If Apples pay best, we have good authority for saying Plums stand next, and as these can be planted much closer together and come quickly into bearing, a well-arranged orchard should pay all expenses if it does not yield a fair profit in a few years. The rules by which the planter of Apples is guided are equally applicable here, the first consideration being a suitable soil and situation; the second, a judicious selection of a few sorts which are known to do well in the locality; and last, the best form of tree for planting. Standards hitherto have been most extensively planted, but unless the situation is just a

trifle too low and liable to be caught by fog and spring frosts, as is the case in the valley of the Avon, dwarfs or half standards, which give less trouble to the pruner and picker, are to be preferred. Moderate growers may be planted 12 feet apart in the rows and 15 feet from row to row, a distance that will admit of their growing into fertility years before they touch each other, when moderate thinning of the branches to let in light and air and annual top-dressing will form the sum and substance of necessary attention. Strong growers, especially varieties which spread out laterally, should have a little more room, say 15 feet in the rows and 18 feet between them, planting in the quincunx form being preferable to the right-angled square.

SOIL.—If well-drained and trenched, almost any kind of good soil will suit the Plum, but a sound hazel or sandy loam deep enough to hold moisture in dry seasons answers best. The most healthy and fertile trees growing in this neighbourhood were fairly well planted only a few years ago upon a deep red loam resting upon the old red sandstone, and, judging from the clean bright appearance of the trees and the crops they carry, a soil of this nature fairly enriched with vegetable matter is not to be beaten. Lighter and warmer soils containing a greater quantity of vegetable matter force a quick growth, and on this account are best adapted for very early sorts which come in before the great glut from the Evesham district, but I question if the trees would ever attain the same dimensions or last so long as upon the deep heavier loams of the old red sandstone.

VARIETIES.—These as I have just observed, should not be too numerous, neither should they be confined to one, as some get into the habit of bearing every other year, whilst others, from causes which it is difficult to understand, produce enormous crops where varieties equally hardy are a comparative failure. Fruit early and late being most valuable, the situation and aspect must be the guide in making a selection. In warm sheltered nooks varieties like

RIVERS' EARLY PROLIFIC, a sure cropper, and a prodigious bearer, should be extensively planted. The great drawback to the fruit is its size, but this, compared with its extreme earliness and quality for cooking purposes, does not place it out of the front row of first-rate market varieties. The tree is not a strong grower, and may be planted 12 feet from stem to stem every way, in the warmest and most sheltered part of the orchard.

VICTORIA, a well-known and general favourite, may be grown by the thousand, as it is very hardy and crops well where many others fail. It makes gross shoots in its youth, but for all this it does not make a very large tree, the young wood, which easily snaps, often giving way wholesale under the weight of fruit long before the latter reaches maturity.

COX'S EMPEROR.—A large red Plum, not unlike a monster Orleans, but harder and a much better grower. This variety makes a splendid standard on the deep red soil of Herefordshire, and last year it realised a better price than the Victoria.

PRINCE ENGBERT is a most prolific variety, and one of the best and richest cooking or preserving Plums I have met with. It does well here as a pyramid on a cold soil, but for orchard planting I should place dwarf bush trees 15 feet apart and allow them to extend in every direction. Being a medium grower, the shoots after the trees are formed do not require shortening, but in due course they should be freely thinned and spur-pruned in the winter. The fruit is black, oval, above medium size, and travels well.

BELGIAN PURPLE.—Being very hardy and well adapted to cool soils, this is one of the very best for extensive planting, especially in late districts where it will come in after the glut from warmer districts has passed away. It is a stronger grower than the

last, is equally fertile, and the quality of the large reddish purple fruit fits it for any table.

GISBORNE'S is an improved form of the Pershore, equally hardy and prolific, and, like that well-known variety, can be cooked in a green state as soon as it is large enough, when severe thinning is beneficial to the fruit left on the trees to ripen. Although in point of quality this variety is inferior to the preceding, it is such a safe and certain cropper, and being the only yellow Plum I have named, it should be extensively planted for the northern markets.

OLD GREEN GAGE.—Although an uncertain cropper, every extra warm orchard should contain a good percentage of trees. In Worcestershire the trees in favourable seasons are literally weighed down with fruit, which might be improved by thinning, but few take the trouble; consequently it is very small. The effect the following year is sterility, as it takes the trees one season at least to recover from the strain of stoning. Where this Gage does well I would also plant

JEFFERSON'S, the finest dessert and cooking Plum in cultivation. Many people think this variety is too tender, but where the tree does fruit well no other yellow variety is needed.

THE CZAR, we are told, is to be the best early red Plum of the future, but this has to be proved. Of its quality there exists no doubt, but until more extensively planted, its adaptability to all parts of the country must rest in uncertainty.

THE SULTAN, like the preceding, is strongly recommended by the raiser, and the fruit hitherto placed before the public bears out all that has been said in its favour. Mr. Bunyard describes it as an improved Prince of Wales, a good and free grower and a fair cropper. As fair croppers in Kent may prove failures in less favoured parts of the country, all new varieties should be fairly tested before they are extensively planted.

PEARS IN SOMERSETSHIRE.

PEARS were not very plentiful in this district last season, but even if they had been I hold that no election of a limited number of varieties should be decided in accordance with the experience gleaned in one year. For instance, we have a wall furnished with cordons comprising many varieties that in some seasons are worthless, simply owing to an insufficiency of sunshine to bring them to perfection. Our garden is nearly on a level with a large sheet of water and partially surrounded by a game preserve, and it sometimes happens that if the buds escape destruction by small birds, notably tomtits and bullfinches, the late frosts cripple the blooms, so that we rarely obtain a full supply of fruit. Last year we were particularly unfortunate, and my estimate will therefore be based partly on former experience and partly on observations taken in this district.

MARIE LOUISE, the first of the selected Pears, is the favourite here, no other being admitted to the table while it is in season. We have it on south-east, south-west, west, and north-east walls, and the fruits are invariably of excellent quality from all the positions. Those gathered from pyramids, though not so tempting in appearance, are also of very fine quality. A variety of sites naturally prolongs the season of this valuable Pear, and the trees are prolific wherever grown. It does well as a standard in this part of the country.

DOYENNE DU COMICE is only slightly inferior in point of quality, and it is a pity two such delicious Pears should be in season about the same time. Our best coloured and finest fruits are from trees on the Quince stock and against a south-west wall. From cooler sites and the Pear stock it is not nearly so handsome, but the quality is always good. It may be trained in any form, and I have seen several handsome pyramids.

WINTER NELIS we grow in much the same positions as the Marie Louise, and it really fails to bear well. While the roots are kept near the surface the fruits are of average size, but directly they go down into our clayey subsoil they become

small and very russetty. Whether small or large, however, the quality is always first-class. Then, again, it keeps a long time after it is ripe, which is a great recommendation. I was at one time under the impression that double-grafting improved the size of the fruit, but I find I am mistaken in this.

WILLIAMS' BON CHRETIEN.—I would award this old favourite the fourth place in *THE GARDEN* list, and for several good reasons. It appears to thrive wherever planted, or in both warm and cool sites, and does well as a bush or pyramid on any stock. It is almost a sure bearer; the fruits are of good size and colour, and invariably luscious and deliciously flavoured. Unfortunately, its natural season is a short one, though it may be lengthened by varying the positions of the trees.

BEURRE D'AMANLIS.—As far as my experience goes, this may be relied upon to bear freely in various parts of the country, and the fruits are large and of good quality. It does well against fairly warm walls, and forms a handsome pyramid. We have it good as an oblique cordon on the Quince stock, but prefer pyramids and espalier-trained trees on the Pear stock. It forms a good succession to Williams' Bon Chrétien.

BEURRE SUPERFIN unfortunately ripens when good Pears are fairly plentiful, yet it is worthy of admittance into a select list. It does well against a sunny wall on either a vigorous or dwarf stock, and produces large handsome buttery fruit of good flavour. Few varieties are so easily grown into handsome fruitful pyramids, and on this account alone it is worthy of cultivation. Trees in the open air do not produce such clean handsome fruit as those against walls, but the quality is usually nearly equal.

LOUISE BONNE OF JERSEY, if a poll was taken, would hold a high position in a list of twenty-four varieties. It is of excellent free-bearing habit, and suitable for any form of training. The fruits are large, and when ripe very handsome, though their peculiar musky flavour does not suit all palates. On the whole, it may be said to be very reliable and good.

THOMPSON'S is gradually gaining in favour. It is of a very accommodating habit, being good alike either against a wall or as a pyramid or standard. In this neighbourhood the quality is always good and the trees are prolific. A friend has it very good double-grafted on the Quince stock.

PITMASTON DUCHESS is being largely planted in this district, both against walls and as pyramids. It is of vigorous habit, yet very fruitful, and the fruits are of extra size and handsome. I find the fruit rather sour, and there are many October and November Pears which I like better.

GLOU MORCEAU, though rather uncertain as to ripening, is yet too good to be left out. Given the shelter of a sunny wall, the roots being kept near the surface, the trees rarely fail to bear well, the fruit being heavy, clear-skinned, and when ripe of most delicious quality. Occasionally it fails to ripen satisfactorily, but I would not discard it on any account.

JOSEPHINE DE MALINES, which requires much the same treatment and ripens a little later than Glou Morceau, is a delicious Pear, and for wall culture I find it very suitable.

HUYSH'S PRINCE OF WALES is not nearly so well known as it deserves to be. A fine pyramid of it here seldom fails to perfect a heavy crop of medium-sized russetty fruit, which, in January, are of excellent quality. It is also good against fairly warm walls.

EASTER BEURRE does well against cool and fairly sunny walls—in fact, it is one of the most prolific Pears in cultivation. Sometimes it is melting, juicy, and agreeably flavoured; at others, including this season, the fruit ripens prematurely, and is dry and mealy.

BERGAMOTE D'ESPEREN.—Whether as a pyramid or against a wall this Pear bears heavily and generally ripens well, especially if the fruits are assisted with a little heat.

OLIVIER DE SERRES, one of the latest Pears in cultivation, completely failed with us this season.

We have a good tree of it against an east wall, and have planted another in a warmer position. As a rule, it crops heavily, the fruit being small, and, with us, rather tough, but agreeably flavoured.

NE PLUS MEURIS AND KNIGHT'S MONARCH both do fairly well with us, but do not always ripen satisfactorily; and Beurré d'Aremberg is a sure bearer and of fairly good quality.—*W. IGGULDEN, Marston House, Frome.*

— Having received a copy of *THE GARDEN* of December 17, I observed that it contained an article by W. Francis on Pears in Surrey. I herewith send you a few notes as to my experience with Pears and Apples in Somerset. The dryness of the season affected various kinds very differently. The earlier sorts, such as Colmar d'Été, Beurré Gris d'Été, Frogmore Seckel, Auguste Benoit, are much as usual; Williams' Bon Chrétien, Louise Bonne, Marie Louise, and Doyenné du Comice fine and good. I had very few Marie Louise or Winter Nelis, no Conseiller de la Cour—all very good Pears here. I consider Louise Bonne and Doyenné du Comice first rate. The former is on a standard tree in my front garden; of the latter I have a pyramid, which bears well. Beurré Diel was fine and fairly good; I consider it only second rate. Passe Colmar, Hayshe's Victoria, and Glou Morceau are also good. The latter I find one of the best late Pears when grown as a standard on the Pear stock, as I have it in my front garden. This year, unfortunately, very many of these Pears were blown down by the gale of September 1, which was very destructive to fruit in this neighbourhood. Enough Apples to make twenty hogsheads of cider were blown down in the orchards at Townsend, Ilminster. Glou Morceau is now ripening, and will continue good until the end of next month. I used to have this kind growing against a wall. The fruit was larger than those grown on the standard tree, but was never worth eating. This year Bergamote d'Esperen, usually ripe in February (and good), became so several weeks ago—although remarkably fine, the quality is inferior. Van Mons Leon Leclerc and Josephine de Malines are also deficient in flavour. The latter is never first rate here. Chaumontel, Easter Beurré, and Beurré Rance are not yet fit. Knight's Monarch is strongly recommended to me, and I intend to put on some grafts on one of my trees. I will mention another Pear of which I had very few, but which is of very good quality, Hacon's Incomparable—season November. I do not grow Beurré d'Amanlis. Our Apples this year were generally fine and good, Blenheim Orange particularly so. One half of these were blown down in the September gale. I am acquainted with most of the Apples mentioned in this number of *THE GARDEN*. I agree with much that is said about the Cornish Gilliflower. No Apple excels it in flavour, but it is tender and a shy bearer. I have two good bushes. These generally bloom fairly well and the Apples set, but are very apt to fall off before arriving at maturity. The slightest frost injures the blossom. My father first had some grafts from Cornwall between fifty and sixty years ago. I do not see any mention of the Duke of Devonshire, a dessert Apple worth cultivating. I am promised a graft of the new Apple Mr. Gladstone, which, I believe, is a splendid variety.—*J. BAKER.*

Digging among fruit bushes.—I think that a great deal of injury is sometimes done to the roots of bush fruit trees by digging deeply and indiscriminately among them. The other day I observed some market garden labourers digging among Gooseberry and Currant bushes after they had been pruned. They first of all cleared up and burnt the prunings, then they carefully hoed away any weeds beneath the bushes, but dug only that part of the soil where the roots did not penetrate. But before digging between the lines of trees, they placed a mulching of manure about the stem of every bush, and for some little distance round. The finest bush fruits—as Gooseberries and Currants are termed—I ever saw were gathered from trees where no fork or spade had been used for years; the weeds were carefully hoed off at mid-winter, or after the work of pruning was completed, and then

a mulching of manure was spread over the surface. Raspberries, that are growing among other fruit trees, appear to be impatient of having their roots disturbed by digging about them, and to simply hoe and mulch, as I have observed in good market gardens, tends to the production of good crops of fine fruit.—*R. D.*

STOCK V. SCION.

THIS is a most interesting subject, which will, I hope, elicit much useful and valuable information. Mr. Coleman, in *THE GARDEN*, Jan. 14 (p. 33), infers that "if better bred stocks for Apples were used, the size, colour, and quality would be greatly improved." I am not prepared to wholly dispute this, for I admit there are cases where the stock does exercise an influence over the scion. Our greatest difficulty, however, has always been with these high-bred stocks, as they lack vigour, are of indifferent constitution, susceptible to mildew, and are altogether unsatisfactory for grafting or budding for the formation of standard trees. They may probably be more serviceable for dwarf bush or cordon trees, but when we aim at catering for the million and competing with the foreigner, we must, above all, use free, clean, healthy, and really vigorous stocks. Moreover, who dare say that better Apples are produced in any country or on any stock than English-grown Blenheim Apples on standard trees, worked on the common Crab stock? I hold that the careful preparation of the Crab stock is often overlooked, for each stock should be lifted three times before being budded, and at each removal the long and would-be tap-roots should be spread out in planting, and so kept near to the surface. If so carried out, the after root-prunings will be greatly and beneficially lessened.

We are engaged in a few experiments in double grafting, and hope to chronicle results if thought worthy. Stocks have been prepared as above, and have been budded with Blenheims, which have made shoots 5 feet long the first year. These will be headed back partly, and some shy, but noted good kinds, such as Cornish Gilliflower, Cox's Orange, Ribstons, &c., grafted thereon.

I hope some of our enthusiastic experimentalists will report their results, for this seems a very feasible way to improve the quality without losing the vigour.

These remarks are made simply to elicit trustworthy information, as well as giving my own experience, for I am engaged renovating the fruit orchards on this estate to the tune of 1000 trees per annum, given gratis to tenants, and it is our greatest desire to give only the best kinds of fruit trees, worked on the very best stocks. Some nurserymen of my acquaintance use root-cuttings of Crab stocks for the bulk of their trees. *W. CRUMP.*

Madresfield Court.

* * Please let us have the results of your experiments with double grafting.—*ED.*

Medlar jelly.—In *THE GARDEN*, Jan. 14 (p. 41), mention is made of the Medlar jelly Mr. T. Francis Rivers exhibited at the meeting of the Royal Horticultural Society on the 10th ult. Some time since Mr. Rivers cut down a Hawthorn hedge in the Sawbridgeworth Nurseries and grafted the trees with the Royal Medlar, a medium-sized fruiting variety, a free bearer, and with a somewhat pronounced acidity. Mr. Rivers mentioned that as these grafted trees have now got into a free-bearing state, he marketed some of the fruit which realised remunerative prices, while some were converted into jelly, a sample of which came before the fruit committee and found great favour with that body. Mr. Rivers thinks that as but few persons care for Medlars when they are eatable, that is when they have become soft and the flesh has turned brown and pulpy, the conversion of the fruit into a wholesome and palatable jelly will not only cause the Medlar to become more generally appreciated, but also increase its popularity when the method of converting the fruit into a jelly is fully understood. The method of manufacture into jelly at Sawbridgeworth is as follows: The fruit is taken when quite

ripe, and when the first indications of softening show themselves, they are washed and placed in a preserving pan with as much water as will cover them, and then allowed to simmer gently over a fire until they are transformed into a pulp. As a matter of course it will be necessary to stir occasionally to prevent the fruit from becoming burnt. Then the pulp is strained through a jelly bag, and to every pint of juice is added a pound of sugar; but it is suggested that some might prefer a smaller quantity. Then the mass is boiled for an hour and a half, or less, and when ready put into glasses or jelly shapes. The consistency of the jelly is a matter of taste, and this can be added to or lessened in proportion as a longer or shorter time is employed in the boiling process. If the experiment made by Mr. Rivers, and the dissemination of a knowledge of how to convert the fruit into jelly should lead to the adoption of the process on a large scale as a contribution to the jam-making industry, it will perhaps be as well to seek for a firmer consistency than seen in the sample sent from Sawbridge-worth.—R. D.

APPLES FOR PROFIT.

AFTER all that has been done towards meeting the ever-increasing demand for Apples, it is really but a fraction of what is required, as the quantity of foreign fruit, all of which finds a ready sale, is greater this year than ever. It is probable that this state of things will continue for some years, as our home growers seem slow to realise the magnitude of the demand that is daily growing up in our large towns. One of the things that deters growers from planting more largely is, that occasionally there is a glut of Apples of soft, non-keeping kinds thrown on the market at one time, and which must be sold at any price. After a few weeks prices improve, and by Christmas most of the stocks are cleared out. Now, this is just when anyone who really wanted to make the most of his Apple crop ought to commence sending to market from his store of keeping Apples.

If I were growing for market, I should either plant very early or very late sorts, as there is rarely any fault to find with the prices of Lord Suffield, Juneating, and Summer Pippin; but it is the next in the order of ripening that those who aim at profit must beware of. It is from the pure air of rural districts that we must look for the supply that is to compete with the foreign supplies of the future, for the trees must have plenty of room and every advantage of favourable sites, good land, and high culture. Now that the question of how to crop arable land is occupying so much attention, it is singular that we allow such a state of things to prevail. We often hear it said that it is the demand that creates the supply, yet here we have thousands of acres of the best land in the world paying only a nominal rent, while we keep paying millions of money for fruit which we can produce of better quality at home, as it is beyond dispute that home-grown Apples are worth at least 20, and in some cases 50 per cent. more, according to market sale prices. Now the majority of our market growers are located near to large towns for convenience of sending their goods to market, and therefore they pay a far higher rental than farmers do at a distance.

As regards locality, some people say that Kent is by far the best fruit-producing county, but this, in my opinion, arises from the fact that everyone goes in for fruit there, as you find fruit trees in orchards, on lawns, and in large and small gardens, while the walls of mansions and cottages are covered with fruit trees of some kind. My impression is that in Sussex, Hampshire, and all the southern parts of the kingdom Apples could be grown just as well as in Kent, the only advantage being that Kentish-grown fruit is of a richer colour. At our great autumnal shows one can tell at a glance the fruit that is grown in the southern half of the kingdom by its high colour, while as regards size there is not much to choose over a large portion of the United Kingdom. There is yet another point in favour of planting largely, viz., the fact that we are now exporting quantities of Potatoes, than which there is

no more suitable crop for planting between rows of young Apple trees. The objection to tree-planting by tenants has hitherto been that there is no return for several years. By planting dwarf trees that are not only cheaper, but altogether better than standards, and by utilising the intervening spaces, a crop that would at least pay the rent would be obtained. Dwarf bush trees planted about 12 feet apart soon yield a crop which, although it may at first not amount to many fruits on a tree, is even then in the aggregate worth more than a large quantity of small fruit. Quality must be the aim of future growers for the market, and only the very best kinds in their respective classes should be planted, and after they are grown, more attention must be paid to storing, as I frequently find that Apples which have been covered with the fallen leaves have kept far better than those that are in the Apple stores, which are too dry, and wither the fruit by drying out the juice it is so desirable to retain. If it is worth while growing good Apples, it will surely pay to put up a building that will ensure fruit being worth 50 per cent. more after Christmas. Of varieties, it is impossible to fix on the best for all localities, but on this head we are, I feel sure, getting more reliable information, which will help both the grower and the planter of trees, while the mania for having a miscellaneous collection of sorts has nearly subsided. The market grower having selected his sorts, has only to grow them thoroughly well, and there is no doubt but that he will be able to dispose of the produce readily, even if the imports increase to double their present dimensions.

Gosport.

J. GROOM.

NOTES ON PEARS.

TO THE EDITOR OF THE GARDEN.

SIR,—I have for some time past meant to give you a line on what I fancy is a favourite subject of yours, viz., Pears. I have read, I think, every inch of what has appeared in your columns, even the foot-notes. Now I take it that you would recommend only twelve varieties to be generally grown. I have not noticed a list, but foot-notes tell me some of the favourites—Easter Beurré and Duchesse d'Angoulême. The former here is useless and never swells. At Sandbeck Park, Yorkshire, its colour and flavour are both good, and at Workop Manor, Notts, it used to be good forty years ago. The fruits of the Duchess variety here grow to a large size and become melting, but the flavour is bad, while at Arundel Castle, where I have seen them by the bushel, it was never fit to send to table. Again comes Winter Nelis, which here refuses to grow as a standard, and on a south wall it is quite worthless.

There is no fruit which to my knowledge plays so many pranks as Pears. I assure you, three miles distant from here, the soil being almost the same, Winter Nelis does first-rate. I will now relate a few particulars that have come under my notice respecting Pears. Begin with Flemish Beauty; at Chiswick, Arundel, and here it is worthless, while at Blanking, in this county, it is perfect in colour and of good quality. Then we have the old Jargonelle in York and locality perfect, while at Arundel and Burghley it is useless. I could, by putting on my studying cap, tell you of many more instances. But what I want is to persuade you that twelve kinds are amply sufficient; but if half are bad, what then shall we do?

R. GILBERT.

*** Put on your studying cap, and let us have your selection.—Ed.

The Jargonelle Pear in Scotland.—It is much to be desired that a race of Pears as good as this for some northern climates could be originated. It is the Pear of Pears for Scotland, and does well fifty miles north of Aberdeen, as well as in many other

parts of the country. Some of the trees appear to be a century old or more.—"J. O.," in THE GARDEN, October 28, 1876.

Pears in Covent Garden.—In answer to an inquiry which we made as to whether there were any good English Pears in the market, we have received the following answer from Mr. Solomon: "There are no good English Pears in the market. The only good Pears we have now are the Californian, which run rather high in price!"

FRUITS UNDER GLASS.

PLUMS.

ALTHOUGH the weather has been dark, it has not been severe; consequently the temperature necessary to the forcing of Plums has been maintained with the aid of very little fire-heat, especially where warmth and moisture from fermenting leaves have been secured in the usual way. A temperature of 45° at night and 55° by day, with a slight circulation of air, is quite high enough until the trees come into flower, when a gradual increase to 55° and 60°, still with air, will produce a buoyant atmosphere favourable to the setting of the fruit. A damp, stagnant condition of the air of the house, which renders the petals and pollen moist and pasty, is more detrimental than cold, as I have often found the temperature nearly down to freezing on sharp mornings, and yet, the atmosphere being dry, the fruit has set quite freely. I do not, as a matter of course, advocate this close sailing, but of two evils I would choose a low, dry condition of the house with air, in preference to the maximum I have given without it. Young men of the present day think more of the temperature than they do of the condition of the atmosphere and look upon fresh air more as an enemy than a friend, hence my reason for directing special attention to the importance of forcing, not only Plums, but all stone fruits with a plentiful supply of air. The loss of a week or two is of little consequence, but the loss of a crop is a serious matter, and I know for a fact that many crops of puny and imperfect flowers are brought forward in this way. If the sun breaks through the gloom before the flowers open, the gentle circulation need not be shut off the pipes, but a little more invigorating front air may be given through the early part of the day, and the trees may be well syringed with tepid water when it is shut off for a few hours, about two o'clock in the afternoon. Worked on in this way the bloom will be as bold and fine as that produced by trees in the open air, pollen will be abundant, and daily fertilisation with the camel's-hair brush will secure an abundance of fruit. Before this stage is reached the fumigator, I again repeat, must be introduced to render certain the destruction of every green fly by the time the first flower opens. If none are in sight, so much the better, but, absent or present, the operation must not be neglected. Trees in pots, especially those in suitable condition for forcing, will take liberal supplies of tepid water, not in dribbles, to keep want away, as the crock roots under this system suffer, but in quantity sufficient to penetrate the whole mass of compost now full of active rootlets. In some cases it may be necessary to give water during the time the Plums are in flower, but trees growing in borders, like Peaches, should be liberally supplied in advance of this stage, when they will carry over the setting period.

Late trees, it may be assumed, are now indoors and safe from the ravages of bud-destroying birds. If they are not, they must be netted, as bullfinches are already busy amongst Plums, Cherries, and Pears. Nothing, however, will be gained by leaving them out longer, and as these bold marauders ruin a tree in a few hours, the wisest and safest course will be housing and netting the doorways and ventilators, which can then be left open in all weathers. Large old trees in perforated pots may be plunged at once to the rims in the borders, mulched, and well watered; others not intended for plunging will require water at shorter intervals, but this labour and risk of drought can be greatly reduced by filling in amongst them with a light packing of Fern or stable litter.

CHERRIES

started with the Plums will now be in advance of them, but the same attention to each detail, from watering and syringing to airing and fertilising, must be observed. Cherries perhaps more than Plums suffer from a damp atmosphere when in flower, also when the fruit is ripe; hence my reason for advising keeping them separated by a division of glass, although the heating of the two compartments may not be distinct. This arrangement, as a matter of course, is to be preferred, and as all hot-water work has been greatly simplified, and in the majority of places taken up by a man upon the premises, the introduction of a system that will make each house independent of the next adjoining is worthy of consideration. We now put together all our pipes with vulcanised rings and screw joints, and, independently of the time saved in fixing or taking down by a handy man, we find joints made years ago still remain sound. The treatment of these two fruits being so similar, it is hardly necessary to repeat my remarks upon Plums, but one word of advice I must give: never hurry the trees through the night or on dark, dull days, but give them rest and give them time, and they will pay with interest in the long run. Never confine the fertilising brush to each variety, but cross backwards and forwards from the May Duke to Circassian, and *vice versa*. Never introduce the brush until the trees are in full flower and the pollen is ripe and in fit condition for the immediate performance of its office. When the Cherries are set syringe carefully on fine mornings to free the fruit from the decaying petals of the flowers; run up a few degrees in the afternoon with sun heat, but give air again at night, and keep a sharp eye on the fruit, otherwise it will fall a prey to the weevil.

PEACHES.

A little rain having dispersed the black fog which overhung this part of the country for nearly three weeks, we now have bright and seasonable weather, no doubt highly acceptable to the forcer of early fruits, but by no means assuring to those whose principal crops are obtained from trees growing in the open air. Early Peaches have had a bad time for setting, and never perhaps has the old adage, "More haste, less speed," been put more severely to the test than it has been since early houses were closed for forcing. Patience and plenty of fresh air are the main factors in this department, and where these in a proper manner have been brought to bear the trees will have performed their part in a satisfactory manner, although possibly they may be a week or two later than usual. This is a small matter compared with a good set of fruit, as the time will come, but not just yet, when lost time can be redeemed without distressing the trees, and the fruit at the finish will be fine in proportion to the way in which their energies have been husbanded. If any of the latest trees are still in flower, the camel's-hair brush should be passed over them when the temperature of the house has reached the maximum about noon every day, and when the fruit is safe, syringing may be resumed. Some never discontinues syringing, but dew the flowers over every fine day, but fine days so far having been few, the trees must have had matters pretty well their own way, and, provided the roots are right, they may be just as fruitful as their owners can wish. As the young growths and fruits respond to the tepid bath and the influence of sun-heat, disbudding, shortening back, and thinning must be carried on conjointly, and, the better to avoid a check, these operations should be performed piecemeal—here a little and there a little from day to day. If the foreright and strongest growths near the extremities, especially the upper parts of the trees, are taken first, those nearest the base will gain in strength, and when this even balance has been secured the whole body of each tree may be reduced to the proper number of shoots for tying in. The first thing to be considered is an even spread of shoots for producing fruit next year, and as these cannot be secured too near home, the best near the base and another at the point for extension must not be interfered with; then, provided the modern method of thinning out instead of short-

ening back at the winter pruning has been adopted, it will be necessary to retain others at intervals of a foot or so for the present. Those intervening with fruit clustering at the base we do not remove bodily at once, but pinch them back to two or three leaves which act as feeders, and take them away by degrees as the thinning of the fruit is proceeded with and the base shoots require room for extension. By adopting this plan, every part of the tree is kept full of foliage, and, it is needless to say, the short spurs so formed are a great help to the fruit when swelling and stoning. Next as to thinning the fruit, we always reduce triples to one, and after taking off the weakest, especially those which are pendent, we leave enough and to spare with points upwards for the crop. The house having been regularly fumigated before the blossoms opened, it is hardly likely that fly will have put in an appearance; still a sharp eye must be kept on young growths near the hot-water pipes, as these pests multiply rapidly. Light smoking at first, when the foliage is dry, is advisable, as I have seen fine sets of fruit seriously injured by a heavy volume, when a few puffs with Bloxham's excellent fumigator would have cleared the parts infested. As days increase in length and the sun gains power, the syringe must be freely plied backwards and forwards, but not too late in the afternoon, and the closing temperature may be slightly increased whenever this can be secured without having recourse to extra firing. By this means, 70° to 75° for a short time will help the trees, always provided air is admitted along the front, and 50° to 56° is not exceeded through the hours of darkness. Water having been withheld through the flowering stage, internal borders, as soon as the fruit is safe, must be looked to. To weak trees that have been heavily cropped and again look promising, the first light mulch may be given, to be well washed in with weak clarified liquid, whilst younger and stronger trees will make most satisfactory progress not only without the manure, but with plain tepid water. Peaches require an abundance of water, especially when they are in free growth, but unless they are decidedly weak, it is always best to err on the safe side in the early use of stimulants.

Succession houses, started since the turn of the year, will now come on freely, and, provided they are well watered and syringed and liberally aired, the setting of the fruit will cause little anxiety. For all this, it will be well to fertilise, as we may yet have a long spell of wintry weather, and rain, I hope, in abundance. The roots being inside, advantage should be taken of this long-wished-for change whenever the cisterns are full, otherwise the barrel must be employed to secure a thoroughly moistened condition of the borders during the period of fertilisation. If any of the trees are swelling up a superabundance of flower-buds, they may be relieved by the removal of a goodly number by drawing the finger closely down the under sides of all the shoots, when those left will open stronger and set better than if all were left, whilst the fruit on the upper sides will be in the proper position for swelling to maturity.

Late houses.—All pruning, dressing, and training should now be brought to a close, when internal borders will require pointing up with a fork as a preliminary to top-dressing and watering. Although we have had so little sun, the buds inside and out are swelling at a rate that is alarming, but by no means surprising when we take into account the dry and warm condition of the ground. This being the case, the hose should be freely used prior to mulching, whilst external borders may safely be watered before and after they are mulched to make up for the deficiency in the rainfall. In order to keep the trees in check, all plants that require the slightest protection should be removed from the latest Peach house, when the lights, ventilators, and doors can be left open by day and night until the flowers begin to open. The only danger attending this course is sudden attacks upon the buds in dry seasons by small birds. They do not often interfere with Peaches, but when driven by hunger they will spoil a tree in a few hours. To prevent them from getting in, fine-meshed Strawberry nets thrown

loosely over the openings answer admirably, as they do not impede light or interfere with the circulation of air.

FIGS.

Pot trees grown upon the compact bush principle will now be fit for pinching, and the fruit most likely will require some thinning. Pinching, like all other checks upon the flow of sap, should be performed piecemeal, little and often as the strongest growths show signs of taking the lead to the detriment of the lowest and weakest parts of the trees. Sun and air being essential to the growth of good fruit, some of the shoots may require tying down, with here and there a stick to keep the heads open and in form; whilst others can be trained in the way they should go by the daily pressure of the hand. All useless spray, as a matter of course, should be pinched at the first leaf or removed entirely, and suckers must be suppressed the moment they are detected. Top-dressing rich and warm, also diluted liquid, will now benefit all trees carrying full crops of fruit, and the syringe must be vigorously plied on fine mornings, and again when the house is closed about 2 p.m. On dark, dull days the foliage may remain dry, but the stems, walls, and all dry corners must not be neglected, neither must the constant turning and renovation of the fermenting leaves introduced for giving bottom heat and moisture be omitted. Young trees intended for next year's forcing should now be pushed on upon a bed of warm leaves, and when they have started freely into growth they may be shifted from the pots in which they have wintered into others two sizes larger. The compost, consisting of light, rich turfy loam, old lime rubble, and bone-dust, should be warm and dry enough to bear ramming without becoming adhesive when used, the pots and crocks clean and dry, and the plunging bed in suitable condition before the young trees or plants are disturbed. Having thoroughly moistened the balls, each plant should be divested of old crocks, sour and inert soil, and straggling roots, firmly potted and plunged at once where it is to make its growth. A moderate supply of water will then be necessary, and the plants as well as the walls must be regularly moistened with the syringe whenever the weather is favourable. A light, compact bottom-heat pit suitable for young vines is the best structure for pot Figs, which cannot be kept too near the glass, provided the leaves do not touch it, and, sunlight being so necessary to a short, stubby growth, ample room should be allowed for their full development.

Cuttings put in a few weeks ago may now be plunged in bottom heat, the closer to the glass the better. The bed being moist they will require very little, if any, water until young roots and leaves are formed, but, like Vine eyes, they must be lightly dewed over every day with the syringe to maintain a growing condition of the atmosphere. When they have filled the small pots with roots and the growing points have made a few leaves, they must be pinched to induce side breaks before they are shifted into others a size or two larger.

Established trees growing in borders of limited area must never feel the want of warm water. If started in December and fermenting leaves have been freely and judiciously used, the roots will be active and ready to receive the first top-dressing of fresh rough turf as the staple, with lime rubble and perhaps a little rotten manure according to the crops they are carrying. Being so subject to spider, the trees should be well syringed every morning when there is fair promise of a fine day, and again when the house can be closed with sun heat. If dull, and there is danger of the foliage remaining wet through the early part of the night, the second bath must be substituted by a thorough damping of the stems and walls and the turning of a portion of the fermenting material. A night temperature of 60° will now be safe with a little front air, and it may rise with the day until 70° is touched, when top air must be given. Increase this as the temperature rises, and shut up before there is any appreciable diminution.

W. C.

MARKET GARDEN NOTES.

THE weather being favourable for outdoor work, market growers are preparing for the coming season with all speed by clearing off the remnant of green crops. Looking at the green crops now, one would hardly believe that so much growth could have been made since the end of August, when there seemed to be a great scarcity of green vegetables. Owing, however, to more genial weather, our markets have been well supplied with all kinds of green vegetables for the past three months. First on the list of market gardeners' specialities that are grown in vast quantities and sent to market by wagon-loads is

THE AUTUMN GIANT CAULIFLOWER.—I can testify, from observation during the growing season and the splendid quality of the great loads passing by road, that Cauliflowers could not be grown better for exhibition than they are for ordinary market sale by our local market growers. The seed is sown thinly, and the plants as soon as they are large enough are put out on clean, well-enriched soil and allowed plenty of room. In dry seasons like the past these Cauliflower plants get plenty of sewage, or liquid manure from the farmyard, and the soil being kept frequently stirred, thick-stemmed plants that yield very large heads of flower are produced. After Christmas the supply is kept up by

VEITCH'S SELF-PROTECTING WINTER BROCCOLI, which is quite as valuable a vegetable for mid-winter as the Giant is for autumn supply. This variety has taken several years to get thoroughly established as a market grower's favourite, for half a dozen years ago one only met with it in large private gardens, but now it is grown by the acre. It is treated exactly like the Giant, but is far hardier. The mass of leaves that fold down tightly over the crown keeps it safe from a tolerably severe frost; in fact, there has not been a single break in the supply this winter, although the frost has been severe enough to admit of skating close by the fields where this Broccoli is growing. If there is any danger of the frost injuring the heads, they are cut, even if the leaves are hard frozen, and packed together in a cold shed and allowed to thaw gently, and in a day or two they will be just as good as if no frost had touched them. By looking them over frequently and cutting all that show any signs of opening, a supply is kept up until the early spring Broccoli comes in. This variety has superseded Snow's and other winter white Broccoli, and has been realising high prices during the few past seasons when it was little grown, but now that it is so largely cultivated the price has gone down considerably.

CABBAGES are being planted in great quantity, as those that were planted early in the autumn have made such rapid progress that they will soon be fit for use. The season having been very favourable, hardly any gaps are visible in the rows.

AUTUMN-SOWN ONIONS are being cleaned by hand-pulling the weeds and then hoeing, for Groundsel has grown so luxuriantly in the rich soil that it is now nearly a foot high and in full bloom, and threatens to smother the crops if left any longer.

LETTUCES of the Brown Cos and hardy Cabbage kinds are being planted out from seed beds on the best and most sheltered spots that are available; plenty of manure is used for this crop, as the soil can hardly be too rich for growing salads; while at no period of the year do they sell better than during the spring and early summer months.

RADISHES of the Long Scarlet and French white-tipped kinds are being sown in quantity in beds 4 feet wide. These beds during the night are covered with litter, which is taken off whenever the weather is mild.

Pruning of all kinds of fruit trees and bushes is being pushed forward, and manuring the land around the roots is attracting more attention than hitherto, the conviction that only good culture will pay having become an established principle with market cultivators.

Gosport.

J. G.

Value of pond leaf-soil.—In answer to "A. K., Bentley Priory," in THE GARDEN, Jan. 7 (p. 22), who

inquires "what manurial qualities are contained in leaf matter taken from a pond," I will not attempt to define its real value, but can with confidence recommend it as a top-dressing for lawns impoverished by constant mowing and sweeping, and for Moss-grown pastures. If applied now to the depth of at least 1 inch, and a few Grass seeds sown and raked in two months hence, the result will soon be apparent, and will not fail to be satisfactory.—J. BELL, *Strathfield-saye*.

FERN.

W. H. GOWER.

LASTREA SANCTA.

THIS charming Fern originated some few years back in the nurseries of the Messrs. Jackson at Kingston, in Surrey, having been raised from spores received from Jamaica without a name.



Lastrea sancta. Engraved for THE GARDEN.

Plants of it were sent to the Kew collection, and the authorities there pronounced it new to cultivation, but known as *Phegopteris sancta* of Fee. After having been in cultivation for some time, however, the sori were found to be furnished with an indusium, so that it was transferred to the genus *Lastrea* in the *Oreopteris* group. This Fern has never been plentiful, but it is elegant, and well deserves a place in every collection. It may be grown as a pot specimen or planted out in a Wardian case. The habit is tufted, and the fronds are arranged in a rosulate manner. They vary from 3 inches to 9 inches in length, are lanceolate in outline, and somewhat thin in texture. They are bipinnate, the segments being finely-divided and rich deep green in colour, the undersides when fertile being thickly studded with small black sori. If grown as a

pot specimen it should be confined to a somewhat small-sized pot, as its roots do not appear to like a great quantity of soil about them. It grows freely in a mixture of peat, leaf-mould, loam, and sand. A good supply of water to the roots is beneficial, but sprinklings over the fronds with water from the syringe are apt to turn the fronds black, and by no means enhance their beauty. A somewhat close and moist atmosphere is necessary for the health of the plants and the full development of the delicate fronds.

BOLD-GROWING DIPLAZIUMS.

THIS is a much-neglected section of the *Asplenium* family, and yet it contains some exceedingly handsome plants. It is true that Diplaziums do not possess that elegance of outline for which some of the *Aspleniums* are remarkable, especially some of the *Dareoid* section. They, however, have a bold and distinctive character, which not only affords a pleasing contrast when grouped with more delicate kinds, but materially assists in the general effectiveness of a collection of plants. Diplaziums are distinguished from *Aspleniums* by having the sori and involucre situated upon each side of a free vein, each opening back to back. This distinction is found not to be so constant as could be wished; and Mettenius, a German professor, wished to refer them back to *Asplenium*, but that genus is already so large, that it would doubtless have caused considerable confusion and annoyance. Although the genus is a large one, there are a good many species that I should not recommend a Fern grower to trouble about, unless he happens to possess unlimited room, but the few kinds here enumerated are well worthy the attention of all. They are plants of easy culture, and all of them, unless specially noted, are subjects for a warm or stove fernery.

D. PLANTAGINEUM is a simple-fronded species, of striking interest on account of the intensity of its colour. The fronds are from 1 foot to 18 inches high and 1 inch to 2 inches wide. Native of Mexico and Brazil; it also appears to be a common plant in Jamaica.

D. GRANDIFOLIUM.—A handsome pinnate species, with fronds between 2 feet and 3 feet high, with from twelve to eighteen pairs of large, distant, and broad deep green pinnae. It is one of the handsomest of this section. Brazil and West Indies.

D. INTEGRIFOLIUM.—This is also a pinnate-leaved Fern, with the pinnae broader and bolder than those of the previously-named kind. The fronds are 2 feet or more long, coriaceous in texture, and deep green. The sori upon the under side of the pinnae in this species as well as in *grandifolium* are very conspicuous and ornamental. Indian Archipelago.

D. JUGLANDIFOLIUM.—Fronds upon good examples are nearly 4 feet high, simply pinnate; pinnae numerous, about 8 inches long and 2 inches wide; when fertile the chestnut-red sori are very conspicuous and handsome. It is a very effective plant. Jamaica.

D. FRANCONIS is an elegant plant, with much-divided fronds, which are triangular in outline, 2 feet to 3 feet long and upwards of a foot broad; the lobes finely-toothed; colour bright green. Jamaica, &c.

D. COSTALE.—A bold and effective species, but still rare, I believe, in cultivation; the fronds are from 4 feet to 5 feet long and 2 feet broad; sori conspicuous and handsome. Jamaica, &c.

Besides the above, the following are handsome and effective, bold-growing kinds: *D. Kotschyi*, *conchatum*, *coarctatum*, *expansum*, *umbrosum*, and *arborescens*.

W. H. G.

Davallia fœniculacea.—This distinct and beautiful Fern is in cultivation. It was introduced a few years ago by Mr. B. S. Williams, of Holloway, by whom it was sent out in 1886. I lately saw some good examples of it at Mr. Williams' nursery, and I have also seen it at Mr. May's nursery at Edmonton. It certainly deserves to be extensively grown, but I am

afraid it will prove rather troublesome to propagate, as the rhizomes do not spread, and most of the kinds are slow to reproduce from spores.—A.

Fern fronds for cutting.—Seeing a paragraph in *THE GARDEN*, January 14 (p. 38), in reference to Fern fronds for cutting, in my opinion there is no Fern for cutting equal to *Adiantum decorum*. I have tried most Ferns. I find this one lasts better in water, and is just as easily grown as the commonest Fern.—W. G. MARSHALL.

ORCHIDS.

W. H. GOWER.

SMALL-LIPPED ONCIDIUMS.

THIS group received originally the generic name of *Cyrtorchilum*. They have, however, been merged into the genus *Oncidium*, in Lindley's group *Microchila*. The species contained in this group for the most part produce large and showy flowers; they are also remarkable for the great length of the climbing panicles, which are much branched and many flowered. The flowers are different to those of the majority of *Oncidium*s, which have a large and showy lip and small, somewhat inconspicuous sepals and petals; the contrary is, however, the case with *Oncidium*s of the *Microchila* group, for with them it is the sepals and petals which are the conspicuous parts. It is not surprising to find these plants becoming daily more popular, as they are very robust in growth, and free-flowering, provided they are kept sufficiently cool. Being mountain plants, they cannot endure a high temperature, but succeed well in the coolest end of an *Odontoglossum* house. The spikes are several months before they attain their full length, and until this is accomplished the flowers do not appear. The finest member of this group yet introduced is, undoubtedly,

O. MACRANTHUM, an excellent coloured plate of which was given in *THE GARDEN* of December 1, 1883 (p. 416). It is a native of Peru and New Grenada, and has been found on the Andine Mountains at 7000 feet and 14,000 feet altitude. The large ovoid pseudo-bulbs are upwards of 3 inches high, smooth and deep green when young, but becoming much wrinkled and paler in colour with age; the leaves are bold, being upwards of 1 foot long, and 1½ inches broad, and deep green. The flower-spikes are scandent, from 6 feet to 12 feet long, loosely-branched and many-flowered; between forty and fifty flowers may sometimes be seen open at one time upon a single panicle, and they continue many weeks in full beauty. The individual flowers are from 3 inches to 4 inches across, round and full in outline; sepals roundish oblong, thick and fleshy in texture; ground colour deep yellow, tinged with purplish brown; petals golden yellow, streaked with deep blood colour at the base; lip small, very thick, and leathery in texture; side lobes rich, deep purplish brown, front lobe yellow. There are several superb varieties of this plant in cultivation. One that I noted last season flowering in Mr. Bull's nursery at Chelsea was remarkable for the perfect rotundity of its blooms, and for having both sepals and petals of a rich golden yellow. In the variety *Williamsianum* the sepals are curiously blotched with Indian purple, which renders it very distinct. I recently noted numerous fine examples of this species both in Mr. Williams' nursery at Holloway and also in Mr. James' nursery at Norwood, the plants having numerous panicles of bloom not yet fully developed; in both establishments the plants are kept in the very coolest houses, and abundantly supplied with moisture and air.

O. SUPERBIENS is a plant similar in habit to the preceding. It is a native of New Grenada and Venezuela, growing up to 9000 feet altitude, and therefore succeeds best under the coolest treatment. The scandent panicle is several feet in length, and bears from fifteen to thirty flowers,

each of which is about 3 inches across; the broad sepals are rich chocolate-brown, the upper part narrowly bordered with yellow and crisp at the edge; petals somewhat smaller than the sepals, ground colour yellow, the upper half clear rich yellow, the basal half transversely banded with chocolate-brown; the lip is of the same colour as the sepals, and bears a yellow crest. This species is well figured on p. 276 of the "*Orchid Album*."

O. LAMELLIGERUM.—This is still a somewhat rare plant. I, however, recently noted nice examples of in Mr. Measures' collection at Streatham, also in Mr. James' nursery at Norwood and in Mr. Measures' collection at Camberwell. By some it is supposed to be a natural hybrid; the plant, however, is the exact counterpart of *O. macranthum* in growth; the panicle is scandent and many-flowered, the upper sepal being large and reniform, deep brown, bordered with yellow, the lateral ones being much narrower and similar in colour; petals yellow, the basal part blotched with brown. It is a native of Ecuador.

O. SERRATUM was introduced many years ago by M. Linden, of Brussels, who distributed it as *O. diadema*, which name, from the peculiar shape of the petals, would have been very applicable had it not already possessed a name. This plant is not so often seen in collections as it deserves, for a good variety is really very handsome. The scandent panicle is from 6 feet to 10 feet long and many-flowered; flowers some 3 inches across, and bright chocolate or cinnamon-brown; the sepals and petals are crisp at the edges, and the latter are drawn together, forming a perfect crown or diadem to the column. It succeeds well only when grown quite cool.

O. MONACHICUM is a somewhat similar plant to the preceding; the flowers are large, chocolate-brown, blotched with cinnamon, and narrowly bordered with pale yellow; the petals are much crisped and drawn together over the column. It comes from the mountains of New Grenada, where it is said to grow in the vicinity of a similar species named *O. metallicum*.

O. UNDULATUM is another very fine species, an example of which I recently noted with a very long, but undeveloped flower-spike in Mr. Measures' collection at Camberwell. It is said to have large flowers, the sepals of which are chocolate-brown, and the petals are white, suffused with mauve at the base; but the accuracy of this description I hope soon to be able to verify.

And now a word about the training of the scandent flower-spikes of these plants. Of course, those who grow them for sale endeavour to keep them as compact as possible for the convenience of removal, and hence we generally see in nurseries the spikes trained round three or four upright sticks placed just inside the pot. Those who use their plants for exhibition generally train them in this manner, but it is by no means the best way to display their beauties. I once saw a quantity of spikes of several of the above-named kinds trained carelessly over the roof of a small *Odontoglossum* house between and through some shoots of *Myrsiphyllum*. The effect was charming, and although I have tried various plans to improve upon this style, I have never succeeded, and I strongly advise those who do not wish to remove their plants when in flower to adopt this plan, and dispense with the ugly sticks.

Phajus Humbloti.—This is still a rare plant, and one of which Orchid cultivators do not yet appear to have learnt the proper treatment. I have observed that it appears to be of a rambling habit, and its roots appear to be impatient of confinement. The bulbs are stem-like, bearing several plaited leaves; the raceme is erect, bearing several large showy flowers, which are china-white on the outside, rose-coloured within, curiously blotched and streaked with red, white, and orange. It is one of the introductions of the Messrs. Veitch from the island of Madagascar, probably from the coast region, as it requires strong moist heat to

grow in, all the season, although when in bloom it is very beautiful, and a most interesting and distinct species. I do not think it will ever make a handsome plant. It may, however, improve in appearance with longer acquaintance. It is now flowering in Mr. Southgate's collection at Selborne, Streatham.—W.

Ansellia africana.—Though a species that is by no means a novelty, it is uncommon in collections, notwithstanding its freedom of flowering and bold beauty. A specimen at Mr. Bull's has two pendent spikes that carry many flowers, and in Williams' "*Orchid Manual*" a plant bearing a spike with a hundred flowers is recorded. This must have been a picture, as even when there is not half this amount of bloom the plant is ornamental. It will do well in an East India house during the growing season, but should when in bloom be removed to a cooler quarter to preserve the beauty of the flowers as long as possible. The habit of this Orchid is robust; the stems about 3 feet high, and the pendent racemes of considerable length; the sepals and petals are yellow, also the lip, but the former have rich spottings of lustrous brown. It is named in honour of Mr. John Ansell, who is stated to have discovered it growing at the base of a Palm tree in Fernando Po.

Lælia anceps is an Orchid that has a considerable progeny, and the type varies greatly as regards the colour of the flowers. This species is blooming freely at Mr. Bull's nursery at Chelsea, and a variety named *Hilli* is noteworthy for its clear whiteness relieved by lilac colouring on the expanded portion of the lip and the inner margins of the arched lateral lobes. In one of the houses there was also blooming a new *Lælia*, described as a natural hybrid, and it certainly is of the *anceps* type, its flowers having the same character. These are compact, about the same size, or perhaps rather smaller than those of an ordinary *anceps*, but richly coloured; the sepals and petals deep pink, almost magenta, and showing but little difference from the lip; the throat of the latter is orange with purple stripes. At Messrs. Veitch's a plant of *L. anceps Williamsi* was flowering; this has the sepals and petals pure white, the lobes of the lip coloured inside with gold and purple, the base yellow.

Dendrobium euosmum leucopterum.—This is another addition to the list of beautiful Orchids raised by Mr. Seden, and it is flowering now at the Chelsea nursery of Messrs. Veitch. It is a hybrid between the lovely *D. endocharis* and *D. nobile*, and from such parents we might expect a beautiful progeny. It originated from the same pod as *euosmum*, which flowered first, and *euosmum roseum*, the second to blossom, the subject of this note appearing last of all. The flowers are about the same size as those of an ordinary form of *nobile*, the colour snow white, save the base of the lip, where there is a blotch of rich purple-magenta that sets off the purity of the other portion of the flower. Its delicate beauty and chasteness will raise it to a high place amongst its fellows. *D. euosmum* has a flush of pink absent in *leucopterum*, and the variety *euosmum roseum* has a still deeper shade of the same hue. As far as one can see, it is as free-flowering as the old *D. nobile*, and has the advantage of a delightfully pure colour that we do not find in this old favourite.

Fish manure for Orchids.—Much has been written upon the beneficial results of the application of fish manure to Orchidaceous plants. I must confess to have always been an unbeliever in its advantages, and therefore may be considered somewhat prejudiced against it. It has been said that plants to which this manure has been applied have made enormous growths and produced wonderful crops of bloom, but after upwards of a twelve-month's observation, I am fully convinced that it is not beneficial to *Cypripedium*s. In Mr. Southgate's garden at Streatham there exists a good representative collection of these Slipper Orchids, mostly of large examples, and some twelve months or more ago the fish manure was applied to them, and all last season I visited them from time to time to observe the effect, and upon each visit it was plainly visible that they were deteriorating. The plants declined in health, the leaves assumed a bad colour, and it was too plainly evident that they were going wrong. To-

wards the autumn, Mr. Salter being convinced that this state of things was attributable to the fish manure, he speedily removed the plants, cut away the dead roots, of which there were quantities, washed the remainder, and repotted them into good, sweet peat and Sphagnum Moss. Since then the plants have been rapidly improving in health, the colour has returned, the leaves have plumped up, and they are producing roots in abundance; so that whatever Orchids are benefited by the application of fish manure, it is evident that *Cypripediums* are not among the number. I should like to hear the experience of others that have used this manure; it may suit some Orchids, and if so, cultivators would be glad to know what particular plants it does permanently benefit.—W. H. G.

COOL-HOUSE ORCHIDS AT CHESHUNT.

AFTER the *Phalenopsids*, the most notable Orchids in Mr. Partington's garden are the *Odontoglossums*, and at the time of my visit great numbers of *Odontoglossum Alexandræ* and *O. odoratum* were in flower—perhaps as many as one would see open here at any one time, as the spikes are cut most lavishly for purposes of indoor decoration. About half-a-dozen spikes, some of which bore as many as forty flowers, were cut whilst I was in the house. These *Odontoglossums* receive, except during the hottest days in summer, as much light as it is possible to give them and air in abundance, which is, however, tempered with moisture, whilst the temperature is kept as low as possible. The plants are in the most robust health, having made very large bulbs of an intense deep green, and the majority of the plants of *O. Alexandræ* are bearing two gigantic spikes upon each bulb, many of the spikes being branched. These branching forms, I am told, came out of a batch of plants imported by Mr. Shuttleworth, and it would be well if more of these varieties were imported, for they are very showy and beautiful. The flowers on the majority of these branched spikes are not so large and full as the flowers of the types, which are considered by some as the most desirable. Several of them are producing superb full blooms, richly spotted and of fair size, some being large, and all of them equal to the form figured by Bateman in his "Monograph of *Odontoglossums*." The quantity of flowers is quite astonishing; for example, I noted one plant bearing two spikes from the bulb; each spike had seven branches; one of the spikes bore forty flowers, and the other fifty flowers. Fancy what a display ninety flowers—and these of large size—from one bulb would make. I also noticed several plants bearing six unbranched spikes from three bulbs. Indeed, it seems to be quite the normal condition of the plants to produce two spikes from a bulb, even of the best forms. A finely-grown plant of the Lily-of-the-Valley-like *O. pulchellum majus* was bearing fourteen spikes of bloom just opening.

Masdevallias are doing well in a lean-to house with a north aspect. They are kept very cool. Flowering now are dozens of grand specimens of the lovely *M. tovarensis* bearing hundreds of its flowers. Besides these were numerous examples of the brilliant *M. ignea* and *M. amabilis* and the curious *M. trochilus*. Fine varieties of *Sophranitis* also formed a pleasing and striking contrast to the white *Masdevallias*, and numerous *Lycastes* will soon afford an additional variety of colours.

Intermediate house kinds were also very gay, numerous *Cattleya Trianae* being conspicuous. These plants, it was said, had been obtained from the Messrs. Low as the ordinary kind, but some very distinct and desirable varieties appear to be amongst them; indeed, every plant that has as yet flowered is different. I noted one form similar, if not identical, with the kind called *Rollissoni*, another very similar to that called *Schrederæ*, another like *Atalanta*, and one quite an ordinary form. Here also were flowering in profusion numerous plants with numbers of spikes, the lovely *Lælia albida* and its variety *bella* being noteworthy. These plants have been established for some years, and flower regularly upon the home-made growths. *L. autumnalis* and *L. anceps* were in abundance, and several examples of the va-

riety *Percivaliana* and *Hilli*. The latter is a very chaste flower, the sepals and petals white, lip white tipped with pale pink, with an orange-coloured disc. Associated with these were numerous *Coelogyne cristata*, which will soon constitute an exhibition of themselves. *Vanda carulea*, the flowers of which were over, is grown here in the intermediate house all the year round. In the East India house *Angraecum sesquipedale* was very fine with five spikes, bearing in the aggregate eighteen flowers of the purest ivory whiteness I have ever seen. *Saccolabium giganteum* was still flowering, although late, as also was the white *S. Harrisonianum*. A very fine plant of the rare *Aerides vandarum* was just opening its white blooms, and dozens of *Dendrobium nobile*, grown in small pots, are densely covered with buds just bursting; while in a cool house many more of this fine old species are being kept back to form a succession. *Aerides japonicum*, a curious Japanese plant, very little known and but seldom seen, appears to thrive here in the intermediate house; it is now pushing up numerous spikes. *Cypripediums* are not very much grown at Heaton House; nevertheless, nice examples of *C. insigne*, *C. Spicerianum*, and *C. Harrisonianum* represented the genus. W. H. G.

SHORT NOTES.—ORCHIDS.

IN the *Gartenflora* of January a capital plate is given of *Cattleya velutina* var. *Lietzei*, an Orchid represented with medium-sized flowers, sepals and petals brownish, spotted distinctly, but sparsely, with red; the lip white, lilac stripes, and broad margin of primrose; the column lilac-purple.

The white *Lycaste Skinneri*.—We occasionally find this in private collections, though it is still very rare. A plant is blooming at Mr. Bull's, and the flowers represent a good form, the sepals and petals massive and pure white. It is certainly one of the choicest of the *Lycastes*, as there are no spottings or markings of any colour; so we have a bold, chaste flower.

***Broughtonia sanguinea*.**—In regard to cultural directions upon *Broughtonia sanguinea*, I have found that it has done exceedingly well with me over a tank with *Vandas* and *Nepenthes*. It luxuriates in a warm and moist atmosphere and fully exposed to light, and I believe that if it has a preference it would do best on a piece of Tree Fern stump.—W. SOPER.

***Aerides Fieldingi*.**—This is a beautiful distichous-leaved Orchid from Assam, popularly known as the Fox-brush *Aerides*, from the length and density of its racemes; the flowers are rose-coloured and white. It is an old inhabitant of our stoves, yet it does not appear to have been figured in any of our botanical works. An excellent portrait of this species is given in the December number of the "Orchid Album."

***Masdevallia amabilis lineata*.**—This is a pretty variation from the original *M. amabilis*. Its flowers are of a deeper and richer colour, and strongly lined with crimson-purple on the sepals. In other respects it does not differ materially from the type. It may be seen in flower now at Kew, together with various other interesting species of *Masdevallia*, none of which are so attractive to the general visitor and favourites with everyone as the snow-white *M. tovarensis*.

Twin-flowered Lady's Slippers.—Last autumn twin-flowered spikes of *C. insigne* and other *Cypripedes* were shown as examples of monstrous growth, but, as we stated at the time, this is not of unusual occurrence. A plant of *C. insigne* at Devonhurst, Chiswick, carried this season several spikes, half of which were twin-flowered. Mr. Wright, the head gardener, informed us that the soil used was a mixture of bone-meal and Sphagnum, the robust health of the plants inducing this free-flowering character.

***Cattleya maxima decora*.**—This is said to be a very finely marked form of this species, and a plant of it is now showing flower in Mr. Southgate's collection at Streatham. The manner of its flowering is somewhat remarkable. It appears that two years ago this plant formed and matured a strong pseudo-bulb, which bore a sheath on its apex. This bulb before long made another bulb from the same bud, which also bore a sheath, but, contrary to expectation, neither sheath produced flowers. Last year, again, the plant made two bulbs in the same manner, both with sheaths,

and I observed when visiting there recently that this spring all four bulbs will produce a raceme of flowers, as they are already pushing up through the sheaths.—W.

KITCHEN GARDEN.

MODERN MUSHROOM HOUSES.

No garden may be said to be complete without a Mushroom house, and very few places of any size are without one. This is as it should be, but, unfortunately, the improving hot-house builder has had too much to do with their erection of late years, and as a consequence they are much more ornamental than of old, and not nearly so well adapted to the requirements of the Mushroom. Numbers of houses are to be seen on the north side of a range of forcing houses or vineries, and fully exposed to the cold cutting winds from all northerly directions. The walls are usually of 9-inch brickwork and the roof slated, both conditions being most favourable to lowering the temperature of the house, for which, however, ample provision has been made in the shape of two or more rows of hot-water pipes. Bench after bench is formed, or many more than are ever occupied by the beds, and all so contrived as to render it extremely awkward to get at the beds. Altogether such houses very frequently prove most disappointing, a good crop of Mushrooms rarely being seen in them. Nor are the reasons far to seek. They are either too cold or too hot, and are not capable of keeping out currents of cold, dry air. The best Mushrooms and the heaviest crops are grown without any fire-heat, but not in the modern structures just described, but either in the old-fashioned Mushroom houses, in cellars and caves, or the open air. Old houses are usually in a less exposed position, the best of them being sheltered from both sunshine and cold winds. The walls are thicker, and the roofs either thatched, or if tiled or slated, have an inside ceiling. About one broad bench, in many cases supported by an arched brick wall and not less than 4 feet from the ground, is taken nearly all round the house, the advantages of which arrangement are obvious enough. Then if the doorway is arranged somewhat similar to that adopted in some ice houses, these having two doors, one opening outwardly and the other inwardly, currents of either hot or cold air may be excluded. Failing the double doors, a thatched hurdle or doubled mats may be made to fit closely to the door, these making several degrees' difference either way to the temperature of the house. No fire-heat whatever is needed or ought to be given in a good old Mushroom house. Not so the modern structure, at at any rate, if a uniform temperature is considered necessary. As a consequence, the fire-heat is turned on pretty freely too at times, this also necessitating a free use of the syringe or watering-pot, these often doing as much harm as the high temperatures.

That these modern structures are not well adapted to Mushroom culture, any intelligent reader in "The Parks and Gardens of Paris" of the way in which such immense quantities of Mushrooms are grown in the caves and quarries about Paris must admit. According to this authority, the cultivators zealously guard against any fluctuations of temperature, and the ventilation is cleverly contrived accordingly. Disused vaults and cellars are frequently utilised in this country for Mushroom culture with excellent results. These are available nearly all the year round, as they never reach a very high temperature or fall too low, and, it is almost needless to add, neither fire-heat nor cold air

reach these places. One of the most successful examples of Mushroom culture in a disused wine-cellar may be seen at Gunnersbury House, Acton. It is away from the house, or for sanitary reasons it would not be available for the purpose, and Mr. Hudson has few or no failures. I do not wish to infer that Mushrooms simply grow anyhow in suitable structures. A certain amount of skill and experience is necessary in all cases, so much depending on the quality of the manure, its preparation, and the formation and subsequent treatment of the beds. A suitable house simply renders Mushroom culture easy and profitable. What is wanted is not merely a few small gatherings of poor Mushrooms, but a long supply of fresh juicy ones.

Modern structures, as before stated, being liable to let in cold currents of air, they are supposed to necessitate the employment of fire-heat, in order to keep the temperature somewhere about 60°. Now, it is no easy matter to nicely regulate the heat of hot-water pipes or the flues with which some houses are warmed, and it frequently happens the temperature is very near 70°. This, according to my experience, is fully 15° too high, a uniform temperature of about 55° being ample. At times the heat of a new bed will raise it 5° or more, but this is very different to the heat generated by the pipes, and which dries the beds to a most injurious extent. We learn that in the low-roofed quarries where the highest temperatures prevail the beds are the quickest to arrive at a bearing state, but do not last so long as those in the high-roofed, and therefore cooler, caverns. Plenty of English growers could corroborate this statement, and those who consume the produce could also truthfully add that the Mushrooms grown in rather low temperatures are much the best in point of quality. In reality a well-screened Mushroom house ought to need no fire-heat whatever. It will never be too cold, especially when new beds are formed at short intervals. Preserve the heat in the beds as much as possible, as it is there where it is most needed, and trouble less about the top-heat. No amount of fire-heat will long benefit a bed formed with horse-droppings which have been badly prepared, whether by being overheated, or allowed to become unduly saturated with moisture. If the heat of a bed declines rapidly after being spawned, eventually becoming quite cold, no amount of fire-heat will ensure a good crop of Mushrooms. When such beds are on the floor there is no obviating the difficulty, but if it is on the old-fashioned and rather high bench, a gentle hot-bed formed with well-prepared material, such as stable manure and leaves, may be placed under the bed, and this being occasionally renewed will keep the heat up capably overhead. We have frequently saved our beds in this way. Unfortunately, for the past two seasons we have been unable to procure fresh droppings, and have to be content with those that can be shaken out from rather stale strawy manure. We prepare these principally by frequent turnings in order to dry them somewhat, but do not depend upon them for the bottom-heat, this being supplied by a solid hotbed of well-prepared leaves and manure. The droppings merely act as a medium for the spawn to spread in. We gathered Mushrooms in the coldest weather, and no heat was turned on our old-fashioned house.

I could point to instances where the additions of a ceiling and the thatching of the sides of modern Mushroom houses have materially improved their capability for producing quantities of good Mushrooms, and there are plenty more that might be similarly changed for the better. When in too prominent a position for this to be

done, convert the Mushroom house into an Apple room, for which purpose not a few are admirably adapted, and build a fresh one in a bank, if possible. If no shelves at all are erected, so much the better, as the most profitable beds are those of conical shape, and on the floor. In addition to shutting out cold air and dispensing with fire-heat as much as possible, it is also advisable to surface over the beds with dry hay in which case no syringing or watering will be necessary, and fewer beds accordingly spoilt. W. I.

KITCHEN GARDEN NOTES.

EARLY CAULIFLOWERS.—Since the introduction of hardy and superior late varieties of Broccoli much less difficulty has been experienced in maintaining a constant supply of either Cauliflowers or Broccoli. As a rule, we have the Early Forcing Cauliflower ready for use before the Late Queen Broccoli are finished, this being accomplished with the aid of handlights and autumn-raised plants. In the event of very severe frosts destroying the bulk of the Broccoli, or should there be a failure from other causes, it is an easy matter to forward a batch of Cauliflowers either planted out in rough frames or pits, or grown singly in 9-inch pots. A pinch of seed may be sown at once thinly in a pan or box, and set on the shelf of a warm house or on a gentle hot-bed to germinate. The seeds should be kept on a shelf in a greenhouse or other slightly heated house, where they will not become much drawn and weakly. When they have taken on the rough leaf, they ought to be potted off singly into 3-inch pots, and still kept growing near the glass. Before they are much root-bound they must be either shifted into 9-inch pots, using rich loamy soil, or planted out in a rather deep frame set on a slight hotbed—a depth of about 10 inches of good soil being sufficient. As the plants do not form coarse foliage they may be planted 15 inches apart each way, and with slight protection from frosts and cold, and by giving occasional waterings, a useful lot of close white heads will result. Those in pots may be set in the fronts of newly started fruit-houses, but must be placed in rather cooler quarters when the heat in such places is raised. They will need plenty of water and liquid manure. Either Early Forcing, Tom Thumb, First Crop, or Snowball are suitable for this early crop, all being of equal merit. If there is a scarcity of plants in the handlights and open borders, a batch of either Dwarf Erfurt, Mammoth, Early London, Walcheren, or Mont Blanc may be raised as just advised, and after being well-hardened off, be planted under handlights or in sheltered spots.

LETTUCES IN FRAMES.—In March and April salading is frequently very scarce, the stock of Endive being exhausted and Lettuces not yet available. With a very little trouble this difficulty may be obviated, it being possible to grow exceptionally good Lettuces in a frame set on a slight hotbed. For the majority of establishments a two-light frame is large enough, the crops to succeed being grown in a rough frame or between dwarf early Peas. We find the Early Paris Market the best for gentle forcing and frames generally. The seed should be sown at once thinly in pans or boxes, and the seedlings kept near the glass in a cool house or pit, both to keep them sturdy and to prevent damping off. If kept long in pans the plants are spoilt, and my plan is to prick the plants out when quite small where they are to grow. Shallow frames are preferable, inside of these being first placed a layer of short manure and then about 8 inches of good loamy soil. If deep frames are set on the hotbeds, a good depth of the shortest of the heating material should be thrown in and trampled down, this bringing the soil nearer the glass. The plants ought to be pricked out not less than 6 inches apart each way, and finer Lettuces will be grown if another 2 inches are given. They should be watered in, kept rather close for a few days, and the frames closely covered every night. Later on they need plenty of light and air, and ought never to become dry at the roots. Ours are usually so crisp and

tender that they have to be packed in boxes instead of being mixed with other vegetables in the hampers for the town house.

FORCED PARSLEY.—In some seasons the best curled forms of Parsley are killed wholesale by severe frost. If scarce from this or other causes, it is advisable—imperative, I may say—to raise a quantity in heat. It may be forced readily, and a capital early supply can be obtained from a one-light or two-light frame set on a slight hotbed prepared as advised for early Lettuces. The seed may be sown in drills 8 inches apart, and being naturally slow in germinating, Radishes may be grown between, or, better still, a number of old Parsley roots may be forked up and dibbled in between the seed drills. These old roots will soon yield many good pickings, and if the leaves are small the cook will prefer these to none at all. The thinnings from the rows of seedlings may either be used or dibbled out on a warm border, there to afford useful supplies long before any sown in the open are available.

PEAS FOR SOUP.—Green Peas for soup are occasionally ordered, and in some establishments they are grown early under glass for this particular purpose. As it happens, soup coloured and flavoured with the tender young tops of the plants is quite equal to any made from the green Peas, and we provide these accordingly. There usually being plenty of old seed left in the bags, and which in the open rarely germinates so satisfactorily as new seed, this is sown thickly in boxes of soil and set in heat. In the course of a few days every sound seed will have sprouted, and when the plants are about 4 inches high they are cut over and sent to the kitchen as required. When cooked they are beautifully green in colour and easily reduced to a pulp.

EARLY CELERY.—If this is required very early, seed should be sown at once, but it is not advisable to sow seed for the principal early and main crops much before March. The white varieties being the quickest to become blanched, they are most suitable for the earliest sowings, and for these I can recommend either White Gem, Sandringham Dwarf White, or Cole's Crystal White. Wright's Grove White is larger than either of the preceding and is a favourite with exhibitors. Sow a pinch of seed in a pan of fine soil and set on a gentle hotbed. Before the seedlings become leggy, place the pan nearer the glass, but still in heat, and when the first rough leaf is developed, prick out thinly either in boxes or in a frame on a hotbed. The seedlings may be disposed 4 inches apart each way, kept steadily growing in gentle heat, and eventually hardened off prior to being planted out in trenches late in May.

SPAWNING MUSHROOM BEDS.—When the droppings have been well prepared they seldom become excessively hot, neither is much steam generated. It is the hastily prepared and rather moist manure that is the most difficult to manage after being formed into beds, as these are apt to become very hot for a time, and it is useless to spawn such till this state of affairs is materially changed. When it is found that they are too hot, deep holes should be made about 9 inches apart all over the bed, and left open till the trial stakes kept plunged in the beds can be borne comfortably in the palm of the hand. Even then it may not be safe to introduce the spawn. First level over and well beat down the bed, and if the heat does not again run up too high, or above 70°, spawn at once. Many still form holes for the spawn with a dibber, but this is a wrong practice, as the holes cannot again be effectually closed, and the steam that is apt to collect in them is liable to spoil the spawn. Open shallow holes with the hand and about 8 inches apart each way, in each placing a piece of spawn nearly 2 inches square. Smooth over the bed as the work of spawning goes on, and finish off with a beating down with the back of a spade. If there is no danger of the manure again becoming unduly hot the bed should be soiled over at once, otherwise it should be left for a week or nine days. We usually soil ours as soon as spawned, and find it answers well. The soil should be 2 inches thick after it is levelled and beaten down. Fresh loam, such as the finest from the heap of loam collected

for potting and other purposes, is the best for soil-ing over Mushroom beds, and failing this the freshest or sweetest loamy soil procurable may be used. Wetting and plastering this over the beds is unwise in the case of flat beds, but may be necessary when conical beds are formed. A covering of about 6 inches of soft hay further serves to enclose the heat and prevent loss of moisture. All going on well, there is no necessity to remove the covering or touch the beds in any way till the Mushrooms are visible, which will be in a month or five weeks. We have had, however, Mushrooms in less than a month from the time of spawning, and sometimes it is six weeks or more before they are plentiful, so much depending upon the state of both bed and spawn.

OTHER DETAILS IN MUSHROOM CULTURE.—A house temperature of 50° to 55° is sufficient, as if raised much beyond this more harm than good results. A free use of fire-heat and frequent over-head syringings and damping down soon spoil what might otherwise have been a profitable bed. One must certainly accompany the other, or the beds soon become much too dry. Be content to maintain a lower temperature, and either cover the beds with litter or shutters, the latter being perhaps the most satisfactory method. If wooden shutters cannot be had, felt-covered frames answer quite as well. The floors and walls, being liable to dry rapidly, may be damped as often as necessary, but not the beds, or they soon become cold and wet, and the tiny Mushrooms become soft and valueless. When a bed shows signs of failing from dryness, then is the time to well and gently moisten it with tepid water just flavoured with salt. If all the heat is not gone out of the bed the watering will put new life into it, another heavy crop being the result. It ought now to be generally well known that Mushrooms should not be cut, but pulled out of the soil or twisted off the clusters as the case may be. Old stumps left in the soil soon decay and spread destruction all round. Sometimes it is possible to remove them in large clusters with their roots attached. Each hole thus formed should be filled with fresh soil. The medium and smaller sizes, supposing these have not been unduly forced, are most appreciated. Remember also that a good cook utilises the stems as well as the head.

W. I. M.

American Potato trade.—The declared value of the shipments of Potatoes from Glasgow to American ports in one week amounted to £8452 2s.

Cornish Broccoli.—A local paper has the following interesting note: We are continually hearing complaints from Broccoli growers of the low prices obtained in the trade, and of the diminishing profits accruing to them as compared with those pocketed by their French and other rivals. There have, we believe, been increased supplies in the London markets during the past week, and prices have, as a consequence, fallen again considerably, though no small share of the fault lies with the senders themselves. Formerly a crate of Broccoli sent to the London markets contained eight dozen, or, if exceptionally fine plants, six or seven dozen; but this season crate after crate has been sent containing not more than from three and a half to four dozen heads, two-thirds of the crate being composed of leaves of no value to anyone except to the railway company—extra freight for which the sender has to pay. This is a grave state of things, assuredly, which the sender should remedy at the earliest possible opportunity. It is highly necessary in the interests of the growers that the plants should be properly cut and packed, but in their hurry to get the Broccoli to market they have this season persistently ignored this fact, to their own pecuniary loss. By proper dressing and packing they would save the cost of yarn and straw, and nearly half of the present carriage. Besides, the careful sender has to suffer for his dilatory neighbour, and the buyer, finding it not unnaturally a difficult matter to sort out the good crates from the bad, reckons all as alike and pays accordingly. The prices in London this week are from 10s. to 11s. per crate for Cornish plants, whilst the French are making 13s. or 14s. for crates of the same size, say four dozen—the price being 3s. 6d. per dozen.

We commend these facts to the consideration of those growers who have (we doubt not, unconsciously) been working against their own interest by an inherent desire to be first in the field.

Hearting Kale.—The examples of this Kale which were shown at the recent meeting of the Royal Horticultural Society altogether failed to do justice to this useful selection from the dwarf-curved Scotch Kale. The person who sent them appeared to have but a poor idea of the manner in which vegetables should be submitted for the consideration of the fruit committee. The hearting Kale differs from the dwarf-curved Scotch in that it forms a head at the top (much in the same way as the Brussels Sprout), which, when boiled, is found to be a highly valuable vegetable. When the head has been removed the stalk puts forth plenty of sprouts, as in the case of the Scotch Kale. The hearting Kale has now been before the public for many years, but it is not grown nearly so much as its merits demand.—R. D.

TREES AND SHRUBS.

THE CEDAR IN ITS NATIVE HOME.

DR. GEIKIE, in his recent and latest book on Palestine—though not a leading feature of his work—has, nevertheless, much to say, incidentally, that is deeply interesting on both the fauna and flora of that now sad and desolate country. I have read the book, and have been especially interested in the minute and detailed account given of the Mount Lebanon Cedars, and of the district in which they grow. With a view to make an inspection of these Cedars, a special journey, commencing at Damascus, and occupying some days, was undertaken by Dr. Geikie, who, aided by horses and mules, six in all, eventually arrived at Jebel Makmel, lying 8500 feet above the sea, and the last town of any importance on their way thither; and from this point, the writer states, a most glorious view presented itself—to the south, Mount Hermon, snow-capped, and to the north, Mount Lebanon in all its grandeur, 10,000 feet in height, its top among the thick clouds. Looking down from this (Jebel Makmel) to a distance of 2000 feet, the Cedars are seen below, looking like little green specks beyond the beds of snow. The ground on which the Cedars grow, it is said, consists of undulating slopes of white limestone, 6300 feet above the Mediterranean, and the dark-coloured earth under the trees is covered with decayed cones and branches. The oldest trees are about nine in number, and the grove includes about 350 Cedars, large and small.

Unfortunately, however, no care is taken of them, goats being allowed to eat the young shoots, and monks and visitors alike use the branches for fuel. A Maronite chapel stands among them, and a festival, which is held yearly, helps greatly in this destruction, as the wood is used for the kindling of fires. In reference to the age of the trees, Dr. Geikie adds:—

The oldest trees are of great age, one of them being 40 feet in circumference, but even to it no respect is paid, branches being ruthlessly broken off when wanted for any purpose.

Thinking there may be among your numerous readers some who, like myself, have a kindly affection for the Cedar—a grand and picturesque tree, even in its old age and decay—and that they might like to hear these recent particulars of the state and condition of those still surviving in their native home, I have culled these few extracts. Seeing that in this small British island we have many mountains, often snow-clad, too, why, then, cannot we make a home for the Cedar here?

We are informed by sacred and secular history alike that Cedar wood was mainly used in all the grander buildings of Palestine. Few evergreen trees—if any—will grow more rapidly into bulk than the Cedar, that is, if dealt with on a broad scale as ordinary plantations, properly and gradually thinned. If so treated, I may fairly venture to say that if it was desired to grow the Cedar for scaffold-poles, it would not fail in competition with any tree usually grown for that purpose. Nearly all the old Cedar trees that one meets with throughout this country having been planted as objects of special interest some fifty or a hundred years ago, and nearly always in the most open and exposed situations, where life has been a constant struggle, obviously no safe judgment can be arrived at from such examples, either as to quickness of growth or any other quality. To form a just opinion as to what the tree might become as regards its ultimate commercial value, it would need to be planted on a large scale, and in different localities and altitudes by way of experiment, so much the better.

The Cedar has never as yet, so far as I know, had quite fair play. As to its hardiness, severe winters have occasionally killed many of our hardiest forest trees, but I am not aware that any such record stands against the “goodly Cedar,” which grows equally well in any soil.

ROBERT MARNOCK.

The Rose Acacia for walls.—This beautiful shrub is so seldom seen trained against a wall or trellis, that it must be inferred that it is not commonly known what a charming effect it has when so grown. Its branches are so brittle, that it can all the more be recommended for walls or trellises. I once saw a Rose Acacia in full bloom in early summer against a high wall, which it completely covered, and thought at the time that I had never before seen a wall clothed so beautifully. The plant was covered with multitudes of its clear rose-pink clusters, as profuse, in fact, as those of a vigorous Wistaria. The racemes have the same drooping habit as those of the Wistaria, but their colour is more pleasing and less common. This Robinia flowers much earlier when planted against a warm wall than it does when grown as a standard. If a large space on a wall cannot be afforded, then the Rose Acacia may be advantageously planted against a projecting buttress, which it will adorn in a charming way, and may be kept within bounds by hard pruning. This is one of the many hardy flowering shrubs suitable for covering walls, and full advantage is certainly not taken of it. The Rose Acacia is a common shrub in tree nurseries, and is inexpensive. There are a few varieties of it, those called *macrophylla*, *spectabilis*, and *rosea* being the best known. The type, however, is so beautiful, that one hardly needs an improvement upon it.—W. G.

The Conifer for chalky soils.—By far the most suitable Conifer for planting in chalky soils is the Spanish Fir (*Abies Pinsapo*), which is, perhaps, the handsomest of all the European Silver Firs. In various chalk districts I have visited lately, it is the prevailing Conifer in the parks and gardens of the neighbourhood. I have never seen this Fir so fine before as in these places, so faultlessly regular in growth is it with sweeping branches feathered to the ground, and of that luxuriant green which indicates robust health. I examined the soil in one place, and found that the top crust, which was very little more than pure chalk, was only about a foot or 15 inches in depth; beneath was the pure chalk, and into this the roots of the Firs had penetrated deeply. I imagine that in the mountains and hills in Spain, where this Fir grows wild, the soil must be chalky, as it seems its natural element. Considering the comparatively small number of trees, especially Evergreens, that flourish on chalk, it is a boon to find a Conifer that does well in such a soil, as the Pinsapo is not a tree that one can rely on in every place. I notice that

wherever it grows most satisfactorily, the trees are almost always planted on hills or slopes. It seems to dislike a low spot, doubtless because the water collects too much about its roots, and this is what it does not like. It stands a dry summer without injury if planted on a hill or slope in soil that suits it. There are few finer Conifers than well-developed specimens of *A. Pinsapo* with branches sweeping the turf for 15 feet or 20 feet round the stem. A vigorous healthy tree is always more silvery than one that is unhealthy.—Q.

TREE NOTES.

TURNER'S EVERGREEN OAK.—A few trees of this excellent variety, to which "W. G." (page 41) draws attention, were planted here on a stiff limestone marl about 40 years ago, and, in reply to him, I have pleasure in saying that two I have measured are 38 feet high, and 54 inches and 64 inches respectively in girth at 4 feet from the ground. Although indifferently planted in low cold ground subject to fogs and only a few feet above the flood-line, with large Conifers shading them from all but the summer midday sun, they make very steady progress and hold their leaves until the swelling buds push them off in the spring. In 1860-61 they were rather hard hit by the severe frost following upon a cold wet summer, and, no doubt, lost a few feet of altitude during the time they were recovering, but since that time they have passed uninjured. To many this remark as touching the hardness of *Q. Turneri* may appear strange, but by those who have practical experience of the disastrous effect of the frost of that memorable year upon trees of many kinds, including its assumed parents, *Q. pedunculata* and *Q. Ilex*, this statement will be well understood. One of the trees at this place has formed a very beautiful oval-shaped head, about 24 feet through. All the leaves are exactly alike—bright, glabrous above and below, deeply dentated, and have pink foot-stalks resembling those of some of the choice Hollies. This, no doubt, is one of the best European hybrid Oaks, as it is always bright and cheerful and contrasts well with the dark and dense Conifers, especially in winter, but, its superior habit excepted, I do not realise its superiority over

QUERCUS AUSTRIACA SEMPERVIRENS, to which "W. G." also alludes. This has been extensively planted here, principally on high, dry limestone brash or marl, but the leaves being so much larger than those of *Q. Turneri*, I am uncertain as to whether it is identical with the Kew variety of *Q. glandulifera*. Possibly the poor, thin, gravelly soil, which gives many of the Kew trees such a poverty-stricken look, may make this difference, as all the Evergreen Oaks do best in a deep, rich, but well-drained loam. Be this as it may, I can safely say it is one of the hardiest, brightest, and best round-headed Oaks I have seen. Our first planted tree has formed a perfect globe more than 20 feet through, and forms a very striking object, surrounded, or rather backed, by the dark *Pinus insignis*, *P. taurica*, and *Cupressus macrocarpa*, with a few trees of the handsome *Acer colchicum rubrum* near them. Thinking this Oak had not assumed its proper character, I procured a quantity from a reliable source, for planting with Scotch and other Pines in an ornamental cover for pheasants, but all of them, although smaller, are growing into many-stemmed, round-headed bushes. This habit being, I presume, characteristic of the tree, very handsome lawn specimens might be made by grafting or budding upon clean, straight stems of the common Oak.

QUERCUS ILEX.—I am at a loss to understand how anyone can find fault with this bright, handsome tree, than which few, if any, of the varieties are better than the species. Here we have one variety under the name of *Q. I. Fordi*, a compact grower, with very narrow leaves, bright glossy green above and white on the under side. It is quite hardy, as Evergreen Oaks go, and, being a close-habited tree, it should escape injury from snow, but unfortunately, like the whole family, it seems to hug and hold it until the branches bow down or split off, unless the friend in need with long pole relieves it of a portion of the incubus. This splitting tendency under a heavy load of snow in my

opinion is the greatest drawback to the Evergreen Oaks, and were it not for this, more, I have no doubt, would be planted. Still, so beautiful and so cheap withal is the Holm or Holly Oak, so well adapted for the lawn, the shrubbery, or sheltering belts and hedges, and, last of all, so amenable to pruning, that this slight drawback, which places it on a level with the *Arbutus*, should not prevent anyone introducing it very freely.

W. COLEMAN.

PERNETTYAS.

THOUGH *Pernettya mucronata* and its numerous varieties are most attractive when covered with berries, yet they occupy a prominent place among our ornamental shrubs when profusely laden with their pretty bell-shaped wax-like blossoms, which are very beautiful, and last for some time in great beauty. Where cut flowers are needed sprays of the *Pernettyas* are very useful, for if taken just as the earlier blossoms commence to unfold they retain their beauty for weeks, and the dark glossy green foliage serves as a very effective setting to the pure white blossoms. Irrespective of flowers and fruit, the whole of the *Pernettyas* are handsome evergreen shrubs, that retain their freshness even during the most severe winters. Just now they are beautifully in fruit, and though perfectly hardy, they may be potted up and used for the winter embellishment of the greenhouse, where their handsome berries can be seen to very great advantage when so treated, and they will retain the brightness of their colouring for months. When planted in the open ground *Pernettyas* are by no means particular as to soil or situation, but, like most of their class, they may be grown in any soil where *Rhododendrons* flourish. The berries, which are borne freely, afford a ready means of propagation, as if they are gathered when their beauty is on the wane, rubbed with a little dry sand, and sown in a frame, they soon germinate, and grow quickly after their earlier stages are past. The ordinary *Pernettya mucronata* with its crimson berries has been often recommended for game coverts, one great point in its favour being that birds are fond of the berries, which when grown only for its ornamental qualities is a disadvantage, for I have known the beauty of the plants entirely spoiled in a few days during sharp frost. Until about half-a-dozen years ago the crimson-fruited *Pernettya* was the only one to be met with, when attention was at that time directed towards a number of varieties that had been raised by Mr. Davis, of the Hillsborough Nurseries, and which he has since that time put into commerce. Several of them, with berries varying in colour from white to almost black, were exhibited at a meeting of the Royal Horticultural Society in the autumn of 1882, and several certificates were awarded them. As one present on that occasion, I can testify to the great interest that was manifested in this exhibition. The varieties that received certificates at this meeting were *carnea nana*, *alba*, *sanguinea*, *nigra major*, *purpurea*, and *macrocarpa*. The distinguishing characteristics of each kind is indicated by their respective names, and they represent a good and varied selection, though there are several others from the same source.

H. P.

Benthamia fragifera.—I was interested in reading a paragraph by "J. C. C." in your issue of December 17, and another by "J. F." (South Devon, 31st ult.), on the *Benthamia fragifera*. I am surprised, however, to find that so little seems to be known of this beautiful shrub, or rather tree, for such it is in this neighbourhood. In or about the year 1823, the late Sir Anthony Buller (who was a judge in India) sent to his brother-in-law, the late Mr. John Hearle Tremayne, of Heligan, various seeds, among which were some of the *Benthamia fragifera*. Of these, two were successfully raised; but eventually, becoming too large for the greenhouse, and never having shown flowers or fruit, they were planted out in the open border. When about twelve years old they commenced to flower and fruit, and the numerous plants raised from them have flourished luxuriantly here ever since. The carriage drive for upwards of a mile is lined with

Benthamia fragifera (many being self-sown), the creamy white flowers of which form a most striking and beautiful feature, contrasted with the purple bloom of the *Rhododendron ponticum*, over which they tower, many of the trees being upwards of 45 feet high. They fruited in great abundance last year, notwithstanding the previous unusually severe winter, and we gathered a plentiful supply for Christmas decorations. In 1838 two specimens were exhibited at the Royal Horticultural Society's show at Chiswick, for which a silver medal was granted. The society, not knowing the species, named them after Mr. Bentham, the then secretary to the society.—WILLIAM OSBORNE, *Heligan, St. Austell, in Field.*

Abies brachyphylla is a Conifer that can be highly recommended as a beautiful hardy and rapid-growing lawn tree. It is more like *A. Nordmanniana* than any other I know, except it be the common Silver Fir (*A. pectinata*). It is handsome in growth, having regular whorls of branches densely beset with leaves of a very deep green above, silvery beneath. Its annual rate of growth in warm soils and sheltered positions ranges from 9 inches to 15 inches, the latter where the plants are much sheltered. It is, no doubt, perfectly hardy, as young trees have withstood the severe cold of recent winters, and it is said to stand the Danish winters. It is a Japanese tree, growing wild on the mountain plains, and was introduced to Europe about seventeen years ago. It is one of the Conifers I should include in a selection of the very best.—W. G.

The green *Euonymus* at this season stands out conspicuous from all other Evergreens in London gardens on account of its cheery and healthful appearance. It is certainly the shrub for smoky town gardens, being perfectly indifferent to a polluted atmosphere, and, probably on account of the absence of variegation, undoubtedly hardier than the variegated silver and golden *Euonymuses* which are so popular as window-box plants. I notice that in the squares and gardens in the East End of London, especially in the neighbourhood of the docks, the green *Euonymus* thrives with astonishing vigour, and grows so rapidly, that small plants planted five years ago are now great bushes a yard high and as much through. It is of symmetrical growth, dense and round-headed, and grows well in any soil. Too much cannot be said of its merits as a town Evergreen. In exposed country gardens it is not so suitable, as it is liable to be cut off by frosts. Like the Plane, its home seems to be the London square.—Q.

SHORT NOTES.—TREES AND SHRUBS.

Berberis nepalensis.—Believing the above to be a rarity out of doors, excepting perhaps in favoured spots along the south coast and Ireland, it may interest some of your readers to know that on the lawn here (N. Wales) we have a specimen in robust health fully 12 feet high by 18 feet diameter. Unfortunately until a few years since it was smothered up with common *Rhododendrons*, &c., or probably it would be now of much larger dimensions. "W. G.'s" note of the plant at Kew is my excuse for writing this.—J. R., *Tan-y-bwlch, N.W.*

—In THE GARDEN (p. 65) there are some remarks on this *Berberis*, a fine specimen of which is growing here without any protection. It is about 10 ft. high and from 7 feet to 8 feet through, and flowers freely, but will not be in bloom for a month yet. The position is very much exposed to north-west winds, and after a strong gale the edges of the leaves become brown, but the growth does not seem to suffer.—E. PETERS, *Guernsey.*

Hardy Laurels.—I remember exhibiting *Laurus rotundifolia* before a committee of the Royal Horticultural Society seventeen years ago, when it received a second-class certificate only. Outsiders, however, saw what the committee failed to see, although it was shown in good condition, and the stock of it sold rapidly. That it is a first-class Evergreen has been long acknowledged, but whether it is hardier than *colchica* or *caucasica* I could scarcely say, as these three sorts are equally hardy here. All three are greatly superior to the common Laurel. *L. rotundifolia* is the smoothest, neatest, and the best for dressed grounds; *L. colchica* is the grandest and the

best for shrubberies and such positions as are most suitably filled by a hardy Evergreen of diffuse habit.—WILLIAM PAUL, *Pauls' Nurseries, Waltham Cross.*

The Acacia or Locust tree.—Referring to the note in THE GARDEN, Jan. 21 (p. 64), I may say that most of the hedges along the railway from Vienna to Buda-Pesth consist of this Acacia. I noticed it particularly on very sandy districts where no other shrub could exist. In the park attached to the Imperial Gardens at Godollo, near Buda-Pesth (the soil being of a sandy nature), the majority of the old trees are Acacias. Taking a stroll through the village, I observed the Acacia planted in masses about the isolated houses of the peasants. In Austria the Acacia is frequently planted along the sides of roads, but when so grown it is occasionally beheaded.—LOUIS KROPATSCH, *Laxenburg.*

NOTES ON SHRUBS.

GARRYA ELLIPTICA.—"J. C. C.," in THE GARDEN of December 31 (p. 616), recommends this plant as being suitable for the Grass lawn as well as the shrubbery, and I quite agree with him. "J. C. C." further says, "It is unfortunate that severe frost injures the flowers, but I have never known any other part of the plant suffer from keen cold." I may, however, state that I have had the shrub killed by frost when planted in a sheltered situation at an elevation of about 1000 feet above sea level.

THE POTATO TREE (*Solanum crispum*).—In THE GARDEN of December 31 (p. 615), "J. M." asks

If this tree ever fruits in England, and is the fruit of any ornamental merit? Here against a west wall there is one which annually makes shoots 8 feet and 10 feet long, and as thick as a man's thumb. . . . From its extraordinary vigour, I suspect the roots have found their way into a drain that runs at no great distance.

I have never seen this tree bear fruit either in England or Scotland, but I have seen it in Ireland. A tree planted as a standard in a sheltered situation on the lawn at an elevation of about 80 feet produced for a considerable time during the summer plenty of flowers, which were followed by some fruit. The latter is of no ornamental merit whatever, being of a round globular form, and of the size of a small bullet. The roots of "J. M.'s" tree may have found their way into a drain, which probably would stimulate its growth; but the tree naturally grows with great vigour, so much so that it gets top-heavy, and it is only by staking and tying that it can be kept in position.

LIME TREES DYING.—In THE GARDEN of January 7 (p. 3), "J. C." says:—

Would any of the readers of THE GARDEN kindly advise as to the best time to prune Lime trees? I pruned some in January last, and others I cut in in August. Of those that were pruned in the early part of the year all are more or less dying back to the main trunk. In all respects, except in the case of the branches that have been pruned, the trees are quite healthy.

You should prune your Lime trees in the month of July. When branches are removed or cut back at that season, the bark soon forms a callus round the margin of the wound, and the healing process commences immediately. In cases where the saw is used, care must be taken to have the surface of the wound pared and smoothed with a sharp knife to prevent the lodgment of water. J. B. W.

Bambusa viridi-glaucescens.—This is one of the very best of the hardy Bamboos, quite unsurpassed in point of gracefulness and beauty, and appears to be perfectly hardy. Near a small stream, and therefore growing in moist ground, I have a specimen about 10 feet high and over 13 feet in diameter. It is a fine specimen, and last year when *Thamnocalamus Falconeri*, the commonest Bamboo of gardens, was killed to the ground by the unusually biting winds of spring, it was uninjured. For this plant I am indebted to M. Max Leichtlin, who sent it under the above name. In Nicholson's dictionary it is given as a synonym under *B. nana*, and this may be correct, but I prefer to keep the old name until I can study the nomenclature of these hardy Bamboos. The little plant grown as *B. nana* has no title to the name. In the above dictionary *B.*

nana and *B. aurea* are figured, and to give an idea of what this specimen is like, I may say that it has the fine arching habit of the former, with the light gracefulness and complete furnishing to the ground of the latter.—R. IRWIN LYNCH, *Botanic Gardens, Cambridge.*

PROPAGATING.

SOLANUMS.—Where it is intended to propagate *Solanums* for next winter's display, no time should be lost in putting in the cuttings, as plants increased in this way are preferable to those grown from seed, being more fruitful in a small state; while seedlings cannot be depended upon to reproduce plants all of which are equal to the parent. Where the fruiting specimens have been kept in a greenhouse throughout the winter they will by this time in most cases have made a few shoots, which will form the best cuttings. The shoots selected for the purpose should be clean and sturdy, and especial care taken that they are quite clear of insect pests, as if these are present on them they will, in the close atmosphere of the propagating case, increase rapidly, and severely injure the young foliage. There is also a kind of white fly which sometimes attacks the under sides of the leaves, and which is difficult to dislodge when once it obtains a foothold. If the cuttings are dibbled into pots of light, sandy soil, and placed in a close propagating case, they soon form roots, after which they must without delay be hardened off. Shoots taken from the upper part of the plant make more satisfactory cuttings than those from the lower portion of the side branches. So readily does the seed germinate, that I have frequently seen it commence to grow while still in the fruit on the plant.

SOFT-WOODED PLANTS.—A great many soft-wooded subjects, such as *Fuchsias*, *Heliotropes*, *Petunias*, *Lobelias*, &c., are kept during the winter drier than usual, and this, combined with the lower temperature, causes the plants to go partially to rest, and when they start in the spring they make more rapid progress than those that have been growing throughout the winter. In the case of those varieties which it is desired to increase as much as possible the plants will start into growth more strongly, and, consequently, yield a much larger number of cuttings if they are repotted now. Not only are the shoots more numerous when the roots find their way into the new soil, but they also gain considerably in vigour. So rapidly do the shoots grow, that where it is desired to take the fullest advantage of them the stock plants may be gone over every week and a crop of cuttings taken. Plants of this class do not entail much trouble in their propagation, but the cuttings strike more quickly if kept close, though it is by no means necessary, as they will form roots if exposed to the ordinary atmosphere of the house. Again, a manure bed may be made up and employed for the propagation of such things, but the better way with most, if rapid increase is desired, and there is not a propagating house for the purpose, is to have a small case or two made on the same principle as an ordinary garden frame, and place them in a house which is maintained at an intermediate temperature. If so arranged that the pots can get just a little bottom heat so much the better. I have sometimes seen the cuttings struck in a bed of Cocoa-nut refuse without the need of pots at all, but this is not to be commended, as it is then necessary, to prevent the delicate roots decaying, to pot off the cuttings directly they are rooted (which is not always convenient). Again, when in pots they may, if needed, be shifted into a lighter position to keep them from becoming drawn directly the first root or two makes its appearance, and before they are sufficiently advanced to be potted off. A soil well suited for the general run of soft-wooded cuttings is a mixture of loam, well-decayed leaf mould, and sand, the whole being passed through a sieve with a quarter of an inch mesh. The rougher portions of the soil that do not pass through the sieve may be used as drainage in the bottom of the pots, and in a general way it will be ample; for

pots 4 inches in diameter are quite big enough for the purpose, though should larger ones be preferred it is better to put a few broken crocks in the bottom. The soil should only be made solid enough to hold the cutting in its place after it is inserted therein. A word as to the taking of the cuttings may not be out of place, for where it is desired to make the most of a stock plant, the young shoots must not be taken off altogether, but the bottom pair of leaves should always be allowed to remain, as the dormant buds there will then start into growth, and in their turn yield a supply of cuttings in much less time than would be the case if the young shoots were entirely severed. Should there be a space of 1 inch or more between the joints the cutting may be taken off immediately above the leaves that are to remain on the plant, thus there will be at the base of the cutting and below the bottom buds a length of naked stem. In a general way this will be long enough when buried in the soil to hold the cutting in position, it being dibbled in just deep enough to allow the bottom leaves to be level with the soil. There is a wide-spread opinion that it is absolutely necessary to leave a joint at the base of all cuttings, but it is a mistaken idea, as they strike root just as well if the length of naked stem below the joint forms the bottom of the cutting. Of course, far more plants can be propagated in this way than if a joint is to be left at the bottom of each, as an instance of which I may mention that where as rapid a propagation as possible is needed, a shoot, say of *Fuchsia*, may be taken with perhaps five pairs of leaves and the terminal bud, when with a sharp knife the stem may be cut clean through just above each joint. The result is it is divided into five portions, each consisting of a pair of leaves and their accompanying buds, with, of course, a length of naked stem attached to each. These may be dibbled at such a depth that the leaf-stalks are level with the soil, and each will strike as readily and form as good a plant as if the entire shoot or the upper part only was used as a cutting. Of course these remarks apply only to young shoots that are still in a soft-growing condition, as when they show signs of flowering (be the plant what it may) cuttings are far more difficult to strike. Though *Lobelias* of the *speciosa* class are often raised from seeds, great numbers are still propagated by means of cuttings, and a very good way of successfully dealing with them is to keep the stock plants rather close for about ten days or a fortnight, when the additional warmth and increased atmospheric moisture will cause young roots to be pushed out from all parts of the stems. When cut off and dibbled in as cuttings into pots, pans, or boxes, they start away at once, or the stock plants may be split up into as many as are required, each with a certain number of attendant roots, and when potted, if kept close for a few days till root-action recommences, they will give no further trouble. Where seedlings are to be raised the seed should be sown at once in boxes or pans of soil, the same as that above recommended for cuttings. Before sowing the seed the surface of the soil should be moistened through a fine rose and the seed at once sprinkled thinly thereon. It must be covered very slightly with some fine sandy soil and then placed in the coolest part of the stove or in some such structure. A pane of glass over the surface of the pot will assist germination by maintaining the soil in a regular state of moisture. Directly the young plants make their appearance they must be shifted to a shelf near the glass to encourage as sturdy a growth as possible, and by degrees be removed to a cooler structure. Of course the seed will germinate equally well in a greenhouse temperature, but it takes a longer time and the plants grow slowly during their earlier stages.

PELARGONIUMS can be rapidly increased in early spring, and it is of great advantage where severe losses have taken place during the winter; indeed, spring propagation of these plants is now carried out to a much greater extent than it was formerly. Unlike all the preceding subjects, the cuttings of *Pelargoniums* strike better in a dry heat than in a close atmosphere freely surcharged with moisture, and another difference is that they require to have a joint left at the base of each cutting. It is not

absolutely necessary for the success of the cutting, but the most satisfactory results are obtained by those that are cut off at a joint. Where the cuttings are large the bottom leaves may be removed altogether, but where small it is by far the better way to leave them untouched, as they soon shrivel up and can easily be removed from the plant. It matters little whether the cuttings are put singly into small pots or several in a larger one. In either case a watering may be given sufficient to settle the surface of the soil, and the cuttings then, if possible, stood on a shelf near the glass in a warm greenhouse. They will not require any more water for a little time—indeed, the soil may be allowed to become pretty dry before any is given, otherwise too much moisture will cause the very succulent ones to damp off. By this method the more delicate kinds, such as the tricolor-leaved varieties, can be rapidly increased; those of the show and fancy section and such classes are not propagated till later in the season, while the Ivy-leaved kinds will strike now with great freedom. Where it is intended to raise any *Pelargoniums* from seeds, this is the best time of the year to sow them, as they grow away at once without any check, and if sown earlier in the season they are apt to damp off. As soon as the first rough leaf makes its appearance the young plants must be potted, and at such a depth that the seed-leaves are just above the surface of the soil, as, if potted at too great a height, the young plants are liable to topple over and decay. Not only does this apply to *Pelargoniums*, but in the case of most subjects a very good guide in pricking or potting off seedlings is to bury the stem nearly to the cotyledons.

T.

Rainfall of 1887.—The following are the number of days in each month of the year 1887 during which rain or snow fell. The amount is shown in inches, and if above or under the average, as observed at Bury St. Edmunds. It will be seen that, with the exception of the months of March and May, the rainfall is under the average for each month. The first-named, however, is 0.23 inch above, and the rainfall of May is precisely the average. The rainfall for the year is shown to be 17.78 inches, and this fell in the form of rain or snow during 141 days.

RAINFALL OF EACH MONTH OF THE YEAR 1887.

Months.	No. of days on which rain fell.	Rainfall of the months in inches.	Above average in inches.	Under average in inches.
January ..	12	1.75		0.07
February ...	5	0.60		1.21
March ...	12	1.90	0.23	
April ...	12	1.26		0.35
May ...	17	1.94		
June ...	1	0.19		1.99
July ...	12	1.04		1.50
August ...	10	1.51		0.69
September..	18	2.02		0.52
October ...	13	2.09		0.57
November ...	15	2.26		0.18
December...	14	1.22		1.10
	141	17.78		

Rainfall of year, 7.95 inches under average.—P. GRIEVE, *Bury St. Edmunds*.

—The rainfall in 1887 at Currygrane, in the county of Longford, was as follows:—

	Inches.		Inches.
January ...	2.79	August ...	2.48
February ...	2.43	September ...	3.09
March ...	1.16	October ...	1.78
April ...	1.55	November ...	3.30
May ...	1.58	December ...	2.61
June ...	0.17		
July ...	3.06		26.00

Average for the last nine years, 35.48.

My station here is very near the centre of Ireland, and, as you will notice, the total rainfall is very much below the average, and, in fact, most of the usual water supplies ran short, thus giving an immense amount of extra labour in the garden, as it was with difficulty that plants were kept alive.

Curiously enough the Grass did not seem to suffer as much as in the county Dublin, and, in fact, for farmers the season was by no means disastrous. The highest recorded maximum reading of the thermometer in the shade was 84° during the week ending June 27.—J. M. WILSON.

LAW.

MRS. REYNOLDS V. WRENCH AND SONS.

A CASE of considerable importance to seedsmen and growers came before Mr. Justice Denman in the High Court of Justice on Monday last. The action was brought by a Mrs. Reynolds, a seed grower in Huntingdonshire, against Messrs. Jacob Wrench and Sons, seedsmen, of London, to recover £35. This amount was admitted by the defendants, but they raised a counterclaim for damages under the following circumstances: In 1884 they sent to the plaintiff some stock seed of Yellow Tankard Turnip, and in due course received what they thought was the produce, amounting to about 60 bushels. This was sold in Nov., 1885, to Peter Lawson and Son, Limited, of Edinburgh, as Yellow Tankard Turnip seed, and as such sold by them to various customers. It was afterwards discovered that the seed was Purple Mammoth Turnip, and claims were made by Peter Lawson and Son's customers against them amounting to nearly £400, which they in turn claimed against Messrs. Jacob Wrench and Sons, who claimed the amount from Mrs. Reynolds by way of damages for the breach of contract to grow the stock seed sent her. The action came on for trial at the Huntingdon Assizes, when the jury found in the defendants' favour on the question whether Mrs. Reynolds had returned the wrong crop, and the case was adjourned to London on the question whether the defendants could claim from the plaintiff the amount for which they were liable to Peter Lawson and Son, Limited, or whether they were entitled to nominal damages. It appeared that the defendants' custom was to print on their invoices the following non-guarantee clause:—

Messrs. Jacob Wrench and Son give no warranty, express or implied, as to description, quality, productiveness, or any other matter connected with the seeds they send out, and they will not be in any way responsible for the crop. If the purchaser does not accept the goods on these terms they are to be at once returned.

This clause was on the invoice which accompanied the stock seed when sent to the plaintiff to grow, and was also on the invoice which was sent by the defendants to Peter Lawson and Sons, Limited. The contention on the part of the defendants was that, notwithstanding that clause, they were liable to Peter Lawson and Sons, Limited, as at the time the seeds were sold to them it was understood that they were selling Yellow Tankard Turnip seed, and no other; whereas the seed sold was Purple Mammoth Turnip, and evidence was adduced to prove a custom in the trade to the effect that when the words "seeds of seller's own growth and stock" were used, it meant that the seed in question was grown from seed specially selected by the seed merchant, and consequently the non-guarantee clause did not apply, and that in the event of any other seed being supplied, the seed merchant would be liable to all the consequences. But, apart from this, it was contended that the words in the non-guarantee clause could not be applied in this case, as the word "description" referred to the goods sold, which were Yellow Tankard Turnip and not the Purple Mammoth Turnip which was delivered.

On the part of the plaintiff the alleged custom was repudiated, and her counsel relied on the non-guarantee clause used by the defendants as showing that it was part of the terms on which the seed was sold, and that there was no liability on their part. He also contended that the question turned on the construction of the contract between the plaintiff and the defendants, and no damages could be given which were not in the contemplation of both parties to the contract at the time it was made. By the defendants inserting the non-guarantee clause on the invoice accompanying the stock seed sent to the plaintiff they had given her

notice that they did not hold themselves liable to their customers, and consequently such damages could not be contemplated by her in the event of a breach of contract to grow the seed, and she could not know that any arrangement had been made when the seed was sold which was inconsistent with the non-guarantee clause.

In the result the judge held that the defendants had failed to prove the alleged custom in the trade, and that the defendants must be held to their non-guarantee clause, and that there being no liability on their part they could only claim nominal damages against the plaintiff for the breach of her contract, which he assessed at 1s. He gave judgment for the plaintiff for the amount claimed less the 1s., with costs of action.

Death of Professor Asa Gray.—America has lost one of the greatest botanists it has ever produced by the death, at the age of seventy-seven, of Asa Gray. This occurred at Harvard University, Cambridge, Massachusetts, last Monday. And not only America, but the whole scientific world, will mourn the loss of one of its ablest exponents, a man to whom Darwin was indebted for help in solving many a problem, and whose works are considered of the highest authority. Amongst his books that will have an honoured place in the library of the botanist are "Botanical Text-Book," "Structural and Systematic Botany," and "Manual of Botany," besides many others. He was appointed Professor of Natural History at Harvard College in 1842, and when he relaxed his active duties there in 1873 he travelled much, visiting England, where, by his genial disposition, he won a large circle of friends and admirers.

The death of Dr. J. T. Irvine Boswell. one of the foremost botanists of his time, occurred on January 31, at Balmuto, Fifeshire. Dr. Boswell was for many years curator to the Botanical Society in London, and was a lecturer at the Charing Cross and Middlesex Schools of Medicine. He was a man whom we knew well—a real botanist and plant lover. His collection of wild plants was charming to see, and contained specimens from every locality. He was one of those botanists who really like and know plants in a living state, and who do not merely approach them from the text-book side. We never met anybody who could so quickly see and point out the differences separating closely allied species. At one time, when in London, he was a great hunter after British wild flowers in all the famous localities about town. The last edition of Sowerby's "Botany"—which is not very remarkable for its plates or printing—is a monument to his care and knowledge of botany. He told us that before writing a description of the plants in the book, he referred to about forty books to see what had already been said of them by the authors of British and Continental floras. He had a great deal to do with the London catalogue of British plants, a very useful publication.

Abutilon vitifolium.—I should be glad for information as to the average duration of this, and as to the size and age of the oldest specimens in the country and the conditions under which they grow.—T. SMITH.

We learn that a fourth edition of Mr. Lewis Castle's interesting and useful book on "Orchids, their Structure, History, and Culture," is in preparation. One sign of its popularity is that it is being translated into French and German on the Continent.

In the list of new Roses for 1887-88 given on pp. 487-88 of Vol. XXXII. there was by an oversight included the dwarf Polyantha Rose Käthe Schultheis (Souperet et Notting), which was distributed the previous season.—T. W. GIRDLESTONE.

Lethorion.—Can any of your correspondents give their experience as to the efficacy of "Lethorion," the new substance for smoking plant-houses? Being so much more expensive than tobacco paper it ought to be very efficient and innocuous to make it worth its cost.—A. R., *Windermere*.

Names of plants.—*Subscriber*.—1, *Diplacus glutinosus*; 2, *Croton longifolius*; 3, *Begonia fuchsoides*; 4, *Cypripedium venustum*; 5, *C. barbatum*.—*R. Lloyd*.—*Cypripedium Fostermanni*.

WOODS & FORESTS.

TREES FOR MARSH AND MOUNTAIN.

THE ASPEN POPLAR (*Populus tremula*) is one of our hardiest native trees, and it is not only hardy, but likewise highly ornamental and capable of reproducing itself on all classes of soil and aspects—from the waterlogged marsh in its native glens up to the top of some of our rugged hills. In bare, rocky, exposed situations the Aspen Poplar does not attain a large size, but from its conspicuous position in such places the smallest trees can be seen to advantage, and when these are clothed with their pretty golden coloured foliage in autumn they are highly attractive, and when mixed with other trees of a sombre character their character is very marked. In its native wilds the best and largest trees are to be found on damp alluvial soil well mixed with organic matter, and I have likewise found trees of a useful size growing in boggy marsh ground that contained a considerable quantity of stagnant water. In order, however, to grow the tree to the best advantage in such places it is better to have the ground drained, and although this will entail a little extra expense at the time of formation, yet the quicker growth and larger size of trees produced in this way will far outweigh the extra outlay. The tree may also be grown for profit and utility on ground of ordinary texture, especially such as rests upon a cool clay subsoil of a damp character, and which has proved unsuitable for cultivation. On such a soil I have grown some fine trees of this species which proved both useful and ornamental.

When cutting this tree in the natural forest I found many of the trees growing upon loose shingle and dry sandy soil to be affected with heart-rot, and although the external appearance of some of the trees at first sight betokened a healthy interior, yet, when cut, in many cases the trunk was but a mere shell. Although I had no means of knowing the age of these trees, yet it is not improbable that had they been cut at an earlier stage of their growth, the stems would have been found to be less affected by this disease. The planter, however, had better not plant this tree on dry, shingly soil and bare rocky places for profit, as I have found young as well as old trees affected with rot in such positions. On the other hand, where profit is only a matter of secondary consideration, it may be planted on all classes of soil and situations in order to give variety and improve the beauty of the scenery.

The timber is used for a variety of purposes, and when sound and of good quality commands a ready sale at prices ranging from 4d. up to 8d. per cubic foot. I have likewise sometimes sold it at 10s. per ton. Cuttings made from twigs and branches of this tree refuse to grow, but cuttings made from the roots and inserted in sandy soil root freely and make fine trees. In the natural forest the tree reproduces itself from seed, which is ripe in early summer. The seeds being surrounded by a soft, cottony substance, are easily carried away by the wind.

THE GOAT WILLOW (*Salix caprea*) is another hardy native tree that will grow to a useful size in both marsh and mountain land, and I am astonished that it is not more extensively grown in such places. Although it is generally found inhabiting low-lying, damp ground, yet it is by no means confined to such, and some of the best trees I have ever cut of this species were growing on a mountain slope on loose friable soil resting upon limestone, and at an elevation of about 1000 feet above sea level.

The trees referred to here were growing in the natural forest, and although they were not tall, yet they had fine clean trunks of sufficient size to be cut up into planking and boarding for a variety of purposes. The wood is highly prized by quarriers and contractors, who use it extensively when it can be got for linings to carts, wagons, barrows, &c. Its chief recommendation is that it yields to pressure like a piece of cork, and is not readily injured by the chafing of stones and other hard material. When the trees are young they require a little attention in the way of pruning, but when once they are fully established they are easily kept in proper form by removing rival leaders and cutting back the strong, rambling side branches, in order to direct the energy of the plant as far as possible to the formation of wood in the main stem. The Willow tribe is very numerous; many of the trees, besides being highly ornamental and useful, may also be grown profitably. This of itself ought to be a great inducement to owners of marsh ground to extend the culture of the Willow in such places, in order to assist in the payment of the rent. The tree is so easily propagated, that the cost of its extension is very trifling. Any handy labourer can prepare and insert the cuttings in nursery lines as a preliminary step to having the plants put out where they are to remain. The cuttings may be made about a foot long, and the buds removed with the finger and thumb, with the exception of three, which should be left at the top to form the head of the plant. The cuttings should then be inserted in a piece of light soil of a sandy texture. The Willow is so hardy, that it will root in almost any soil, and I have occasionally planted the cuttings with success on damp Heather moor ground without any preliminary preparation whatever. But although the Willow will grow on wet, marshy ground, yet my experience is that it will always pay to drain such ground, as the trees are much healthier, grow more quickly, and attain a larger size in a given space of time, and consequently give a better return. In some exceptional cases where the soil was liable to be occasionally flooded by water, and where draining could not be properly carried out, I have had the ground thrown up into ridges some 5 feet or 6 feet broad, and a row of trees planted along the centre of each.

J. B. WEBSTER.

THE HOME NURSERY.

THE home nursery on private estates is being given up, but it is open to doubt whether it is a wise policy to let such a useful adjunct to an estate die out altogether, as my opinion is that it should be preserved. I am led to this conclusion from having during my experience seen the advantages of having such a useful feature near at hand, both from an economical and useful point of view. However desirable it may be to view it in the former light, the latter in my opinion has much the greater claim to notice, for the reason that any estate possessing a well-managed home nursery will be better supplied with more suitable subjects for planting in parks and for forming covers or hedges than one that is not. It often happens that if one has a suitable tree near at hand, losses will be made good at once where they occur, which would not be the case if a tree had to be obtained from a distance. But the home nursery is not only valuable for that reason, but for the superior class of subjects which it will furnish when it is well managed. One can hardly estimate the value of well-prepared trees for park planting, which every home nursery should be able to furnish whenever wanted. When such trees as Oak, Elm, Beech, and Chestnut are skilfully treated, it is surprising how well quite large trees may be successfully removed and an immediate effect created, which would not be attempted if

they had to be obtained from some other source. Frequent transplanting is not necessary to bring such trees into a condition fit for removal when they have reached to a good size. If they are transplanted as soon as they have formed a small head they do not require to be removed again, as they can be successfully treated by biennial root-pruning, which will not check the top growth so much and at the same time bring the roots under subjection. The root-pruning of such trees is a simple affair; it is only to dig out a trench half-way round one side one year and the other side the next, and when the trench is open to undermine the ball of earth and cut asunder all the roots from 3 feet to 4 feet away from the stem. This will cause all the large roots that have been cut asunder to form knots of fibres, which will be of the greatest assistance to the tree when it is planted, as they will quickly take hold of the soil in their new home. I have assisted in the planting of trees prepared in this way with stems from 9 inches to 1 foot in circumference with fine and large heads, and they have always quickly established themselves again. Specimens prepared in this way of the dimensions I have given, one could not purchase without incurring considerable expense, but with a nursery on the estate they may be provided with very little outlay. With regard to plants to form hedges, I have never seen White Thorn plants better managed or hedges so quickly made as on the estate on which I had a good portion of my early training. The haws were sown in the usual way, and as soon as the seedlings were large enough they were put out into nursery rows; at the end of the third year they were cut down to within 2 inches of the ground. The result of the cutting down was, that at the end of a year they had broken out into three or four shoots, when they were taken up and transplanted into a fresh piece of ground and given a little more room. In this position they stood two years, at the end of which time they were strong plants, that formed a foundation for a good hedge. Very few of the plants were less than 3 feet high, and, I need hardly say, that, owing to their being transplanted twice, the roots were as numerous and in as satisfactory a condition as the tops. The advantage of cutting the plants down in the nursery quarters will be manifest. They recover when planted out quite as soon as smaller ones, and they do not require protecting from cattle so long by two years as when the plants are cut down the first or second year after being put out where they are to remain. As is well known, the question of protecting young Thorn hedges for several years is a serious one when, as it was in this case, the plants had to be protected from cattle on both sides.

When coniferous trees are required—let the number be few or many—it is much better to secure the plants when they are about 1 foot in height, and give them the best position and good treatment in the home nursery, and to move them every second year until they are finally planted, unless plants more than 5 feet high are wanted. I like the plan of root-pruning for large specimens, as it is safer than lifting. Many evergreen shrubs are readily propagated when the cuttings are put in in the autumn, as they quickly grow to a useful size. Amongst these I may mention the common Laurel, Portugal Laurel, Aucuba, Laurustinus, Box, Euonymus, &c. Any quantity of green Holly may be raised from seed if the berries are collected now and kept buried under ground until next April, when they may be sown in nursery beds and covered an inch deep with fine soil. Quantities of forest trees particularly Oak, Ash, Beech, Sweet Chestnut, &c. may, if desired, be raised if the seeds are collected at the proper time and kept over until the spring. In coming to a decision as to whether it is more economical to raise these subjects from seeds or purchase plants, it is well to bear in mind that the cost of transit is sometimes considerable. But putting aside that question, I am quite sure—speaking from experience—that an estate which is provided with its own nursery will be better and more economically managed than one that is not, because many little bits of planting will be done and at the proper time when the plants are close at hand that would be deferred until another year, and some-

times neglected altogether, because the quantity of plants required would not be worth the trouble and expense of sending a long distance for them. The same remarks hold good with regard to filling up vacancies in parks and other important positions. If there are suitable subjects on the place they are more likely to be filled up than when there is not the kind of plants near at hand. The selection of a suitable site and soil for the home nursery is of considerable importance. It should be sheltered from the north and east winds, and the soil should be friable and at least 2 feet deep, and a rabbit-proof fence provided. J. C. C.

THE DECIDUOUS CYPRESS.

(*TAXODIUM DISTICHUM*.)

SEEMING but a short time ago how well this distinct and interesting tree does in the grounds at Gwydyr Castle suggested to me its appropriateness for the rather prominent position it once occupied in landscape gardening. Why it should have been so neglected of late years is certainly a mystery that would be difficult to solve, for whether regarded as an ornamental tree or one of the easiest culture, it can well hold its own with any that have yet found their way into this country. Then for planting in quagmires, where few other trees could succeed, it is specially adapted, thriving, as it does, under such circumstances in a manner that is quite surprising. As to the value of its timber, I can say little, but this much may be pointed out, that in its native country it is highly prized, the wood being clean-grained, smooth, and of a desirable reddish colour, and I am of opinion that if the wood of some of the large specimens at Syon House, or other places in this country, was manufactured, it would be found to be little inferior to that produced in its native home. As a timber tree in the British Isles, it is, however, not likely to attract much attention, for the simple reason that our summers are too short and cold for its quick and perfect development. It is, however, a tree of great beauty, the soft, feathery foliage, which during summer is of a bright pleasing green, slowly changing as autumn advances to a sombre red, rendering it of unusual beauty, and so distinct from any other in cultivation. Even during winter, when leafless, this tree is far from unattractive, for the highly-coloured twigs and branches are resplendent in the evening sun, and appear at a short distance off as if all aglow. That the deciduous Cypress is a tree well adapted for planting in this country is evident from the numerous large specimens to be seen in many of our English parks. Some of the trees are perfect in every respect, and little inferior in point of height to those grown in their native country. One of the largest trees in Britain of this Cypress, although, perhaps, not the tallest, is that at Watford, belonging to the Earl of Essex, and which is about 90 feet in height and with a stem-girth at 5 feet from the ground of fully 14 feet. The famous and well-known specimen at Syon House is upwards of 100 feet in height, and with a trunk-girth of nearly 15 feet at 4 feet up. Another fine tree, perfect in every respect as regards ornamental appearance, stands in the grounds at Conington Castle. At Gwydyr Castle the largest specimen is fully 60 feet in height, and with a stem proportionately large. Near Pluckley, in Kent, there is another beautiful tree of about 60 feet in height, while many others of good form and proportions might also be pointed out.

The deciduous Cypress is essentially a water-loving tree, delighting to grow where its roots can at all times find an abundant supply of moisture. The peculiar protuberances that rise from its roots, and which are most noticeable when the tree is growing in wet, marshy ground, are supposed to be a provision of Nature for giving the roots the necessary communication with the oxygen of the air. Be this as it may, it is certainly a significant fact that even very vigorous-growing trees of this *Taxodium*, when growing in dry ground, do not produce these protuberances, and this is the case with many specimens that I have personally ex-

amined in this country. As supporting this theory, it may also be stated that these protuberances are invariably produced in the greatest quantity and of the largest size on that side of the tree next the lake or river alongside which it is growing; a notable example of which will be found in Sologne, where it has been very successfully planted for fixing the banks of rivers that are apt to get washed away during high water. Seeing how well the tree thrives in this country, I would suggest that its use for planting along the banks of streams and rivers whose sides become damaged during floods might be greatly extended.

The deciduous Cypress is readily enough raised from seeds if these are sown in cool, moist, marshy ground; but the young plants must receive early attention in the way of transplanting, as they produce long and stout tap-roots.

One of the largest specimens of the deciduous Cypress of which we have any record is that described by Archbishop Lorenzana as growing in the village of Atlixco, and which, when measured by Humboldt, was 76 feet in circumference, and the diameter of the cavity 16 feet. In the presence of the Archbishop of Guatemala and the Bishop of Puebla more than one hundred boys entered the hollow trunk of this remarkable tree.

The stem of the tree for a short distance up is usually hollow, as are likewise the larger knees, these latter rising from 3 feet to 6 feet high, and with a diameter at the base of from 18 inches to 2 feet.

A. D. W.

WOODED STREAMS.

THE value of forestry as a practical science has long been recognised both in England and on the Continent, but it is only within a comparatively few years that the people of the United States have awakened to a sense of its importance. The great waste in the destruction of the original forests which has steadily been going on in this country since its first occupation by Europeans has long been recognised as a great and growing evil by thoughtful and observing persons, but, as is usual in such cases, it has taken a long time for the views of the learned to filter down, as it were, to the masses of the people. We are at last, however, beginning to learn the true value and use of the forest, and to appreciate the importance and necessity of preserving that which has been left. The general observance of Arbour day has given an impulse to popular opinion on this matter. The press seems also to have taken up the subject with considerable vigour, editorial and magazine articles conveying to the public a great deal of popular information concerning the science of forestry.

One cannot but deplore the wilful and, in many cases, useless destruction of the fine original forests which were scattered so widely over the Eastern States. Our forefathers seem to have been possessed of a burning desire for cleared land, and that propensity they have transmitted with full vigour to us, their posterity. Whether the Government will ever exercise the right of eminent domain in regard to the preservation of the forests which are on lands subject to private ownership, is a matter of considerable uncertainty. Certainly public influence is not at present sufficiently educated to call for, or even to suffer such an assumption of authority over the right of the individual to do what he will with his own; but in this country public opinion, when it once begins to form, crystallises very rapidly, and perhaps the time is not so far distant when it will clearly be seen that the doctrine that a man may not use his property to the injury of his neighbours or of the State, applies with equal force to the preservation of forests and streams as it has already been applied to other subjects.

The effect which large forests have upon the rainfall, and upon the course and volume of rivers and streams, is too well known to need repetition. It is rather the object of this article to point out what may be done in an easy and inexpensive way upon almost every farm where the land is hilly or rolling. Anyone who has lived much in the country

must have been struck with the number of water-courses in the open fields, which are quite dry during the summer, and in time of heavy rains overflow their banks and inundate the adjacent soil; while streams that flow through a bit of wood seem to retain their volume of water even during the greatest summer heats, and also appear to be less affected by the freshets in the spring and autumn. The reason of this difference is that in the latter case the banks are kept in place by the roots of the trees, and the temporary obstruction which fallen boughs and occasional heaps of dried leaves and underbrush form retards the progress of the water. The protection from the sun's rays, afforded by the overhanging branches, also aids. In the case of large tracts of woodland, an action and re-action by which the moisture in the atmosphere is precipitated to the earth in the form of rain, and again returned to the atmosphere in the form of vapour, go on, but let all the trees and underbrush be cleared away, and in a short time we shall have, instead of the pleasant forest stream, a dry ditch in summer and a rushing torrent in winter, with the bed of the stream growing deeper and wider every year. On the contrary, if one of these ditches be treated in what may be called a curative way, the effect, while perhaps not instantaneous, will be far more gratifying.

The precise kinds of trees that may be used with advantage to turn such a dry ditch into a running stream vary according to the climate and other peculiarities of the locality; but Nature herself, if carefully observed, will afford ample suggestions. Willows, in all their numerous varieties, Birches, and the well-known Beech all thrive well, and are ornamental in their appearance. Bushes and young trees may be transplanted with little trouble from neighbouring streams, the banks of the ditch graded, and where a little trouble and time can be afforded the bare portions of the slope may be sown with Grass seed or neatly turfed. The effect from the first will be pleasing to the eye, and will increase in beauty as time rolls on. The room which these trees and bushes take up on the land will be compensated for by the amount of soil which they will actually save by preventing the washouts which would otherwise occur. A systematic draining of the soil so as to turn all the water possible into one stream will both have a good effect on the soil and add to the beauty of the watercourse. Where the original ditch has been washed very deep and wide, temporary obstructions, in the way of old logs and loose stones, can be thrown here and there across the bed so as to give the water a chance to back up and be held in a sort of reservoir, thus checking the severity of the freshets in winter, and preventing the extreme drying up in the summer time. A wooded stream is one of the greatest adjuncts to the natural beauty of a country place or farm, and is not only ornamental, but also extremely useful in checking the waste of the soil, and affording during the heat of the summer a cool and refreshing place for the cattle and horses to water and rest.—J. H. B., *Baltimore, Md., in Country Gentleman.*

The Cherry Birch (*Betula lenta*), a native of America, I find grows best in a rich, moist, light soil, in a free, open situation. Its usual height is 60 feet. The bark is black, and the leaves resemble those of the Cherry tree. The catkins are without peduncles, and consist of simple undivided scales. The bark and buds have an almond-like flavour, and the wood emits a fragrant odour. The sap is used in a similar manner to that of the common Birch. The Cherry Birch yields the timber known as "mountain mahogany," and the volatile oil, called "oil of winter green," is derived from its bark. B. Bhajapalra, called the Indian Paper Birch, is a beautiful Indian species. B. acuminata of Nepal is another Asian species, with very taper-pointed, smooth leaves, and a beautiful, pendulous, oval shape. Among the best European White Birches is the variety pubescens, bearing leaves covered with beautiful white hairs, as well as B. a. urticifolia, i.e., nettle-leaved, a deeply-cut, serrated, and hairy variety, and a variegated kind of the same with leaves blotched with yellow.—J. H. M.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

THE BLENHEIM ORANGE.

THE above Apple was raised by a shoemaker of the name of Kempster, of Old Woodstock. The first time I saw the original tree was soon after I went to reside at Woodstock, in 1847, and the last time was in company with the Rev. Mr. Clarke, who had then recently become curate of Wootton. Old Woodstock was then a hamlet of Wootton. Mr. Clarke resided in apartments at New Woodstock, and, as the adage has it, "birds of a feather soon flock together." Both of us had horticulture on the brain, and, of course, the old tree was an object of great interest. So much so to Mr. Clarke, that he had an illustration of it put in the pages of the *Illustrated London News*. I am sorry I cannot give you the exact date, or the year even of the issue, as I unfortunately lost the bundle of my extracts in coming here. I think it must have occurred about twenty years ago. Soon after I learned of poor Mr. Clarke's death I called on Grimmert (a basket-maker), the successor of Kempster, to try if I could purchase the old stump, in order to work it into some sort of memento of my late friend, and also as being a fragment of the famous Apple tree. I found, however, that Grimmert had grubbed it up and burnt it! There were two healthy and almost grown up young trees which crowded out the old one, seedlings from it which Grimmert had raised himself, and, in consequence, the old tree, he said, "was in the way."

Grimmet has long since joined the majority, and the seedlings just mentioned may also be destroyed, as great alterations have been made since I last saw the place. I brought plants with me here, however, which I grafted with scions taken from the seedling trees that Grimmert raised, and I must say that their removal from the garden which I rented at Old Woodstock does not suit them. Colonel Trevor Clarke, perhaps, could give some of its history, as it was through the endeavours of his brother that the tree was illustrated. The parish register books of Wootton would in all probability have a record of the death of Kempster, and certainly the time that Mr. Clarke was curate there. I scarcely now know of anyone thereabouts to whom I could send to obtain any further information respecting the subject.

ROBERT FENN.

Sulhamstead, Reading.

contrast to this is the 3d. per pound received by a grower here for very good samples. It is possible that Tomatoes at that price may pay to grow in large quantities, but the owner of a limited area of glass will naturally wish to employ it more profitably. There must be something radically wrong in a system which only gives the grower one-third of the price paid by the consumer. Large as is the quantity of Tomatoes consumed at the present time in the country, it would be infinitely greater were the producer and consumer brought nearer together. We cannot expect the working classes to buy Tomatoes at the price of meat. At from 3d. to 6d. per pound they would be purchasers, and Tomatoes ought to be sold at this price in the height of the season, and leave a fair profit to the retailer. It is a pity that a great portion of the population should be deprived of the enjoyment of a wholesome esculent through the excessive greed of the middleman.—J. C. B.

FLORAL ARRANGEMENTS.

IF "Veronica's" remarks on bouquets in THE GARDEN, February 4 (p. 85), are intended to apply to bouquets of the present time, I think his experience must be very limited. About ten years ago I should have been inclined to agree that some reform was necessary, but within the last few years I have had opportunities of seeing the productions of some of the best florists in London, and I find that the conventional pincushion bouquet to which "Veronica" alludes is fast disappearing. Bouquets are now made not only to show every individual flower, but buds and foliage of the same kind are intermingled with them—the selection of flowers, too, being usually limited. In some cases only one sort is used, and frequently the selection is from flowers that would have been considered valueless for the purpose a few years ago. Take, for instance, a bouquet composed almost entirely of Marguerites—not a wired-up, stiff arrangement, but every flower standing up on its own stem, with buds and suitable foliage; another in which pink Carnations are the chief feature; another composed entirely of yellow Daffodils, three or four varieties being used, and all artistically blended with their natural foliage; or another of yellow Roses, with the bronzy tips of young growths used in the place of Maiden-hair Fern, which until lately was considered indispensable in bouquet-making. Bouquets composed entirely of Roses are frequently in demand—as a rule, only one colour being used for the bouquet. I could give numerous examples to show that "Veronica" is entirely wrong when he says, "As it is, every one bouquet is very much like another." I do not mean to say that the old-fashioned bouquet has entirely disappeared, or that the flowers enumerated by "Veronica" are not extensively used at the present time, but they are far from being fashionable. I might make exception to Orchids, but these must be cut with stems, so that they will stand out loosely. I have seen sufficient of bouquet-making within the last few years to convince me that it would require a very clever person to improve on the productions of the leading florists of the present

day. I believe also that the most fastidious could be suited, provided they made their own ideas sufficiently clear when giving their orders. I imagine that where the old-fashioned bouquet is most seen is at flower shows; and why? I should answer that the judges are responsible for this, for if an exhibitor should make a departure and introduce something new, though it be ever so chaste and elegant, his production would be sure to be defeated by the conventional type of bouquets of fifteen years ago.

A. HEMSLEY.

. We are pleased to hear of such intelligent progress, but we do not often see in Covent Garden the simple grace that one would like to find in bouquets. Few people who know the London world only know how slow progress is in many ways in the country, and we have no doubt that the compact mass of flowers will do duty in other districts for years to come. However, such writing as the above and "Veronica's" will, we believe, tend to healthy change. We have seen such excellent things as Mr. Hemsley speaks of in the florists' shops now and again; but what is done in private places? A great deal of time is often wasted in making the conventional bouquets. Simplicity is the central idea in improvement here, just as on a dinner-table the painfully elaborate arrangements are never half so pretty as common flowers of the season, if they be only Wall-flowers or Nasturtiums set in simple glasses.—ED.

Carnation Comtesse de Paris.—This is a beautiful hardy Carnation raised in France, and a group of it was grown in our garden during the past year. It is a bold grower, a white delicately suffused with lilac. It is exceedingly difficult to show the delicacy of colour in a printed plate which has to go under the machine a dozen times. There can, however, be no doubt of the merit of the plant. We have a colony of it planted out in autumn which has not lost a leaf during the winter, and its foliage looked handsome all the time. This is one of the Carnations which may be looked forward to as far better for our outdoor gardens than most of the striped and flaked kinds which have hitherto occupied the attention of Carnation growers. It is a precious flower for cutting.

A letter from Utah.—There has been a very good crop of Potatoes this year, some thousands of cartloads being shipped to the various States and territories, the general price being 1s. 6d. a bushel of 60 lbs. I weighed one Potato myself, called the Peerless, that was 7 lbs. This is a fine country for vegetables, and by irrigating better crops are obtained. There has never been a failure except on one occasion, when the grasshoppers came. There are several hundred driving wells that yield per minute 100 gallons of water, which is used for irrigating as well as domestic purposes; they are driven from 60 feet to 250 feet. Many other settlements and villages have these wells, and there are probably 1000 in this territory. The thermometer has gone from 10° to 13° below zero. Some say Peaches are all killed, and others claim they are only destroyed when it is 22° below zero. This is a remarkably healthy climate, with a beautiful sunshine, scarcely any rain, some snow, and no great extremes of temperature. It far excels in many respects the climate of Italy. I have two Pear trees which I planted twenty-eight years ago. They have never missed bearing a crop of fruit for twenty-three years, with the exception of this last year, owing to a heavy frost one night late in the spring. The variety is the Vicar of Winkfield. The trees are each 6 feet in circumference, and the

Tomatoes.—A lady friend, living in the neighbourhood of London, tells me that she could not buy English-grown Tomatoes last summer under 1s. per pound, the lowest price for imported fruit being 8d. In remarkable

two yield 50 bushels of fruit a year. The ground was trenched to a depth of 30 inches, and heavily manured.—H. L. SOUTHWORTH.

CHRYSANTHEMUMS.

E. MOLYNEUX.

SELECTION OF BUDS.

It is most difficult to explain what is meant by the phrase "taking of the buds"—a term used amongst growers of Chrysanthemums. Some persons think that this signifies pinching off the flower-buds, but that is not so. It is the removing of the shoots which form around the bud. It makes all the difference between success and failure as to the time at which those flower-buds are selected that are to develop into blossoms. During last week I had placed before me a decided instance of bud-selection. One object I have in mentioning this so early in the season is, that beginners in the cultivation of the Chrysanthemum may pay special attention to this matter. The plants I had before me were those of the Japanese variety Pelican, which is a capital sort for late blooming. One example was grown on what is known as "the big bloom" method, and produced three large, full-centred pure white flowers with broad florets, the centre ones incurving slightly, and giving the flower a solid appearance. But what was most remarkable was the purity of colour of the large blooms as compared with the colour of those flowers on the other plant. There were several on the specimen, and they were in consequence small, each centre being creamy white instead of pure white, as the variety is when seen in its true character. Some of the blooms showed a very large "eye"; others were more like those of an Anemone-flowered variety, or a single sort with a double row of ray florets. The small flowers might please some persons who needed a larger number, but for handsome appearance and purity of colour the larger flowers were decidedly preferable. It would be difficult to convince the inexperienced that the two plants as seen were both of the same sort, as they differed so much in appearance.

Chrysanthemum Miss Marechaux.—I was much impressed with the rich and distinct appearance of this variety when packing up the blooms for market. The flowers are well formed with notched petals, but it is more particularly the wax-like texture of the blooms that distinguishes it from other kinds. This peculiarity is very striking when the flowers are laid by the side of such white kinds as Ethel and Princess Teck. I am not aware if this variety is much liked in Covent Garden. I grew it for the first time this year, and not in sufficient quantity to test its market value. It is a slender-growing kind, of a reputedly lanky, shy-blooming habit, but it can be kept dwarf, and with me it bloomed as freely as I could wish. My plants were stopped twice, the last time being in the middle of July, and they did not run more than 2 feet in height. It is certainly a good late kind, coming in well at the new year, but, I think, more valuable to cut from than for other purpose.—J. C. B.

Scented Chrysanthemums.—I spent two hours with a very powerful binocular microscope this morning in the examination of the so-called honey-glands that dot over the floret-tubes of the Chrysanthemum blooms, in order to detect the possible existence or non-existence of fragrance in the pellucid processes that beset these tubes. I examined, I may say, florets taken from nearly a dozen blooms, and among them was Progne, with its reputed odour of Violets. I give the result of the investigation. I found these pellucid glands dotting over, more or less sparingly, the florets of *all* the Chrysanthemums I examined; sometimes they were pedicellated, but they were, for the most part, sessile, and in the

case of Progne decidedly conglomerate. I may remark that these same processes are noticeable on composite flowers generally, and tiny glands cover also the whole ligule of the floret. As a rule, as I remarked before, composite blooms are destitute of perfume; indeed, out of the very large order that contains them, probably only a dozen at the most would be regarded by people generally as sweet-scented. *Nardosmia fragrans*, *Centaurea moschata*, *Achillea moschata* of the Engadine, *Eupatorium odoratum* and *Conyza odorata* would certainly give more than a suspicion of sweetness and fragrance. It must rest assuredly with those who favour the idea of perfume to spot the point where "the fragrance is focussed," as Mr. Burbidge says, or to leave the notion of scent as an open question till we are better acquainted with the primal cause that induces it. Let but true science prevail, and we readily bow to her dictates!—PETER INCHBALD, F.L.S., *Grosvenor Terrace, Hornsea*.

LATE CHRYSANTHEMUMS.

MUCH interest is being shown in the production of late Chrysanthemums, and although much may be done to attain this end by selecting the most suitable varieties, a good deal depends on the management of the plants previous to their coming into bloom. Something, too, depends upon the convenience one has for keeping them while they are coming into flower, and for keeping the blooms fresh after they are expanded. In order to have the flowers in good condition, it is necessary to have a light airy house for the plants, where the ventilation can conveniently be arranged.

There is a very successful trade grower of late Chrysanthemums in the west of England who manages the plants exceedingly well, although in a very simple way, without giving very much attention to the sorts he cultivates. His favourite white varieties are Ethel and Meg Merrilies. The only ones he excludes are some of the large incurved sorts of the Queen of England type. He strikes the cuttings during February and March, and as soon as they are rooted they are placed in 4-inch and 5-inch pots, according to their strength. As soon as it is safe to do so they are turned out on an ash-bed well exposed to the sun. The tops are taken off about the middle of June, and, with the exception of watering the plants, they get no attention until the middle or end of August, when they are put into the pots in which they are to flower; 7-inch and 8-inch pots are the sizes used. When potted they are returned again to the ash-bed, where the branches get the necessary support as they require it. The stock is left out of doors as long as it is safe to do so, which generally extends to a fortnight later than in the case of those plants which flower earlier. When taken under glass they have a light span-roof house to themselves, where they can be treated so as to retard the opening of the flowers as long as possible, and in this, as I have seen, this grower is very successful, as I have noticed some of the plants in bloom at the beginning of February.

J. C. C.

Insects and other pests.—The cultivator of Chrysanthemums needs to be continually on the lookout for enemies in the shape of insects and other pests. Strict attention at all times, and proper remedies effectively employed, will, however, rid the grower of troubles in that respect. Green-fly, the most common of insect pests, attacks the points of the shoots at all stages, and if allowed to remain the plants become disfigured. Dust the parts attacked with tobacco powder during the afternoon, and on the morning of the next day give the affected plants a vigorous syringing, which clears them of both fly and powder. The reason why syringing should be done in the morning at this time of year is that the plants may become dry before night, and thus ward off the effects of frost. Thrips sometimes attack the leaves of Chrysanthemums, and quickly arrest the growth of the plants if allowed to remain long on the young leaves. Dipping the affected parts with tobacco water is the best cure. Mildew on the surface of the leaves is common in plants that are

subjected to a close, damp atmosphere, and is rendered worse if the plants are at all weakly. The moment the first signs appear, dust the foliage with dry sulphur, that of a brown colour being the best, as it is not so conspicuous. Caterpillars and slugs are certain enemies to Chrysanthemums, and upon the first signs of their depredations, which consist in eating the leaves and tender points of the shoots, they should be looked for after dark, as they nearly always return the next night to the same place. The best preventive of insects and pests in a general way is by encouraging a healthy, vigorous growth of the plants, from the taking of the cuttings onwards, as weakly plants are more liable to be attacked by the enemies here named.—E. M.

CHRYSANTHEMUM SHOW SCHEDULES.

IF "A. D." had had experience in preparing and staging forty-eight distinct blooms, half incurved and half Japanese, he would have found that it is more difficult than he imagines. I have never heard complaints from the judges as to any difficulty being experienced in judging classes for half Japanese and half incurved blooms, nor do I consider there need be much difficulty when the Japanese and incurved varieties are equally represented. I do not remember any instance at the present moment where a mistake has been made in awarding the prizes in forty-eight classes, and these now seem to be the leading feature at most shows. Classes composed of both incurved and Japanese blooms test the abilities of the grower much more than does the cultivation of one section only. Will "A. D." give a list of eighteen varieties of both incurved and Japanese blooms which cannot be found in any of the twenty-four stands at any exhibition? I should much like to know the names of the incurved varieties which are quite different to those already seen at the exhibition. Perhaps "A. D." will also tell us what constitutes the beauty of those varieties now left at home. As far as I remember, I do not know a single incurved variety that is not seen several times during the season somewhere or other. If such kinds really possessed good qualities, I do not think they would remain long in the background. When we see as many as seventeen competitors in one class for cut blooms I think it is unnecessary at present for societies to make such sweeping alterations as "A. D." would have us believe are requisite for the improvement of Chrysanthemum growing and exhibiting.

I still adhere to my opinions that the names of the judges should be made known. I do not think that any committee composed of exhibitors entirely would do anything so foolish as to appoint men to whom I have an objection, because it would be neither to their own interest nor to that of the society. I object to no man living who is qualified to adjudicate on Chrysanthemums—as proved by his past doings. I can safely say I have no adverse "feelings" towards any good judge of this flower, but I do object to any man being appointed a judge who has not proved in some form or other that he is qualified to act as such. This is the reason, I consider, that the names of the judges should be published, and I think most cultivators of Chrysanthemums will support me in this. Societies are becoming alive to the fact that unqualified judges do more harm to their shows than any other one thing. Where mistakes are often made by the judges, what confidence will exhibitors place in the society the next season, I wonder, if they do nothing to remove the causes of such errors. Because judges' names are not generally made known for summer shows, that is no argument why they should not be. Qualified men have reputations to sustain, therefore I attach little weight to the inference we must draw from "A. D.'s" closing paragraph.

E. MOLYNEUX.

Chrysanthemum Mignon.—This variety associates well with sub-tropical and other foliage plants. It grows about 1 foot 6 inches high, is bushy in habit, and flowers freely, the latter being of a bright orange-yellow. The plants are suitable to fill up any spaces in beds caused by the removal

of such plants as Canterbury Bells, for instance, which are sometimes used where an early effect is required. Bushy plants of this *Chrysanthemum*, if properly prepared, will be ready to take the place of the Canterbury Bells, &c., towards the end of June, and by this means no gaps are made and a greater variety is introduced. Cuttings should be inserted at once and put four in a 3-inch pot if the space is limited; otherwise two in each pot will be sufficient. When rooted, pot off singly, keeping the plants close to the glass in a cold frame, so that they may not become in any way weakly, but retain a stocky habit. Pot on into larger pots as needed, pinching the points of the shoots two or three times as required. Sometimes the plants, before they are put in the beds, will have been standing out of doors in an open position. Should the weather be at all hot or dry at planting time, the *Chrysanthemums* should be freely watered. They should also receive attention in this matter until they flower in the early part of September. Their growth is so sturdy, that no sticks are necessary.

NOTES OF THE WEEK.

MR. B. S. WILLIAMS, Victoria Nurseries, Upper Holloway, has sent blooms of his new Chinese *Primula* *Magenta Queen*, a variety with flowers of bright colour and good form.

Mignonette and Snowflakes.—I am sending you a gem from outside and one from the greenhouse. The Spring Snowflake (*Leucojum vernum*) is lovely now in an outside border. The scent, too, is very sweet. The Mignonette is grown in 5-inch pots. It is most valuable for taking into the house at this season, when sweet-scented flowers are much appreciated.—ARTHUR BARKER.

Crocus Imperati.—Spring flowers are appearing, and one of the finest that may be found out in the open rockery at the present time is this *Crocus*, which makes a beautiful patch of colour in February if the bulbs are planted in a sunny position. It is sweet-scented and richly coloured, the centre segments deep lilac-purple, the outside of the external divisions having a suffusion of buff-yellow, overlaid with three feathery deep purple lines. A contrast to this now flowering is *C. chrysanthus*, the colour deep yellow, approaching orange.

Ceoloyne cristata is one of the finest Orchids of the season, and the best known, as every amateur who tries Orchid-growing includes it in his selection. There are now several forms of the type, all beautiful in their way, the variety *Lemoniana* perhaps the loveliest of all. *C. cristata maxima*, of which a coloured plate was given in THE GARDEN, Feb. 26, 1887, is a noble kind; so also is the large-flowered form known as the *Chatsworth* variety. The pure white *alba* is a delicately beautiful flower, as yet rare, though not long likely to remain so.

White Algerian Iris (*I. stylosa alba*).—A beautiful flower is the white Algerian Iris, which was recently in bloom with Mr. T. S. Ware, of Tottenham, in a cold frame. Though thus protected it is quite hardy, and would make a delightful feature in the border if planted in a warm, somewhat sheltered position, to preserve the purity of the flowers as far as possible. These are quite white, save a central line of rich yellow at the lower half of the falls, and about the same size as those of the parent. It appears to be of vigorous growth, the leaves abundant, and, judging from the numerous spikes in course of development, very free flowering.

Pitcairnia corallina.—This extraordinary plant, so very seldom seen in flower, may be seen in perfection in the Victoria Water Lily house at Kew. Though a Bromeliad, it looks very unlike one, and more resembles in leafage a *Cucurigo*. It has long, broad leaves, silvery on their under-sides, and is, in fact, an admirable fine-foliaged plant. The flower-stem is produced from the base of the plant, and is also deflexed in a curious way. It is from 1 foot to 15 inches long, and for two-thirds of its length is densely set with flowers about an inch long, and of the most brilliant red—brighter than the brightest coral. This is the plant that used to be grown so well by the late Mr. Green when at Pendell Court. When he exhibited it at South Kensington with a flower-spike 18 inches long, it made quite a sensation.

Lachenalia aurea reflexa.—This distinct and pretty garden hybrid of a well-known and highly ornamental family of free-blooming greenhouse

bulbs (for the possession of which I am indebted to the kindness of my friend, the curator of the Glasnevin Botanic Garden) is now nicely in flower in my greenhouse and must be considered a decided acquisition. It is the result of a cross between *L. aurea* and *L. reflexa*, and its flowers have the clear pale golden colour of the first-named with the form of the latter. The two bulbs sent me have produced three nice spikes of bloom, all open together.—W. E. GUMBLETON.

Spring flowers at Broxbourne.—We send you a small gathering of our first spring flowers from the open. *Iris* *Histrio* promises well this year, as also *I. reticulata* and *I. Krelagei*. They will shortly be in flower. We shall soon have many rarities in bloom if the weather keeps mild.—MESSRS. PAUL AND SON, Broxbourne.

* * An interesting gathering of early spring flowers, comprising amongst other things *Cyclamen Coum*, very rich in colour; *Galanthus Elwesi*, Winter Windflower (*Anemone blanda*), a lovely spring flower, the colour deep blue; *Crocus chrysanthus*, and *C. Imperati*.—ED.

The Siberian Squill (*Scilla sibirica*).—It would be almost impossible to overrate the value of this plant for greenhouse work in spring were it not for the erratic way in which it behaves itself under the influence of heat. Whenever forcing is attempted some bulbs throw up a flower-stalk, while others only show the blooms above the soil. It cannot be the fault of ripening, as Continental as well as home-grown bulbs show exactly the same defect. A rather happy effect, however, has been created in the greenhouse at Kew by a row of the *Scilla* in front of the *Hyacinth* Charles Dickens, the two colours blending well together, and being just sufficiently relieved by sturdy plants of *Pteris cretica*.—K.

Snowdrop flowers are a sure indication that spring is upon us, and the mild season has induced a free display of flowers, not only of the *Snowdrop*, but of the early *Crocuses*, such as the golden *C. chrysanthus* and the Early Snowflake (*Leucojum vernum*). The best of all the *Snowdrops* is undoubtedly *Galanthus Elwesi*, the flowers larger than those of the common *nivialis*, and the leaves vigorous and glaucous. *G. Redoutei* has abundant foliage, and that of *G. plicatus* is broad, stiff, and with a white midrib. For naturalising in the wild garden we prefer the common English *Snowdrop*, but on the rockery, also plant *G. Elwesi*; and if more than one kind is desired, then add the other two.

Crocus biflorus striatus.—I enclose flowers of *Crocus biflorus striatus*. The bulbs were given to me some years ago by Mr. Harpur-Crewe (who, I think, said it was his favourite amongst the *Crocuses*). The enclosed *Selaginella* *Douglasii* is quite hardy here under a bell-glass, where it makes a good carpet for *Sarracenia*s, though perhaps hardly so useful a one in summer as *Sphagnum*, as the latter is of such use in retaining moisture about the plants. The first in blossom of our rarer spring flowers was *Iris reticulata* var. *Sophenensis*. It is dwarfer than the type and of a beautiful purple-blue shade. It was in flower on or before Jan. 12 in the open air.—C. M. OWEN.

* * An exceedingly pretty *Crocus*, the flowers small, delicately coloured, save the rich yellow bases of the segments and the brilliant orange-scarlet stigmas. The *Selaginella* received was of a full deep green, and as fresh in appearance as any of the indoor kinds.—ED.

The Cooper Forster Filmy Ferns.—The famous collection of Filmy Ferns which was formed by the late Mr. Cooper Forster has been presented by his son, Mr. Stuart Forster, to the Royal Gardens, Kew. Mr. Forster's success in the cultivation of Filmy Ferns was exceptional, even when compared with the best-managed collections known, and when it is remembered that Mr. Forster grew the whole of his plants in several small houses on the top of his house in Grosvenor Square, his success seems all the more remarkable. Some of the specimens he grew are unique for size and health, and it is satisfactory to know that the collection generally has not suffered under the care of Mr. Stuart Forster,

who had them in a specially constructed house at Binfield, near Bracknell, in Berkshire. Mr. Cooper Forster was a frequent visitor to Kew, where the Filmy Ferns were of special interest to him. Until just previous to his death, he freely exchanged plants with Kew, and he was always ready with suggestions and advice when the welfare of any precious plant at Kew was threatened. The Kew collection of these plants has always been rich, and now with the addition of those grown by Mr. Forster it stands without a rival. This is the second valuable gift of Ferns made to Kew recently, the first being that of the Carboneel collection of hardy Ferns, already noted in THE GARDEN.

Seedling Hellebores.—Enclosed are a few of my latest seedling Hellebores. I have been trying gradually to improve the alternate sepals, which in the natural species are generally more or less inferior in form and colour. The shell-like appearance of some is very pretty, and the two forms of *guttatus*, one on a dark, the other on a white ground, are the best I have yet raised.—T. H. ARCHER-HIND, South Devon.

* * A delicately and quietly-coloured series of these beautiful plants, which in a mild winter like the present make our gardens so full of bold, open-air flowers. It is surprising how much interest has come to our winter gardens by the revival of the Hellebores alone. We wish we could illustrate in colours the refined and most delicate hues of some of the flowers sent by Mr. Archer-Hind.—ED.

Anemone blanda (the Winter Windflower).—This has been well described as combining every good quality of a hardy alpine plant. It is perfectly at home in the open air, ready to peep out at every sign of open weather; and, above all, a continuous bloomer from Christmas until after its near relative, *A. apennina*, is in full flower. It increases so rapidly that, by careful division, from a small piece a few years ago we have now a patch about a yard wide. It seems to do best where it can catch the morning sun, and is very useful for dry banks and naturalising in semi-wild places. The flowers, as large as those of *A. apennina*, have broader petals of a fine deep sky-blue, and when in bud, or just half open, are exceedingly beautiful. This Windflower, which should be on every rockery, requires very little trouble to grow it successfully.

Hyacinthus azureus.—This same plant, we believe, was largely distributed some few years ago, under the name of *Muscari lingulatum*, and although somewhat resembling these two genera, it favours the first in the most important particulars. It was first introduced to the Vienna Botanic Garden by Kotschy in 1856, and since found on the Caramanian Taurus by Elwes, and also on the Cilician Taurus by Mrs. Danford. With the exception of the *Merenderas*, it is the first of the Lily order to flower in the open air with us. It is perfectly hardy, and if sheltered from cutting winds, it blooms annually towards the latter end of January or beginning of February. The flowers are in a dense conical raceme, deep blue, with reflexed tips, not incurved, as in the *Muscari*. There are six or eight leaves to a bulb, strap-shaped, erect, somewhat glaucous, and deeply channelled down the inner face. This bulb ought to be included in all hardy collections, as much for its great beauty as for the fact of its flowering so freely in our very uncertain springs.—K.

The blue Tillandsia (*T. Lindeni* Regeliana).—This beautiful plant is among Bromeliads what *Vanda cærulea* is among Orchids. Both stand out distinct in their families in point of colour, which in both Bromeliads and Orchids is exceptional. The blue *Tillandsia* is unquestionably one of the loveliest of all stove plants, elegant in foliage and extremely brilliant in flower. The long and narrow leaves recurve on all sides so as to make a compact tuft, and out of the centre rise the flower-stalks about 2 feet, bearing on the upper part the dense mass of bracts. These bracts overlap closely, and are pinkish, and out of them come, one or two at a time, large flowers of the brightest cobalt-blue with white eyes. When these, which last several days, die off, other flowers come out of the bracts, and this goes on for weeks, so that the plant remains in beauty a

long time. It is in bloom in the stove at Kew in the Bromeliad collection. It must not be confounded with another *Tillandsia*, which has violet flowers and pink bracts; and called *T. Lindenii* vera.

February Iris.—The reticulata group of Iris is one of extreme beauty and interest, the flowers displaying lovely tints of colour, and giving a fragrance both sweet and powerful. The first to bloom is *I. reticulata cyanea*, which often sends its flowers through the snow, and is then of indescribable beauty, as the two shades of blue are pure and intense. It has a smaller flower than the type, the centre segments paler, and the outer ones enriched on the dark ground with a yellow band on the lower half, while it has, unlike *I. Histrio*, the second of the group to appear, a sweet scent. *I. Histrio* has been described already this season, and is of a fine blue colour that finds many admirers. It is interesting to note that this was found in Palestine, growing under the famous Lebanon Cedars. The third to flower is the dark, somewhat curiously-coloured *I. purpurea* or *Krelagei*, as it is known under both these names; and the last of the group to appear is the type, though now, by judicious forcing, we have the flowers almost before the year has turned. We noticed all these, with the exception of the last-named, blooming freely in the open at Mr. T. S. Ware's nursery at Tottenham.

PROPAGATING.

CALADIUMS.—Where large clumps or masses of any particular variety exist, propagation therefrom is an easy matter, as on turning out of the pot and removing the soil from the roots a quantity of small tubers may be found. If these are potted up at this season they will grow away at once, and may, after a time, be shifted on. In the case of many, however, and especially the newer varieties, propagation is a more difficult matter, as with a tuber the size of a nut to start with it is evident that off-sets will, for some time, be very limited. Consequently, other methods are followed, and of the different ways I have tried I prefer taking the tuber now and potting it at once into soil of a light sandy nature. The pots are then plunged into a brisk bottom-heat, when the first leaf quickly makes its appearance. Before the leaf commences to unfold the plant is turned out of its pot and the soil shaken from the roots, when it will be found that the leaf has its origin on a little protuberance about the centre of the tuber, and that a few roots are already making their appearance around the base of the leaf. It is thus possible, with a sharp knife, to cut off that central hillock altogether, bringing away with it the leaf and its few attendant roots. This must be at once potted in a well-drained pot, and the leaf having been secured to a small stick, should be plunged in a close propagating case where there is a gentle bottom-heat. As the leaf grows rapidly, in tying it to the stick, ample room must be allowed for future expansion. This operation will leave the tuber with the central portion removed, and in most cases it will be possible, on close inspection, to detect a few small excrescences just around the outside of the tuber. These form the base from whence the future growth will spring, when the tubers are again potted as at first and plunged in bottom-heat. As the *Caladiums* during early spring grow very rapidly, it will not be long before a second crop makes its appearance, when the same plan must be again adopted. In many cases the tuber that at first pushed up but a single shoot will produce two or three the second time. Those that were first taken off will be ready to be taken out of the close case, shifted into larger pots, and inured to the ordinary atmosphere of the stove by the time the second crop is ready. After this second decapitation the tubers may be again repotted, when it is as well to allow them to grow on, but should the demand be very great yet another crop may be taken. There are other methods in favour by different propagators, one being to lay the tubers on the surface of the plunging material in a close case, but under this treatment the roots do

not grow so fast in proportion to the top as they do when the tuber is covered with soil. Another method is to lay them in Moss, but the roots are more liable to be broken when taken out of this than when soil is used. In any case when the tuber that has been operated upon is potted, the cut portion should be dusted over with a little pounded charcoal, in order to arrest any signs of decay that might originate. A simple way of increasing *Caladiums*, but which can only be carried out in the case of large tubers, and especially those that are of an irregular shape, is to cut them into as many pieces as there are eyes, dust them over with charcoal to dry up the sap, and after laying them on a shelf for two or three hours to pot them and treat as whole bulbs. This is now the time for the operations detailed above.

DEUTZIA GRACILIS.—Where this useful little flowering shrub is forced into bloom early in the season, a favourable opportunity is afforded of propagating it in quantity if desired. This is effected by cuttings of the young shoots, which root in a very short time when placed under conditions favourable to the formation of roots; indeed, so freely does this *Deutzia* strike that should the atmosphere of the structure in which it is forced be rather moist, many of the young shoots will push forth roots just at their junction with the old wood. The cuttings should be taken off and treated in the same way as *Fuchsias* and similar subjects. As soon as the cuttings are rooted they should be hardened off and potted into small pots. If sheltered by a frame up till May they will have become well established, and may then be planted out in a bed prepared for their reception. The plants should be so situated that water can be given them if the weather is dry. A good way to lay the foundation of a bushy plant is to go over them soon after they are potted and pinch the point of each shoot.

MARANTAS, ALOCASIAS, some of the *Anthuriums*, and similar subjects may be readily increased by division, and where it is intended to carry it out this is the best time of the year for the purpose, as the roots are just beginning to start after the winter's rest, and when divided and potted the plants quickly become established. Care should be taken, especially in the case of the *Marantas*, to injure the roots as little as possible, and in repotting a compost should be used in which peat and sand predominate. All these plants will start into growth more quickly if they are put in a close case for two or three weeks to become established. In the case of the deciduous *Alocasias* when they are turned out of their pots and the soil shaken from them previous to being repotted, it will in many cases be found that there are a number of small tuber-like masses either attached to the roots or already disconnected therefrom. Where these are present they supply a ready means of increase, as they can be taken off without injuring the plant in any way and potted either several together in a store pot or singly into a small one. The *Anthuriums* in our gardens are chiefly represented by *Andreanum* and *Scherzerianum*, and of these the first-named is usually increased by cutting down the long rambling shoots and potting them in light open compost consisting principally of peat and Sphagnum. If they are plunged in a little bottom-heat and kept close for a time they quickly become established. Some plants are far dwarfer and more bushy in character than others, and in their case it is often possible to obtain some of the side shoots with one or two attendant roots. *A. Scherzerianum* can be divided without difficulty, and both that and *A. Andreanum* ripen seeds from which young plants can be raised. The seed when ripe should be rubbed up with a little dry sand to absorb some of the moisture and laid out for a day or two, but not sufficiently long to become very dry. We sow ours in pans in a compost consisting of peat, chopped Sphagnum, and silver sand, slightly covering the seeds with pure sand. After having been watered they are plunged in a close case in a bottom-heat of 80° to 85°. So treated the plants soon make their appearance, and when sufficiently advanced are potted off, and they make much more satisfactory progress if kept close

during their earlier stages. When in the confined atmosphere of the propagating case a sharp look-out must be kept for insect pests, as aphides are very liable to attack the young foliage and quickly cripple it, while thrips must also be guarded against, as if they once get a thorough hold they are difficult to dislodge.

TREE CARNATIONS.—Where the plants of these have been flowering throughout the winter and have consequently been kept in a temperature of from 50° to 60°, there will be plenty of young shoots for the supply of cuttings, and no time should now be lost in putting them in. They strike readily enough at this season provided suitable cuttings are taken. It should be borne in mind that the very stout succulent ones must not be chosen, as they are liable to decay, and the weakest ones are lacking in vigour when rooted. Consequently the medium shoots should be selected, and those that have grown on the upper part of the plant, or at all events on the sides where well exposed to the light, are to be preferred. The cuttings should be taken off clean below a joint and the two bottom leaves having been removed they are ready for insertion. The cuttings may be either placed in a propagating case in much the same temperature as that in which they have grown, or they may be covered with a hand-light or a bell-glass. In the case of this last the size of the pots will depend upon the glasses that are available for the purpose, but where put in a case or on an ordinary hotbed covered with a frame, pots 4 inches or 5 inches in diameter will be found a very suitable size, as the cuttings are not so liable to damp off as when larger pots are used. The pots should be well drained, and having been filled with a compost consisting of loam, well-decayed leaf-mould and sand, pressed down moderately firm and finished off with a layer of sand on the top, the cuttings may be dibbled therein. The soil must be well closed around them, and when the pot is finished and a thorough watering given through a fine rose the whole is complete. The watering must be sufficient to settle the sand in one unbroken layer on the top, and when put into a close case they will not need any more for some time. T.

Rainfall of 1887.—I herewith enclose you, as in former years the rainfall here:—

Month.	Total depth.	Greatest fall in 24 hours.	Number of days on which 0·1 or more fell.
	Inches.	Depth.	Date.
January ...	2·80	·53	10
February ...	1·36	·29	2
March ...	1·12	·32	10
April ...	1·35	·37	21
May ...	1·46	·68	19
June ...	0·21	·10	7
July ...	3·21	·70	9
August ...	1·94	·55	26
September ...	2·87	·58	4
October ...	2·75	1·00	26
November ...	3·91	·90	5
December ...	2·45	·42	5
	25·43		131

I need hardly say that the last season was unprecedented in Ireland, but in many respects, unless wells failed, very favourable to many kinds of gardening. The Tea Roses were exceptionally good, and all forms of wild fruits abundant. This is an unusual feature in Ireland, where plants are not usually well covered with berries. Potatoes were good, though small. Fruit of all kinds above the average (particularly Apples), both in size and quantity. Nothing in the garden has permanently suffered from the drought—on the contrary, the heat has had a most salutary effect on the usually damp climate. On comparing the above with the statement of the rainfall at Belvoir, I find that though the amount was greater in Ireland, the number of days on which rain fell was less in England.—BRINSLEY MARLAY, *Belvedere, West Meath.*

ALPINE PLANTS IN NATURAL
MASSES.

At one time—and indeed now to a large extent—alpine plants were grown in lumps of dried rubbish. In our country, in the southern parts of which the rainfall is often very deficient, a number of plants would perish at once under such conditions. On the other hand, foul weeds that will grow anywhere would take possession of the so-called rockworks and soon bury them in herbage of some sort. One of the first things

do not speak only of things like the beautiful *Gentianella* shown here, which for many years has been grown as an edging in all parts of the country, but of the *Rockfoils*, the *Stonecrops*, and the true alpine plants in great numbers. Then, for the sake of securing the benefits of the refreshing rains for the plants, it would often be advisable, in the south of England at least, to avoid the dusty pocketty things which people have hitherto built for rock flowers. The illustration shown is that of a little alpine garden, made in quite a level

the natural grouping as opposed to the botanical or labelled style of little single plants of a great number of things. In this stretch of bed, in the ordinary way, one might see fifty or more plants—but beauty none, for those who have ever seen the beautiful mountain gardens. Many rightly contend that, in a sense, Nature includes all, and that, therefore, the term “natural” may be misapplied. But the term “natural” in the sense of Nature’s own way of arranging flowers is a perfectly just one, as opposed to the lines,



Alpine garden on level ground with the plants in natural groups.

that I had to say about alpine plants was, that a great number will do perfectly well on the level ground in our cool climate, if not overrun by coarser plants. Where there are natural rocks or very tastefully-made artificial ones, it is right to take advantage of them and put fitting plants on them; but people who are particular would perhaps often be better without artificial rockwork if they would grow these plants on raised borders with a few stones interspersed. In any case there is not the slightest occasion to have what is called rockwork to grow these flowers. I

place in the worst possible soil for growing the plant which is here grown so well—the hot Bagshot sand, where the soil is always fit for working after the heaviest rain, but in hot summer is almost like ashes. By making the soil rather deep and by burying a few stones among the plants to prevent evaporation, this flower, which loves a clay or a rich loamy soil, did fairly well, as the picture shows, engraved exactly from the photograph.

The next point which I have long insisted on is the great superiority of what I call

rings, and other set patterns so commonly hitherto followed by man. I have always thought that by adopting a bold and natural system of grouping, we could get all the colour of the bedding men without a trace of their formality and patterns. This illustration shows exactly what is meant. But most gardeners, even the most tasteful, find it difficult to group in this natural way—we have all been so much accustomed to set things out in formal lines. This is a difficulty felt by the most careful and most artistic, but a little attention to the natural objects

about one will help one to deviate from the usual set patterns, and let things intermingle here and there and run into each other to show groups such as one may see among the rocks by the alpine paths. After a little time the plants themselves begin to help by growing irregularly. An excellent thing is, if a number of plants are set out too formally—as in most cases they will be—to pull up a number here and there after the whole are set. The grouping of this old and beautiful plant explains the whole thing better than anything I can say of it. W. R.

STOVE AND GREENHOUSE.

T. BAINES.

VENUS'S FLY-TRAP.

(*DIONÆA MUSCIPULA*.)

THIS curious little plant is closely allied to the *Droseras*, or Sundews, and is both small and of comparatively slow growth. It belongs to the insectivorous group of plants, the habits of which have received much attention in recent times. The root consists of scales which closely overlap each other, so as to form a fleshy protuberance. The petioles are comparatively long, in a strong example measuring about 3 inches and they are heavily winged. The leaf-blade, which forms the trap for the insects, is divided by the mid-rib to which the two halves are hinged, and in form it is not unlike the shell of a cockle. The outer edges are furnished with a row of stout hairs, which when the trap is closed cross each other closely, like the human fingers when the hands are clasped. On the inside of each half of the trap there are three stout hairs which, when the trap is open, stand erect. These leaf-traps with the petioles, when fully developed, lay flat on the surface, and are thus ready to close up when anything comes in contact with the sensitive internal hairs. When a fly or a gnat is caught, the trap remains tightly closed upon it for some ten days or a fortnight, more or less, according to the time of the year, until the insect is in a measure decomposed. After this, the trap opens slowly, but is not again so sensitive as before.

Altogether, the *Dionæa* is one of the most interesting plants in existence. The fact of its being now so seldom met with does not say much for that inherent love of plants which so many people profess to have. It is, certainly, not difficult to grow, for with ordinary attention it grows freely and goes on increasing from year to year. But, in common with many other desirable plants, there are still some peculiarities connected with its cultivation that must not be lost sight of, or it will not succeed. One of the chief causes of failure is in giving it too much heat. When kept in an ordinary stove temperature it makes progress for a time, but afterwards begins to show signs of weakness, and eventually dies off altogether.

A warm greenhouse temperature is sufficient for it, but in a house of this description where an ordinary collection of plants is grown there is generally too much air admitted for the *Dionæa*, causing the atmosphere to be drier than is advisable during the growing season. An intermediate house, where less air is given, answers best. Another mistake frequently made is in covering it with a propagating glass, which naturally has a weakening influence. If grown in a cool greenhouse, the glass, if not kept shut down too close, would help to keep the atmosphere immediately surrounding the plant sufficiently humid, and in this way would

be an advantage. Where a glass is used, it must be tilted. Owing to the plant being an inhabitant of swampy places, it must never get dry, even in the winter months, when there is a complete cessation of growth and most of the preceding season's leaves have decayed. In summer it requires water every day, but in winter twice a week will be often enough. A good look-out must be kept for aphides, for though these pests do not usually attack the plant, still they sometimes appear, in which case they confine themselves to the under side of the leaves, where they are difficult to see, but very soon do much harm. As soon as they are discovered it is best to cover the plants with bell-glasses, which should be filled with Tobacco smoke, repeating the operation two or three times in the course of a day or two. This will generally destroy the insects.

The method of propagation is by division of the bulb-like crowns, which increase in the same way as some Lilies, where the bulb is divided in two by each flower-stem that is formed. This occurs with the *Dionæa*, the bloom-stem dividing the crown that has produced it, so as to form two. This will, at the time of potting and before the growth commences in spring, be always found to have become separated. Pots about 2½ inches in diameter are quite large enough to grow the strongest crowns in. The soil must be of an open, porous description, so as to allow the water to pass freely through it; fibrous peat pulled in small bits and chopped Sphagnum in about equal parts, with a liberal addition of crocks, broken about the size of Peas, and some sand form a suitable compost. The plants require to be shaken out and repotted in fresh material every year. This must be done before the growth has begun to move, which in intermediate heat usually takes place in March. Drain the pots with a few bits of crocks and fill in the soil, putting the crowns in the centre, with the base of the few preceding years' leaves that still remain attached just covered. Press the material moderately firm and at once give water. The pots must be plunged in Sphagnum, and they should be placed as close as they will stand in an ordinary seed-pan about 12 inches in diameter. This will hold a dozen plants or more, which when strong will cover the whole surface of the soil with their leaves. As already said, water should be given daily after growth has fairly commenced, and it is best applied overhead, as when given in this way it helps to keep the plants free from insects. They must have a thin shade over them in the summer when the weather is sunny. They should not be stood in a dark position or too far from the glass, but it is necessary to be careful not to go to the opposite extreme and put them too near the roof, especially if at the sunny side of the house. A distance of 3 feet from the roof is suitable. On one occasion I lost a very fine lot of plants through putting them within 2 feet of the glass, whilst a foot further away they grew well, the leaves having a suffusion of red that adds so much to the beauty of the plant. The flowers are produced in loose umbels on erect stalks that spring from the centre of the plant. They are white and quite inconspicuous, on which account always pinch them out as soon as the stems are long enough to get hold of.

Marie Louise Violets in pots.—This beautiful Violet is one of the very best for pot culture. To have good plants for potting in September, the runners should be planted out on rich soil in April, a partially shaded position being the best (at least in the southern counties), and great care is neces-

sary in keeping the plants in the summer liberally supplied with water both at the root and overhead. If red spider once obtains a foothold it is difficult to eradicate it, and I find soot-water a capital antidote to this pest. All the runners must be kept cut off closely, and by September the plants will be fine clumps, full of flower-buds. They should be carefully lifted with a good ball of soil, and potted in 6, 7, or 8-inch pots according to their size, using good rich soil. Pot firmly, and after a good soaking of water they may be set in a cold frame or in the shade of a wall out of doors while the weather is mild, but as soon as the nights get frosty they should be removed to a shelf near the glass in any cool house. Keep them moist at the root and all decaying foliage picked off. Very fine blooms will then be produced in quantity. When the plants are in pots the flowers are less liable to get soiled as when they are in pits or frames.—J. G., *Hants*.

The Blood Flower (*Hæmanthus natalensis*).—This is a plant that once seen will be remembered, as there are few that have a character so striking and brilliant. It must, perhaps, be regarded as more curious than beautiful, but those who need a gorgeous display of scarlet at this season should add it to their collections. The thick, fleshy stem rises before the leaves and bears a brush of vivid scarlet filaments tipped with golden anthers, that, though stiff, formal, and unlovely, give a rich harmony of decided hues. These are intensified by the lustrous brown spottings seen at the base of the stem and also on the bulb. The *Hæmanthus* are not hard to grow, and even when out of flower possess some value by reason of the abundant ornamental foliage. They may be, when going to rest, removed for the winter under any ordinary greenhouse stage and kept quite dry. I have seen them grown exceedingly well with French *Pelargoniums*, receiving similar treatment, and never failing to reward the cultivator. They can, however, be brought on easily in heat.—R. T.

***Eranthemum pulchellum*.**—This seems to be more popular than it was a few years ago, and no wonder, for the beautiful blue blossoms are unrivalled at this season, and the plant is also of easy culture. Plants for blooming at this season should be struck in the spring, at which time cuttings are easily obtained, and if put into light sandy soil and kept close, they root in a week or ten days. The cuttings should be made from the young and succulent shoots. If the plants are kept growing freely, and pinched from time to time, in order to encourage a sturdy habit of growth, they will be by the winter neat little bushes, every branch of which is terminated by a spike of beautiful blue flowers. The latter, unfortunately, drop directly they are taken off, and on that account they are of no use in a cut state. Though the plants require the heat of a stove during autumn and winter, they may in the summer be grown quite cool, as so treated they can be kept dwarfed. A moderate amount of manure water will help them, and during the growing season they must not be too much shaded, otherwise the plants will be weak and bare of foliage at the base. During hot and dry weather they are somewhat liable to the attacks of red spider, which if not checked will cause a good deal of the foliage to drop. This *Eranthemum* is a very old inhabitant of our gardens, having been introduced during the last century, but it would be missed much more than many recent novelties.—H. P.

***Nepenthes*.**—Replying to Mr. Dixon's remarks upon these plants in *THE GARDEN* of Jan. 28 (p. 79), I have to thank him for the information respecting the earlier raising of these plants from seed. I had always been taught that all our earlier Pitcher plants were the result of propagation by cuttings from imported specimens, and I was not aware that seedlings had been raised in this country previous to the batch which I raised from Ceylon seeds. The altitude, of course, was a printer's error. There is, however, some little mystery respecting *N. distillatoria*. The plant that I allude to as having had charge of when a lad was the first and only species of the genus which I knew for a long time. The plant was fully 20 feet in length, and produced thick and leathery leaves, which were from 1 foot

to 18 inches long; pitchers pale green, some 4 inches or 5 inches long, with a ring of dull red just below the rim of the mouth; the throat also had a tinge of the same colour, and the inside of the lid bronzy red. Now, this is certainly not the *N. zeylanica* which I raised from seeds; neither is it the plant known as *N. phyllamphora*, of which I have had under my charge some very large specimens upwards of 25 feet long, and which bore hundreds of pitchers. In this plant the leaves are very thin in texture, and, together with the pitchers, of a uniform pale apple green. The plant known to me as *N. distillatoria* I had lost sight of for many years; but in the early part of last season I saw it again in a gentleman's garden at Streatham, and more recently I have seen the same plant in Mr. James's nursery at Norwood. I believe it is also to be found in the nurseries of Messrs. Veitch, of Chelsea, and Mr. Williams at Holloway, although I have not myself seen it in those establishments. This is the plant which I knew originally as *N. distillatoria*, and under which name it is now in cultivation. It is certainly distinct from any other kind I know, but I am quite ignorant of the locality from whence it comes.—W. H. G.

A CYCAS NURSERY.

"IF you should go to Leipsic, do not forget to pay a visit to Wagner's *Cycas* nursery," said a German friend. It so happened that I went to Leipsic a few months later, and, bearing in mind the advice given, I went to see the establishment in question. It was rightly named the *Cycas* nursery, for nearly all the houses were filled with *Cycads* in various stages of development, from the adult specimen with trunk-like stem 10 feet or more in height, down to the miniature plant with a stem no larger than a hen's egg. One large house contained a number of plants, the like of which—taking quantity and size into consideration—would not be found in Europe. It was like walking in a miniature forest, the big Fern-like leaves meeting overhead on all sides. Readers of *THE GARDEN* generally will wonder how it can pay a trade grower to keep such a quantity of large *Cycads*, seeing that so few of them are in demand. The fact is, that a large sum would be required to tempt the owner to part with them. Their existence is due to a curious custom peculiar to Saxony and, I believe, to some portions of Hanover. This consists in the mourners at funerals carrying in their hands Evergreens of some kind. Those who can afford to do so use Palm and *Cycas* leaves. Hence, there is a constant demand for such, and selling old specimens that produce large leaves that realise high prices would not be thought of for one moment by those who have them. In another large establishment I visited I went through a large house entirely filled with big specimens of *Latania borbonica* and *Corypha australis*, the two favourite Palms for this purpose. The owner told me that every leaf on them was worth about 4s.

Independent of the utility of *Cycas revoluta* for the above-mentioned purpose, it is a very favourite room plant all over Germany. It would run *Aspidistra lurida* very close indeed in the race for popularity, but it cannot be sold at such a cheap rate. Still, a *Cycas* can be had much cheaper in Germany than with us, as the demand being constant, a special culture of this plant has sprung up in Cuba, where, I am told, it is grown in large quantities in open fields. One large German nurseryman imported a great number of small plants suitable for pots from $4\frac{1}{2}$ inches to 8 inches in diameter, and they were packed in *Latania* seeds. When these *Cycads* come over they are more or less hollow at the base, many of them half way up the stem. This cavity is filled with crushed charcoal, and they are then put in pots that will just hold them, half filled with drainage, and are put in strong bottom-heat. I have treated hundreds in this way, and had but few losses. Great care has to be taken in watering, or the lower portion of the stem rots. In the Leipsic Nursery all the young plants were pushed along in bottom-heat, and I was told that by starting them early, giving a rest, and then putting them back in fermenting material, two growths are made in the course of the year. To

obtain a good head of leaves in two seasons bottom-heat is necessary. Until the plants get a good root-hold, they ought not to be subjected to cool treatment.

Byfleet.

J. C.

GREVILLEA PREISSI.

THE genus *Grevillea* contains several species that merit more extended cultivation, but the majority of them flower during the spring and summer months; while this kind will bloom more or less continuously throughout the autumn and winter. This species is of rather free growth, and forms quite a bush, composed of long slender shoots clothed with much-divided leaves. The pink flowers are borne in closely-packed terminal clusters; the bright red style also forms a prominent feature. In a structure that is free from damp the blossoms last a long time in beauty, and a succession is also maintained for a considerable period. The low, dense-growing *G. ericifolia*, with needle-like leaves and clusters of bright red blossoms, also commences to flower in the early days of the year, and, given a favourable situation, it will continue to bloom till midsummer. Two other species well worthy of cultivation are *G. sulphurea*, which shares with *G. rosmarinifolia* the reputation of being the hardest member of the genus, and *G. sulphurea*, a dense, much-branched bush with narrow-pointed leaves, and during the summer months the branches are clothed with sulphur-coloured blossoms. Individually they are not showy, but the profusion in which they are borne compensates for this, and renders the plant when in full flower very attractive. In the south and west of England this will survive many winters in the open ground; indeed, treated as a wall plant around London it is seldom injured. *G. rosmarinifolia*, mentioned above as one of the hardest species, is a dense-growing shrub that produces its flowers in closely-packed clusters at the end of every shoot. The flowers are of a reddish purple colour, and last a long time in beauty. Under greenhouse treatment this *Grevillea* will commence to flower at the end of March or beginning of April, but in the open ground it is, of course, later. *G. punicea*, a bright red-flowered species, is a very desirable kind, but it is scarce and also more particular in its requirements than the others. In all the above the flowers form the most conspicuous feature, but the species that is met with by far the most frequently of any (*G. robusta*) is grown only for the sake of its foliage, for I am not aware of its having flowered in this country. It is commonly used in sub-tropical gardening, and is also brought into Covent Garden Market in considerable numbers during the summer. The short space of time in which this plant can be grown into an effective specimen and the elegant character of its foliage are its great recommendations. Seeds of this are imported in considerable quantities, and to obtain good results they should be sown as soon as received.

T.

Spot on the leaves of *Pelargoniums*.—I can well remember when growers of *Pelargoniums* for exhibition used to be troubled with what they called "spot" upon the leaves of these plants. This appeared in spring, the leaves being much disfigured by the breaking out of brown spots, which, as a matter of course, affected the appearance of the plants upon the exhibition stage. Last year my attention was called to some plants affected in the same way, and I think the real cause was mismanagement. I do not think brown spot is so common as it was thirty years ago, and I attribute its decline to some extent by the fact that we now grow *Pelargoniums* of a more robust habit. It was then that our florists were engaged in deepening the colours of the flowers, and striving for greater stoutness in the petals and better form also, constitutional vigour of habit scarcely receiving the attention it deserved. Some of the principal growers of that day were of opinion that one main cause of the spot was traceable to the habit of standing the plants out in the open in order to ripen the foliage before they were cut down, and allowing the soil about the roots to become thoroughly sodden by rain when the plants were comparatively at

rest. One effect was that when the plants were cut down the sap would exude to such an extent that the specimens literally bled to death. If the plants become thoroughly sodden by being placed in the open, it is best to allow them to dry off somewhat before cutting them back, and this can be done by laying them on their sides for a time. One well-known cultivator states that *Pelargoniums* cannot be too dry when they are cut down. The practice of placing the plants out in the open after they are cut down also encourages spot. It is much the best plan to place them in a cold greenhouse, or pit, until they begin to start into growth, and then they can be repotted and kept close for a time before being put in a light and airy part of the greenhouse.—R. D.

CAMELLIA BUDS DROPPING.

I CANNOT agree with all Mr. Record's remarks on the above subject in *THE GARDEN*, Jan. 28 (p. 80). As he justly says at the conclusion of his note, deficiency of root-action, sour soil and bad drainage, too much or too little water and a high moist temperature may one or all account for bud-dropping; but his main point, that this failure may also be attributed to keeping the plants indoors all through the summer months, is a theory, in my opinion, that cannot be proved by general experience. I fancy his success with the plants that had hitherto failed was more owing to judicious watering than to turning them outside. For if the latter treatment were to be accepted as indispensable, how can it be reconciled with the fact that there are hundreds of *Camellias* about the country planted out in beds, and which have to remain there all the year through? In our case the plants have probably been established in their present quarters nearly eighty years, and there is no bud-dropping. At least in my six years' experience of them those that have failed might be counted annually on the fingers. Nor has the house in which they are growing the merit of being well ventilated, as it is a span-roofed one with a very flat pitch. It has high side-lights, which all come down, but which are of little service as far as the top of the house is concerned, the inability to open at the apex of the house naturally preventing a free circulation of air. Three essential points in the cultivation of the *Camellia*, whether in pots or in beds, that are likely to tend to the proper development and preservation of buds are suitable soil and good drainage, judicious watering, and a dry, equable temperature with thorough exposure at all times to the sun. In the case of the plants here, the drainage is so good that we are enabled to give a thorough soaking that penetrates to all parts of the bed; this is done once in ten days during summer, and from three weeks to a month in autumn and winter. Shade of any kind I think is a great mistake, as it has a tendency to make the foliage soft and tender and very susceptible to the sun's rays. Sufficient care can always be exercised with the ventilation, and this, with a cool, dry, equable temperature, is a sure safeguard against scalding. I may mention that there is every prospect of a capital display of bloom, all the varieties being well set with buds. Especially noticeable is a very large plant of an old variety that I find figured and described in Mrs. Loudon's greenhouse plants as *C. japonica pomponia*. This is a capital variety for cutting; it is not so stiff and formal as many of the newer sorts, and is most serviceable at this season for specimen glasses, &c. All varieties are considerably later than usual, a fact I find it rather difficult to account for, as the hot, dry summer of 1887 should have tended to the earlier development of the buds. It is perhaps owing to the lengthened flowering season of last year, causing the pruning and thinning out to be deferred, and the corresponding lateness of growth which succeeds the annual top-dressing of cow manure which the plants receive after the pruning and tying are finished.—E. BURRELL, *Claremont*.

— Under this heading, Mr. Record gives us in *THE GARDEN*, Jan. 28 (p. 80), his mode of treating *Camellias* to prevent them from dropping their buds. The point brought forward most prominently is the fact of his plants having been placed

out of doors for a while after having made their growth, and when so treated bud-dropping ceased, though it re-asserted itself on four plants which were placed in a house from which they could not be moved. The bud-dropping of Camellias is a cause of frequent complaint, and a discussion as to the best means of preventing it will be useful. That it can be prevented without going to the labour of placing plants out of doors is certain, and I need only point to the grand plants which are growing in the long corridor at the Fulham Road end of Veitch's nursery at Chelsea in proof of this. These plants are a grand sight either in or out of bloom, and do not appear to suffer from bud-dropping or any of the other ills to which Camellias are subject. A smaller group of plants, but equally healthy, used to be grown some twelve years ago in a lofty old greenhouse at Wynyard Park, Durham. These were in tubs, and were never taken out of doors. During the three seasons I knew them I saw no bud-dropping, though they set great numbers of buds which were only very slightly thinned, as all the flowers were required for London. To meet the strain put upon them they were top-dressed annually and had large supplies of manure water, while clear soot-water was also frequently given. The soil used was mostly good fibrous loam. Many object to using a large proportion of loam for Camellias on the ground that it has a tendency to make the foliage yellow, but a plentiful supply of soot-water will counteract such a tendency, provided the loam has plenty of fibre. Where the plants are large and labour is scarce the extra work of getting them in and out will be a serious matter, and one to be avoided if possible. If they can be equally well grown in the conservatory, what better background could there be in a large house to set off the flowering plants than the dark, glossy foliage of a healthy lot of Camellias?

I agree with Mr. Record that bud-dropping is caused in many ways, and foremost I should place neglect in watering. A sudden check is also bad for them, and this they might easily get by being placed out of doors in full sun in an arid atmosphere, after being grown in a more humid one. No place would seem to give them the "even temperature" Mr. Record thinks requisite better than a conservatory which is managed in the best possible way to lengthen the blooming season of the flowering plants it contains.—JOHN C. TALLACK, *Livermere Park, Suffolk.*

Thysacanthus rutilans.—This stove plant, which is now commencing to flower, is by no means a novelty, yet it is but little grown, notwithstanding its highly ornamental qualities. It is a free-growing subject that quickly runs up to a considerable height; indeed, it is seen to the greatest advantage when it has a stem a yard or more high. The flowers are tubular in shape and of a bright crimson colour, while they are borne in long drooping panicles. When the plant is, say, 4 feet high and devoid of foliage towards its lower part, the flowers are especially noticeable. It is easily propagated and grown, for cuttings of the young growing shoots strike readily enough during the spring months, and may then be pushed on quickly. Large specimens that flower every year may be grown on season after season and yield a greater display of blossoms than young plants.—T.

Libonia floribunda.—For continuous blooming during the dull winter months this has but few equals, as when the plants are favourably situated the brightly-coloured flowers will be produced for a long time, and that when blossoms of any kind are scarce. The same treatment as that accorded to Bouvardias that are intended for winter blooming will suit the Libonia perfectly. About this season a few old plants that have done blooming may be placed in a little additional heat, when plenty of cuttings will soon be produced. These when long enough may be taken off and inserted just the same as Fuchsias, Bouvardias, and such things usually are. They will not take long to strike in a close case, when they must be hardened off and as soon as possible potted. After this the young plants must be pinched occasionally to encourage a bushy

habit, and shifted into larger pots when required. A cold frame is the best place for them during the summer, and plenty of air must be given throughout that season to cause the plants to assume a short, sturdy habit. As they are somewhat liable to the attacks of red spider, the plants should be frequently syringed at that season to keep these pests in check. Towards autumn, as the pots get full of roots, occasional doses of liquid manure will be of service; and a still more particular item is that the plants should be occasionally watered with soot-water, as this will cause the foliage to acquire (and, what is more, retain) a healthy green tint, which the Libonia does not always wear. The yellowish tinge of the foliage often detracts greatly from otherwise perfect specimens.—T.

DAPHNE INDICA.

IN answer to "W. G. M." it is very remarkable that this plant should be so seldom seen in our greenhouses, whilst its flowers yield perhaps the most grateful odour of any known plant. It is usually said to be troublesome to grow, but I do not think it is at all difficult to manage; indeed, I am inclined to believe the plants as a rule are more often killed by being too frequently repotted; the consequence of which is that the roots are overburdened with soil, and that too in a loose condition, so that the roots become soddened and die. When this happens, the tops naturally soon decay. The roots require to be somewhat confined, and the soil should be made as firm about them as possible. I was led to believe in this system of growing Daphnes from observing some large plants which were under my care in an old-fashioned orangery, on one side of which the lights which opened as doors reached the ground, but on the other side the lights were fixtures, and were supported on a wall about 6 feet high; this wall, which was about 50 feet or 60 feet long, was entirely covered by six plants of Daphne, which flowered regularly and most profusely. They were cut so hard every year, that I never saw much difference in their size during the three years they were under my charge. These plants were in a narrow border covered with York flagstone, which formed a part of the walk on that side of the house, a half circular cavity round the stem of each plant, into which water was poured in abundance, being left. These Daphnes had originally been planted in a well-drained border consisting of two parts rich loam, one part peat, and half a part of sharp sand. The soil was allowed to settle, and then rammed firmly after the plants were in position. I saw these Daphnes from time to time for several years after I left the place, and they were growing vigorously and produced enormous crops of flowers, although the soil had never been disturbed. I have never seen either finer plants or a greater quantity of flowers in any private garden, and I would therefore advise you to use comparatively small pots and to make the soil very firm. The house in which the above-named plants were growing was kept very cool, their companions being Camellias planted out, large Oranges in tubs, climbers, such as Kennedyas, Hardenbergias, Banksian Roses, and the finest plants of Ceanothus puniceus that I have ever seen. This last was planted in the same border as the Daphnes. W. H. G.

SHORT NOTES.—STOVE AND GREENHOUSE.

Acacia longiflora mucronata.—A plant under this name is flowering in the temperate house at Kew, and is noticeable for the beautiful feathery character of its leafage, from which the pale lemon globular flower heads stand out clearly. It is not so showy as *A. dealbata*, now seen everywhere, but it has many good points.

Erica melanthera.—Though far less beautiful than *E. hymalis*, this is a most desirable Heath, as the plants are at the present time a mass of small pinky white flowers that are conspicuous by reason of the almost black centre. Hardly a bit of leaf can be seen for the profusion of flowers. There are several specimens at Kew, and they have been quite a feature for weeks past.

The Spanish Jasmine (*Jasminum grandiflorum*).—As in the case of several members of the genus, the flowers of this Jasmine are highly fragrant, equal almost to that of the popular *Daphne indica*. It is of a loose habit of growth, though it

can be flowered in the shape of bushy specimens in pots. The foliage is a good deal like that of the common Jasmine, but it is deeply tinted and ever-green, while the large white blossoms are slightly tinged with red on the outside. It is a native of the Himalayas, and is commonly cultivated throughout the Tropics, as its deliciously fragrant blossoms are much appreciated. Cuttings of the young shoots, after they have lost a little of their succulent character, will strike readily in the spring, and in the temperature of a warm greenhouse will grow rapidly; such a structure is indeed necessary in order to flower them well.—H. P.

Azalea amœna.—This is the first of the Azaleas to flower, and this character, combined with the neat habit of growth, renders it a very useful subject for greenhouse decoration during winter. It may be easily forced, and, so treated, may be had in bloom before Christmas. The flowers last a good while in perfection, and owing to their neatness and long-lasting qualities are very useful for making sprays, button-holes, and such purposes. This Azalea is quite hardy, and is well adapted for edging a Rhododendron bed, as the soil and situation suit it perfectly. There have been many hybrids raised by crossing this with the different garden varieties of the Indian Azalea, the progeny being in most cases about mid-way between the two. Mr. Carmichael was, I believe, the first to cross them, but since then others have followed in his footsteps. One of the prettiest of these hybrids is still Mrs. Carmichael, the blooms of which are of a rich magenta colour and borne in great profusion.—T.

WORK IN PLANT HOUSES.

GRAFTING CAMELLIAS.—Large plants of inferior varieties of Camellia are often retained, though they are of little use. These specimens should be cut down and grafted with better kinds and they will quickly make new heads. Cleft-grafting is the best for those specimens that have attained a medium or large size, heading the plants down to within 9 in. or 10 in. of the collar. Where work of this kind has to be done no time should now be lost in heading down, as if the tops are removed later on the stools will bleed so much as to interfere with the taking of the grafts. Plants that have stems from 1½ inches to 1½ inches in diameter will take four scions, and all that is necessary is to tie round with bast so as to keep the scions in their places, and cover over with ordinary grafting clay. Stand the newly-grafted plants in a genial growing temperature, such as ainery that happens to be at work, or in any house or pit where the heat is sufficient for Camellias that are making their growth. Keep the soil somewhat dry, as, in common with other plants when cut down, the roots are not in a state to bear the soil being wet. Later on, when the grafts have begun to grow freely, the points should be taken out so as to induce them to branch.

PLANTING OUT CAMELLIAS.—Where Camellias are to be planted out either in beds or in borders for covering walls, this had better be done at once, even if the plants have not finished blooming, as the growth they are expected to make during the coming season is of more consequence than the flowers. The young rootlets of Camellias are exceptionally brittle, so that they break with the least disturbance. This being the case, they are much more liable to get injured than those of most other things. On this account I do not approve of the roots being opened out from the balls in the way that usually is practised with most plants when planted out. To ensure the water passing through the balls, it is well to pierce them freely with a piece of strong wire. In addition to this the soil all round the balls must be made quite firm, raising it about an inch higher than the surface, so as to form a basin. Previous to Camellias being planted out they should be well cleansed from any insects with which they may happen to be affected. The beds or borders must be well-drained and made deep in proportion to the size of the balls of the plants. Good turfy loam with enough sand added to keep it porous is the best material to grow Camellias in, though the plants grow to a larger size and have deeper coloured leaves when they are

grown in peat, but they do not usually flower so freely.

FERNS.—Ferns of all kinds do not like to be disturbed at the roots after they have commenced to grow. It is better to carry out the potting of such as may require additional root-room before they commence to grow. This applies both to the tree kinds and to the dwarfer sorts. Ferns are less particular in the matter of soil than most things; either peat or loam will answer for them, provided there is enough material added to keep the soil permanently open, so as to admit of the large amount of water the roots require passing freely through it. Though moisture-loving plants, they cannot stand a stagnant soil, and, therefore, the compost should be well prepared. In addition to sand, the soil should contain about one-sixth of broken crocks, charcoal, or coal cinders—any of these will answer. The colour of the fronds of most Ferns attains a deeper shade of green when the plants are grown in peat than when loam is used, but in the case of some kinds that are chiefly grown for cutting, such as *Adiantum cuneatum*, the pale yellowish green tint is now much preferred to the dark green. Use the soil in a more or less lumpy state, according to the size of the plants. One mistake that is often made in growing Ferns is in giving them too much root-room. Even the largest of the tree species will do with pots or tubs not more than half the size they are often put in. The idea that used to prevail of Ferns not liking manure water is now proved to be altogether wrong, as, when reasonable care is taken that it is not used too strong, it may be given at short intervals all through the growing season. By its use the plants may be kept in a vigorous, thriving condition, with much less pot-room than would otherwise be necessary. There is one class of Ferns that should not be kept in pots of too small a size—that is those with creeping rhizomes, such as the *Gleichenias* and *Davallias*, which, when wanted of large size, must not be pinched for space, as if their creeping stems have not enough surface to push their roots into, they are not only liable to get injured, but also fail to thrive as they should. The *Gleichenias* especially suffer in this way if the pots or tubs they occupy are not large enough, as when most of the extremities of the rhizomes perish for want of space to root in, the other portions, as a rule, break very weakly. After *Gleichenias* get as large as they are required, it is best to divide the specimens into pieces, being careful not to break them up too small, as the larger the pieces are left the less check they receive. *Gleichenias* are shallow-rooting plants, and even when the specimens get large they do not require the soil to be deeper than 6 inches or 8 inches; consequently the pots should be filled with drainage material so as not to allow a greater depth than this. The *Davallias* strike their roots less deeply than most species, and, therefore, they should also have less depth of soil. Ferns that produce a number of crowns, like *Adiantum cuneatum*, *A. gracillimum*, and others of like character that can be increased by division should, when stock is to be raised in this way, be divided before the growth begins to move. In breaking up old plants it is better to divide them into small pieces than large ones, as the former generally grow away more freely than the latter. After repotting or division, Ferns should in all cases be kept more moist at the roots than in the case of most other plants. A few degrees more warmth should also be given them so as to start them into growth, but with the exception of the *Gymnogrammas* and a few other kinds that do not succeed with cool treatment it is much better to give Ferns less heat than used to be considered necessary. Most kinds do better with a night temperature of about 50° in autumn and winter, with a slight rise in the daytime, than when kept hotter; 60° in the night in summer is quite enough. Another mistake commonly made is the use of too much atmospheric moisture and the absence of sufficient light, particularly when the fronds are required for cutting. Under the conditions named the plants make larger and deeper-coloured fronds, but when cut, even if kept in water, they do not last half the time that they would do if the plants had been subjected to plenty of light and

more air than is frequently given them. This points to the advisability of not using more shade than is absolutely necessary all through the spring and summer. The pots must always be well drained; some sort of fibrous material, such as Sphagnum or the roots of the Grasses that the soil contains, should be placed over the crocks or cinders to keep the soil from getting washed down amongst them.

TUBEROSES.—To have a succession of these flowers it is necessary to pot the roots at different times, for, although a good deal may be done by pushing the plants on in heat or by retarding them, still it is better to vary the time of potting. More roots may now be potted to succeed the earliest. It is not advisable to use pots much larger than will suffice to hold the bulbs when put two or three together. See that the soil is not too wet, as any excess of moisture should be guarded against until root fibres are formed. Stand the pots on a slightly moist bottom, so that little water will be required until growth commences. As soon as the earlier potted bulbs have made a fair quantity of roots they may be put in heat. Let them have a place where they will get plenty of light, so as to prevent the heads from getting drawn up weakly. Give water freely as soon as the plants are in full growth.

FREESIAS.—More plants may be put in heat to succeed those that were started some time since.



Chinese Pæonies in bowl.

These plants come on quickly in a medium temperature. The flowers are more enduring when they are not hurried. Water freely when top growth is active, and give all the light possible. T. B.

CHINESE PÆONIES.

WHITE, delicate pink, rosy and crimson, these grand flowers need no addition to make a glorious table bouquet, and in a glass bowl that holds plenty of water they last better than almost any other summer flower, and they have a pleasant smell, something between that of a Tulip and a Rose, that is not too strong in a room. It is strange to see how many so-called good gardens there are where these grand flowers are not grown—indispensable where cut flowers of bold type are wanted and of the highest value as garden plants. J.

Jasminum Sambac fl. pl.—I should be much indebted to any correspondent if he would give me some information as to *Jasminum Sambac flore pleno*. With me it has proved disappointing. I have tried it in every soil and position. It does neither in a hot nor intermediate house. It is not shy flowering, but it simply refuses to make growth. As a type of the plant which I desire to succeed

with I would point to the one at Kew, which I think is in the intermediate house. I have two distinct varieties; one has an ovate, glaucous leaf, and the other distinctly acuminate, while the growth is freer, and both are supplied by nurserymen under similar names. The flowers of the acuminate form are perfect in perfume, but look as if one flower had been flatly placed into the lobe of the other. The Kew plant, of which I possess a specimen, is totally different in flower; the bud is globose and opens with fully incurved fleshy petals.—WILLIAM SOPER.

FLOWER GARDEN.

IRIS TINGITANA.

THE flower of this species figured in the *Botanical Magazine* came, I believe, from a batch of bulbs collected by Mr. G. Maw and Mr. Horace White from a locality on the road leading from Tangiers to Tetuan. Mr. Maw told me that even in their native home the plants were not flowering freely, and the cultivated bulbs have, according to my experience, been also shy bloomers. Moreover, the flowers which have appeared have been very much alike in colour, differing very slightly from the one figured in the *Botanical Magazine*.

Last spring Capt. Jekyll, brother of Miss G. Jekyll, very kindly sent me a number of bulbs gathered in a locality near Tangiers, as far as I can make out, but different from the one visited by Mr. Maw. Capt. Jekyll told me that the plants were blooming very freely, and that the flowers varied very much in colour.

I have now one of Capt. Jekyll's plants flowering in a cool greenhouse. It has all the characters of *I. tingitana*, but differs widely in colour from all Mr. Maw's plants which have yet flowered. The outer perianth segments (falls) are of a delicate pale yellow colour, with a conspicuous orange signal, while the inner segments (standards) and styles are of a light lavender hue. When I say that these colours obtain in a flower more than twice as large as and more graceful, less stiff in outline than the common so-called Spanish Iris (*I. Xiphion*), the reader will understand that *I. tingitana* is not to be despised. Miss Jekyll has, I believe, in her possession bulbs of a pure white form, and it seems to me probable that *I. tingitana* will be found to vary as much as *I. Xiphion*. It is worthy of the attention of cultivators.

In my bleak garden *I. tingitana* lives, but has not yet flowered in the open; it thrives and flowers sparsely in a cold frame. In a pot in a greenhouse it seems, to judge from two or three years' experience, to be exceedingly happy; it then flowers about the same time it does in its native home. It adapts itself to pot treatment better than any other bulbous Iris.

In the open ground, or when planted out in a cold frame, it should have heavy, stiff soil, and even in a pot the soil should not be too light. It is quite a mistake to suppose that all bulbous Irises revel in pure sand. I need hardly add that I dry and roast my plants of it as much as possible in summer. M. FOSTER.

Winter Stocks.—It is pleasant to be able to report at the end of January that Brompton and Queen Stocks—the only kinds which will endure ordinary winters outside—are comparatively uninjured, and looking remarkably well. Such a good report could not have been made during several past winters, and, therefore, although we are a long way

from being out of the wood, yet there is some reason to hope that for once our eyes in due time will be gladdened with a good show of one of the greatest favourites of our gardens. Plants of Brompton Stocks in diverse stages of growth, from big ones a foot high to small ones dibbled out late, all look thriving. Still, it is obvious that if any plants be injured, it will be the more robust ones, and these alone give to us those superb spikes of double flowers which no other garden plant can possibly rival. The sorts here, viz., Giant Scarlet and White Brompton, are growing on a south border. The Queen Stocks are mostly found in the market and cottage gardens, where their dense branching habit render them so useful for furnishing cut flowers. Intermediate Stocks in pots or dibbled out in frames have stood remarkably well; indeed, it is long since we have had a winter which, so far, has left biennials looking so healthy. Hope for a further spell of immunity is buoyed up by the general aspect of the winter, which seems disposed to be throughout fairly mild and dry.—A. D.

NOTES ON HARDY PLANTS.

Early bulbous Iris (*I. reticulata*).—If you plant this bulbous species and leave it alone, it will probably not flower after the first season until the middle of March. At any rate, this is my experience in the Yorkshire climate. By proper treatment, however, you may get flowers nearly two months earlier. Take up the bulbs in early autumn, and after they have become hardened so that the outer netted tunics come off easily, plant them in new soil in an open or sunny place. If this is done with bulbs taken from the old and late clumps, the flowers will appear in January and early February.

Saxifraga Burseriana major.—This is now (Jan. 11) in flower, though many plants in the open ground are lifted quite out of the soil by the action of frost and wet. We seem to be having similar weather to that which proved so trying to open-air plants last winter—wet and frost, a partial thaw, and then more wet. Short-rooted plants, especially alpine, are frequently lifted out of their places, even when they have made a summer's growth there, by this kind of weather. The worst effects, however, are to be seen among alpine in pots when plunged and half-plunged in sand or ashes. During a thaw, owing to the soil being saturated with moisture, the water remains about the crowns of the plants, so that in such cases as the splitting of the pots no better thing could have happened. To obviate this evil, I have just given directions for some pots to be made with deep cuts all round, from the rim to half their depth. I hope by this to avoid pot-splitting and lodgment of wet about the crowns of the plants. In the case of plunged plants, I also allow more liberty to roots which may run into the sand.

Large blue Hepatica (*H. angulosa*).—Spring flowers are appearing. Some flowers, no matter how unfavourable the season, will come nearly true to time, and this Hepatica is one of them. It is quite three weeks earlier than the triloba sorts, and the flowers are about twice the size. There is a distinct and larger form of angulosa which has flowers of a pale blue or mauve colour, and in size and shape they remind one of those of *Ane-mone stellata*. Both the young and old leaves are greyish compared with the better-known form, and considerably larger. Here it proves the earlier of the two, for I had a few flowers at Christmas.

Moutan Pæony.—In order to retard the development of the buds, I am trying root-pruning. As yet, however, the buds are plump and promising, though evidently not so forward as those on plants not operated on. The root-pruning was done with a spade last autumn.

Showy Lady's Slipper (*Cypripedium spectabile*).—This is a trying time for the young roots. No matter what the quality of the soil may be, the points of the young roots will appear, and often be seen in winter bristling above the surface. I have found it a good plan to mulch with old Moss or Moss litter in the autumn.

Primula Allioni.—Mr. Potter (p. 53) emphasises his statement that this pretty alpine is not difficult to grow, but his concluding words, "It is better not to expose it to too much wet in winter," convey to my mind a great difficulty—viz., that of giving dry, but airy conditions to a hardy plant in our muggy climate. I ask those who have experience in the culture of the rarer alpine if they do not find this to be precisely the most difficult condition to battle with, especially when seeking to accommodate subjects with small, closely-compacted, and glandular-haired leaves? Would Mr. Potter advise us to plant such things as are usually got from the trade on the open rockwork without or with a glass to throw off wet? Does he mainly grow his stock in frames or in the open air? Because if not the latter, I do not see that his statement is fully borne out by his practice. If we may not grow alpine on rockeries fully exposed without their dying off year after year, and under varied forms of treatment, such plants must be considered difficult to grow. I have followed the hints given by Messrs. Backhouse and Son, but as yet I can only say I just manage to keep my plants alive. True, I keep them out of doors; but if they will not do there, with a little help in the way of shelter from a pane of glass, they cannot be called hardy. Many other growers have failed with this *Primula*, and I fancy that Mr. Potter is aware of this. If he has recently found out how to keep it vigorous in the open, I am sure many would be glad to know how he treats it.

Woodville, Kirkstall.

J. WOOD.

CHRISTMAS ROSES.

SIMULTANEOUSLY, January 28, 1888, in THE GARDEN (p. 74) and in *The Gardener's Chronicle* (p. 77) we have notices of these favourite flowers. In the latter by Mr. Brockbank, in the former by Mr. Burbidge. Mr. Burbidge has come to a conclusion which, valuing his opinion as I do, I trust he will reconsider. It is this: "We must once for all give up the pink stigmas as a character for distinguishing Christmas Roses." Why? Because "even St. Brigid's variety has pink stigmas sometimes, although no red appears in leaf or flower-stalk." This is undoubtedly true; it is also true, more or less frequently, in Mr. Brockbank's, in Morrison's, and so in the Riverston, the Glasnevin, and in any number of garden crosses, as well as in the type of reds (*maximus*). This is not a new discovery, though it has only gradually developed itself. We know so much now, mainly I must say through the indefatigable researches made by Mr. Brockbank, that we appear to ourselves as if we had been familiar with it all along. We have, however, only to look back a very short way in the volumes of THE GARDEN to discover our ignorance. *H. niger maximus* was then almost unknown in one part of England, and niger type as little known in the other; and amongst those who took most interest in the question, old authorities were either unknown or forgotten, and it required some assurance in anyone to determine the position of *H. n. maximus*, whether it should rank as a wild plant, or as a garden variety. It was Mr. Brockbank to whom we were principally indebted for certain information on this point; it was through him also that we became acquainted with the Brockhurst variety. Thus such an impetus was given to the whole subject, that within a short time other competitors started into notice from various parts of England, Scotland, and Ireland, and I do not suppose that we have yet heard the last of them. I hope not; the more the better, so long as minute differences are not insisted upon. My apology for asking Mr. Burbidge to reconsider his conclusion is that I think his data are insufficient. In the article to which I have alluded Mr. Brockbank recalls attention to what I believe is perfectly correct, that, broadly speaking, *H. niger* type is from North Germany;

niger major in many varieties from the Austrian Tyrol; and niger maximus and angustifolius from the southern side of the Alps, both in Austria and Italy. As these three approximate to each other in habitat, so they do also in habit; but what I present to Mr. Burbidge's consideration is that in the northern wild specimens the red stigmata are absent; in the southern wild specimens, *maximus* and *angustifolius*, the red stigmata are existent, either apparent or latent; generally apparent in *maximus*, occasionally showing themselves, like a black lamb in a white flock, in *angustifolius*. If this be a fact, as I believe it to be, it cannot be controverted by the presence of red stigmata in Riverston, Glasnevin, St. Brigid, &c., of whose origin we are ignorant, and in garden varieties promiscuously raised, but rather really to disprove it, wild specimens of *maximus* and *angustifolius* must be found with stigmata which never become red, and wild nigers typical, or niger majors which do so. But we are not left to draw our distinction between the two divisions by colour of pistils alone; a practised eye like Mr. Burbidge's cannot but detect such peculiarities of leaf and stem in the one family as would lead him to expect the existence of the red stigmata; whereas these do not present themselves in the leaves and stems, whether green or spotted, in the niger and niger major section true.—T. H. ARCHER-HIND, South Devon.

— I note the resumption of a discussion which I had thought settled, viz., whether the removal or transplanting of these plants checks their blooming the next, or even for several following years. My experience, which has been considerable, entirely coincides with that of "J. C. C.," that removal, as a rule, does check their blooming. Hence, I gave the advice a year or more ago in THE GARDEN to neither disturb nor transplant Christmas Roses, unless compelled for material for forcing or purposes of propagation. A little more experience but confirms the soundness of the advice.

My impression is that considerable misunderstanding has arisen in regard to this matter by the different meanings attached to the simple phrase "bloom." Few plants vary more widely in the quality or quantity of their flowers than Christmas Roses. In one garden you will find each patch or tuft carpeted with a struggling phalanx of white blossoms too numerous to unfold in the given space; or it may be the patch has run out into a huge mass, looking in the distance like a bed of snow on the green Grass. In not a few other gardens the Christmas Roses have a few leaves mixed rather than closely carpeted with six, eight, or perhaps a dozen flowers. Not seldom these are deficient in size and lack vigour, stature, and quality. Of course, all this is written of the typical species, *H. niger*, still by far the best for general cultivation. But let no disputant side off from the matter in hand on this mere difference of opinion, which is introduced here only to show that these contrasts occur in the same species—that they are mostly the result of soil, climate, culture is obvious. And again and again I have found paucity of bloom to follow disturbance, not only among Christmas Roses, but Lilies and other plants. I freely admit there may be a good deal in the mode of removal and in the richness or attractiveness, or otherwise, of their new root-runs. I also agree in the main with Mr. Tallack's protest against lifting Christmas Roses or other plants with balls. The advantages of these removals *en masse* are greatly exaggerated, while the wounds, bruises, breakages are unseen and unsuspected. On the other hand, I can see no advantage, but the reverse, in washing the roots, as recommended by this writer, unless where, indeed, the plants have been grown in a foul or completely exhausted bed.

But I also agree with Mr. Tallack that the new place for Christmas Roses, or other plants, should be made suitable for them. Because such plants are hardy, not a few seem to think that any soil, site, or treatment is good enough for them.

This is altogether a mistake. No plants respond more generously to liberal treatment than Christmas Roses. I only differ from Mr. Tallack in affirming that, as a rule, they do not recover quickly after removal. Nothing could exceed the profusion and quality of the blossoms on Christmas Roses this January that were planted three years since. But that is long to wait. And it is pleasing to find that Mr. Tallack, through division and washing of the roots, has succeeded so well in reaping an immediate harvest of bloom. I also doubt whether January, or even February, is not a month or more too early for the division of Christmas Roses, and would still counsel all readers of THE GARDEN to leave these charming plants alone unless forced to increase the stock.

Even under such circumstances let no one lift more than half their Christmas Roses in any one year, and thus the partial or complete failure of blooms will be the less missed. HORTUS.

Annual Sunflowers.—The number of varieties of these is rapidly increasing, and the difficulty soon will be to know which are most worthy of culture. There are, however, two that for some time are not likely to be discarded, viz., the Miniature and the Grand Double. The first named has flowers about the size of those of *Coreopsis grandiflora*, forms compact bushes about 4 feet high, and blooms all the summer and autumn. For the supply of yellow flowers for cutting, I know of nothing like it. Grand Double is apparently a selection from *H. fistulosus*, and is a fine variety when it can be had true. It has, however, a great tendency to variation and the best flowers are so double that very few seeds can be got from them. It is the perfection of a double Sunflower. *Uniflorus* is the Sunflower for those who want something big. It concentrates its energies on the production of one immense flower, of which truth must be told it has but size to recommend it. There is about a yard of disc with a fringe of very short petals, so that it is quite destitute of elegance. Its seed-bearing powers are, however, enormous, and those who require a quantity of Sunflower seeds will find this variety suit their purpose. A kind that I much like is *Lady Leighton*. It grows about 6 feet in height, is much branched at the top, and the flowers, of a clear light yellow, are elegant in form. It is a distinct variety, and suitable for small gardens. There is really something very noble in the Sunflower when it is grown under the most favourable conditions. I had some plants last year more than 10 feet high, and which were clothed with good foliage to within a foot or 2 feet of the soil. They were put out early, and the soil was well manured.—J. C. B.

Mimulus.—A note concerning the autumn sowing of *Mimulus* seed was sent to THE GARDEN a month or two since and published. Since then the seedlings, so tiny when that note was written, and thick in the seed pans, have been dibbled out into a bed of soil in the greenhouse, where, protected on frosty nights with two or three newspapers, they have become so strong that the largest have been potted into 3-inch pots, and are fast getting established. Under ordinary conditions of sowing the seed would not have been thus used until the middle or end of February, but here I have now many plants rapidly filling the pots with roots, and which will be in bloom almost by the time the spring-sown plants would be ready to dibble out. So great is the gain in time thus found to result from autumn-sowing that it can be highly recommended. *Mimulus* are fairly hardy; even plants out in the open ground which have started into growth during the winter, I observe, are uninjured. It is, therefore, easy to protect the plants if a frame is at disposal. Then the growth from autumn-raised plants is so much finer, and, of course, the blooms are also large. The spring-raised plants usually run up to one stem only, while the autumn-raised plants having ample time to root and spread will send up several shoots at the same time, and, of course, finer plants result. The months of April and May are the best for *Mimulus* to bloom, and after they are over

Gloxinias take their places in the greenhouse. In cool positions in the garden, however, *Mimulus* will bloom profusely through the summer, and produce a fine effect.—A. D.

SEEDLING CHRISTMAS ROSES.

IT may interest growers of these lovely winter flowers to know that your correspondent "St. Brigid" has been very successful in raising a very fine batch of cross-bred seedlings, fifty-one in number, no two being alike, and none of them quite like the named varieties as at present grown. The seed was produced by the St. Brigid form of *H. niger*, and the pollen used to fertilise the stigmas of that variety were *H. niger altifolius*, *H. niger ruber*, *H. niger major*, and other kinds. Unless cross-fertilised, the St. Brigid variety does not seed freely, although if other kinds be growing in proximity, bees and flies are most industrious in carrying the pollen from flower to flower, and then, of course, seeds may be produced. The fertilisation of the above seedlings took place in January, 1885, and in September of the same year the seed was sown in wooden boxes filled with soil, and covered with slates to exclude vermin, prevent drought by evaporation, and also to exclude the seeds of weeds. In December and January germination took place, and the seedlings were eventually planted, a foot apart or more, in a deeply-dug, well-enriched bed, and top-dressed with leaf-mould from time to time. Eight of the strongest seedlings flowered in 1887, and this year, 1888, nearly all are in bloom, so that where soil and climate are suitable for seeding Christmas Roses, one has not long to wait for results.

The plants themselves vary considerably in leafage and in blossom, but all have a very erect habit, the blooms being well elevated above the foliage; nearly all have pale green leaf-stalks, and nearly all the flower-stems are more or less dotted with red. The flowers are white, or white suffused with pale rose or flesh colour, and the stigmas vary from greenish white and pale rose to a deep red almost blood-coloured. The flowers fall into three groups, viz., cup-shaped or much imbricated flowers, saucer-shaped or much imbricated flattish flowers, and starry flowers, in which the sepals do not overlap much, if at all. The leaves fall into three groups, and resemble those of *H. niger*, i.e., with short, compact, dark green leaflets; of *H. St. Brigid*, in which the light green leaflets are elongated and narrow, with very slight serratures; and those of *H. n. altifolius*, where the leaves are very large, and the leaflets long, broad, coarsely serrated, and of a dark green tint.

About a dozen of the variations out of the total of fifty-one plants are bold and noble in habit, and all bear fine shapely flowers. Some of the saucer-shaped blooms are fully 4 inches in diameter, with very broad and waxy sepals; some are pure white, others heavily suffused with deep rosy colouring behind, and in some cases this shows through the wax-like segments as a pale flesh tint in front; while some of the snow-white flowers are centred with blood-tinted stigmas.

All the plants have been carefully numbered and records made for future reference, and there is every promise of these seedlings inaugurating quite a new epoch in the history and culture of the Christmas Rose. F. W. BURBIDGE.

Dividing Christmas Roses.—The successful cultivation of this useful and interesting plant (*Helleborus niger*) is very easily effected. I have at the present time eight plants that I raised last year, and others also that were planted at various periods. Last year I lifted one that had grown on the same spot several years and placed the whole mass of earth and roots just as it was in a tub full of water. In this it was allowed to remain several hours. Then with a blunt-pointed stick and with frequent shakings and stirring about I gradually removed every particle of soil with very little injury to the roots. It then became easy to ascertain into how many portions, each having a separate crown, the plant could be divided. Having found that

there were eight that could be treated in this way, I planted them in a row about 2 feet apart, and for about a fortnight protected them at night and occasionally from the sun's rays by day with large garden pots. In the year preceding I could only obtain four sets from an old plant treated in the manner described. But not one of the plants failed, and all are now in blossom. The time I chose for this operation was in March or April, as soon as the plant had no more blossoms to produce, and when the seed vessels were just beginning to make their appearance on any of the stalks that may have been allowed to remain. If these directions are carefully attended to, a good supply of these useful flowers can always be secured. A top-dressing of decayed manure put round the plants in November will aid the production of flowers in the blooming season.—B. S.

Pentstemons.—Although named varieties of the Pentstemon are still catalogued, yet it is only needful to secure a good strain of seed to have in abundance all the excellent qualities found in this capital biennial. It is worthy of notice that old plants so far have stood the winter well, and should they remain unharmed they will give a very fine show of bloom presently. With a succession of seedlings ready to plant out early, a long blooming season from Pentstemons is thus obtained, as the spring-raised seedlings will flower freely up to the end of October, and sometimes later. If seed is sown at once in shallow pans or boxes, and stood in a greenhouse or frame without heat, large numbers of stout young plants will be ready to go out during the month of May. These will simply need dibbling into fairly good garden soil, and they will require little further trouble. If there is any trouble in wintering these plants after their autumn bloom is over, it will be well to sow seed in the month of July, and thus have strong young plants to winter thickly in a frame, where they will stand well. Then, if transplanted out carefully into the open ground in April, they will flower profusely during the summer. Pentstemon spikes are not suited for use as cut flowers, but they look remarkably gay when on the plants. Those who do not know what really good Pentstemons are, should get a few named plants also.—A. D.

Notes on hardy Cyclamens.—Wherever accommodation can be afforded in a garden for the plants of the Alps, we consider no collection complete without a selection of these charming little Cyclamens. Mr. Atkins, whose praiseworthy efforts, as everybody knows, have long been crowned with success, cultivated these plants for over thirty years, and eventually succeeded in obtaining a hybrid race, many of the varieties of which are really beautiful, and when grown together make up a picture one rarely sees equalled on the rockery. They are as easy to grow as the most ordinary alpine, essentially lime-loving plants, requiring free drainage and plenty of warmth during summer. In making up beds for these Cyclamens, we always choose a position fully exposed to the sun or with a south-western aspect, protecting, if possible, from east and north. The protection referred to may be afforded by a large boulder or dwarf, dense-growing evergreen shrub, either of which will be found serviceable, as the Cyclamens begin to flower early in spring out of doors, and unless protected are liable to be affected by our late cutting winds. Every care, as before hinted, should be taken to have the drainage perfectly free, as no plants sooner resent a stagnant soil than the Cyclamen. The soil should be composed of loam, leaf-mould, and a liberal addition of lime rubbish or mountain debris. *C. europæum* especially is fond of the latter, and will often send its rhizomes a long way from where the original was planted. *C. Coum*, *ibericum*, and the Atkins varieties revel in lime or chalky rubble, and if left to themselves will soon put the chances of success beyond all doubt. Atkins is a natural hybrid between *Coum* and *ibericum*. The raising of seedlings may be done by anyone interested in obtaining new varieties, and no doubt improvements are possible even yet. *Coum* and *ibericum* will reproduce themselves true from seed. *C. neapolit-*

tanum is an autumn-flowering species, and well known under the name of *C. hederæfolium*, the latter name, however, being misleading, as it originally included two distinct plants, one vernal (*C. repandum*) and the other autumnal (*C. neapolitanum*). The latter has, we believe, been naturalised in parts of Cornwall, where we have seen corns almost a foot in diameter and flowering freely every year. Its leaves, large, angular, and beautifully marbled, are the chief feature just now, and have been all through the winter exceedingly pretty and attractive. This species does well under trees, and is a first-rate subject for the woodland walk, where scattered groups, away from the influence of Elm roots, will give lasting pleasure. *C. africanum*, or *macrophyllum*, we have tried out of doors, but without success so far. It flowers in autumn, and develops its leaves in winter and spring. A native of Algiers.—K.

FLOWER GARDEN NOTES.

ARCHED TRELLIS FOR ROSES AND CLEMATIS.—Over a walk we have a length of trellis, the span of which is 8 feet, and the height is the same. Such trellising for climbers is, I am aware, no novelty, but the arrangement of the plants is novel, as the trellis is furnished throughout alternately with climbing Roses and Clematis, the selection of both being made with a view to have flowers for as long a season as possible. Thus we have the earliest, midseason, and latest flowering Roses, and the same of Clematis, though as regards the latter, not knowing the varieties well, catalogue descriptions had to be relied on. Planting was done little more than a year ago, and the plants have made excellent progress. As the object is to cover the wire-work as quickly as possible, neither Roses nor Clematises will be cut back. I note that the latter are already making plenty of new side growths, and when these growths have extended about a foot in length on both sides of the main stem, the points will be pinched out to induce lateral growth. The plants, of course, will not flower so early, but part of the season's bloom we shall be content to sacrifice so that the trellis may get more quickly furnished with growth. Once the allotted space for each kind of plant is covered, the intention is to prune regularly and always on the spur system, the aim being to have each, as it were, in separate divisions. To some extent, especially as regards the Clematis, the plan is new, but it shall have a good trial. No trouble was spared in the first preparation of the ground, this being trenched to the greatest depth possible, and besides vegetable mould, a liberal supply of the most lasting manure, quarter-inch crushed bones, was put in.

ANEMONES AND RANUNCULUSES.—These flowers are of the greatest use during May and June. We are now planting the roots, and a west border is selected, as this gets plenty of sunshine. The ground was deeply dug and well dressed with the best rotted manure we had, and this being done in the autumn they had got well settled, so that shallow drilling could be done with ease. The drills were drawn some 4 inches in depth and 9 inches from each other, and a thick layer of sharp sand was placed in each; then the tubers were planted, with eyes upwards, 6 inches apart in the drills, and before they were covered in another sprinkling of sand was applied. By this mode of planting the tubers are placed at an equal depth, and this mainly ensures them flowering together, for though they are intended more especially for cutting, one likes to see a mass of flowers, however short-lived they may be. The Turban Ranunculuses are most favoured on account of their great vigour and long-lasting quality, both in the border and as cut flowers. As permanent groups in herbaceous borders both Anemones and Ranunculuses are excellent. By good preparation of the soil when first planted, and care taken to prevent injury to the tubers either by digging or treading on the borders, the groups will last and flower well for years. Of course, I am supposing that the ground is well drained and the soil free and open, as on heavy, cold soils they would die the first winter.—Ranun-

culuses certainly. Anemones might survive a year or two, but the flowers would be poor. On wet soils annual planting is indispensable, and February is the earliest time it should be done.

SEEDLING VERBENAS.—Some three years since a friend of mine induced me to grow these, and I am glad I followed his advice. The seed is cheap, and no seedlings are more easy to raise by all who have an ordinary Cucumber frame. Sow now in pans of light soil, only very slightly cover the seeds, keep constantly moist—never really wet—and place the pans in a frame or pit having a minimum warmth of 50°, and look for the seedlings in from a fortnight to three weeks after sowing. As soon as large enough to handle prick the plants off into the same description of light soil, and again place in the frames until large enough to be potted singly, when they should have a more airy temperature and be grown on as sturdily as possible. Finally transfer them to the borders about the middle of May. Notwithstanding heat and drought, we had no more effective border flowers than these last year, which shows the greater vigour of seedlings over cuttings, as plants thus raised have for so many years turned out all but a complete failure.

SEED-SOWING AND PROPAGATION.—Through the long-continued drought of last summer, seedling Petunias continued to grow and flower in the most marvellous manner. They were used here for trailing over the edges of large basket beds and vases, and grew so luxuriantly that they had to be cut back to prevent them interfering with the growth of such other strong growing plants as Ivy-leaved Pelargoniums and *Cobæa scandens*; as a matter of course therefore, we intend to use them again, and shall shortly sow the seeds in light soil, and place them in a temperature of not less than from 55° to 60°. Other seeds that are now to be sown and raised in a similar manner are annual Chrysanthemums, *Anagallis grandiflora*, *Cuphea miniata*, double-flowered Groundsel, *Jacobæa*, or *Senecio*, and *Salvias*. It is early yet to sow several other excellent annuals that are equally suitable for the garden, and to which allusion will be made in due time. As fast as cuttings of the best summer flowering Pelargoniums can be had, they are taken off and struck in shallow boxes and pans arranged on bricks over the hot-water pipes of fruit and plant houses. A good watering is given as soon as the cuttings are inserted, and rarely needs to be repeated before the cuttings have begun to root; at any rate, water must be sparingly applied until roots are emitted, otherwise they may damp off. The variegated *Mesembryanthemum* and all succulents strike successfully under the same conditions, and it is now time these were all inserted. *Lobelias*, *Heliotropes*, *Ageratums*, *Coleus*, and *Iresines* strike best in a close, moist heat, such as that of a Cucumber frame, and it is not unusual to make up a hotbed purposely for the propagation of these. This hotbed, as the heat cools down, and is of no further use for propagating, can be utilised for the raising of Cauliflower, Lettuce, Cabbage, and Celery plants.

W. WILDSMITH.

SHORT NOTES.—FLOWER.

Ageratum Lord Salisbury.—Would some readers kindly give their experience of the merits of the above Ageratum? I cannot find the name in any catalogue.—J. R.

Lilium Parryi.—I shall be very grateful for hints on the culture of *Lilium Parryi* from those who have gained practical success in the management of it. With me the old bulbs seem to break up into numerous little bulbs.—A. C. BARTHOLOMEW.

White African Lily (*Agapanthus umbellatus candidus*).—This is a lovely flower, and an excellent companion to the blue-flowered type, as the colours of both are decided and pure. A spike of the white form, sent by Mr. Peters, of Guernsey, recently, showed what a really fine acquisition it is, as the umbel was crowded with flowers that individually would make a neat button-hole. Specimens of these beautiful plants should be seen in every garden, as they are both easy to grow and have a stately habit that adapts them for planting singly in a vase or the centre of a bed. A very happy

piece of planting is *Acacia lophantha* and the blue African Lily; and another probably quite as effective would be the blue and white intermixed.

GARDEN FLORA.

PLATE 635.

BORDER CARNATIONS.

(WITH COLOURED PLATE OF CARNATION COMTESSE DE PARIS.*)

THE coloured plate of the very beautiful border Carnation given this week again reminds us of the great value of this class of plants for furnishing our hardy flower gardens with objects of beauty all the year round. The beds and borders of vigorous, healthy Carnations, even when out of bloom, are always interesting to the lovers of these plants, and are by no means unattractive to ordinary observers. For variety and beauty of foliage, seedlings are by far the best; the leaves of the plants are as distinct in their way as the flowers are, and one can almost pick out, by the different shades of colour in the leaves, the flaked and bizarre varieties from those that will produce flowers of a uniform self colour.

The time for propagating and planting out border Carnations is the autumn, as they seldom succeed if taken up from the open ground and planted in spring. Spring-planted stock, unless the plants have been carefully turned out of pots, has not time to become established before the flower-stems are thrown up; consequently the roots are unable to supply nourishment to them, and the stems as well as the flowers are far inferior to those produced from plants established in October.

The time for sowing the seeds is at hand. Perhaps the last week in March or the first in April is as good a time for this as any other. I always get strong, healthy plants from April-sown seeds. Some of them have produced upwards of 200 flowers the following season. If good seed were sown in fine soil out of doors it would vegetate, but all of it is not good, and many experienced growers have a notion that the slightly imperfect seeds produce the best varieties. The late Mr. John Keynes, eminent as a raiser of seedling Dahlias, said he cared nothing for plump, perfect seeds, but preferred those that were thin and not so well developed. It may be so with Carnations, and such seeds vegetate best if sown in pots, which can be plunged in the mild bottom heat of an ordinary hotbed. I have seen plants appear within seven days of the seed having been sown. Sometimes a space of two or three weeks will intervene before the seedlings appear. The plants are very liable to damp off in the close, moist atmosphere of a hotbed, and if they remain for any length of time in the pots before they are pricked out, the stem below the seed leaves becomes very long and weak. I prick the seedlings out into boxes, planting them in fine sandy soil as deep as the seed leaves. There is danger of their damping off before they are pricked out, none after. If the ground is ready the plants may be planted out early in June, but on no account must they be allowed to become crowded, and to avoid this I have frequently replanted them in boxes a second time. Any good garden ground will do in which to bloom the plants. Kitchen garden soil that has been trenched 2 feet deep and well manured is as good as any other. We plant them after Tulips and Ranunculuses. The beds for these are

* Drawn for THE GARDEN at Gravetye, August 3, 1887, by H. G. Moon, and printed by G. Severeys.



always trenched and well manured, and when the bulbs are dug up in June the ground is merely forked over for the Carnations, and they succeed remarkably well.

Good seeds of Carnations can be purchased, there is no doubt, but I recommend saving the seed from well-marked and good crosses. The best self or border Carnations are obtained from flakes and bizarres or from Picotees. The plants intended to bear seeds are set apart by themselves and are carefully hybridised. I stated last year in *THE GARDEN* that I had obtained very good purple self Carnations from seed of Her Majesty, a pure white Picotee with a very narrow light purple edge round each petal. In the seedlings the white had disappeared, and the purple colour suffused every petal. Of course, there were amongst the seedlings many Picotees. Scarlet bizarre Carnations produced many beautiful maroon and scarlet selfs. The flakes are, as a rule, most productive of selfs. White varieties are sometimes produced, but less frequently than the scarlet, purple, maroon, rose, and red. I have never had a blush variety like the subject of the plate, but this, of course, could be obtained freely enough from blush or pale flesh-coloured parents.

The raising of seedling Carnations is very easy, and there is no more fascinating pursuit in the whole range of floriculture. We grow all our best Carnations in pots, although a large number are cultivated out of doors. Some persons affect to despise the culture of Carnations in pots, but for my part I would rather see the stages of the greenhouse filled with Carnations and Picotees than with any other plants. Fill two greenhouses of equal size one with zonal Pelargoniums and the other with Carnations, and it is easy to predict which would be chosen.

We will report our Carnations about the end of February or early in March—two small or medium-sized plants in an 8-inch pot, and the same number of strong plants in a 9-inch one. The plants are placed in cold frames for a few weeks, and afterwards turned out of doors until the flowers begin to open, when they are placed in the greenhouse. It is a good plan to fumigate them when they are taken in, as thrips get inside the pods even before the colour of the flower can be seen, and quite destroy the petals, while green-fly attacks the youngest leaves. Both these pests can be destroyed by fumigating. Earwigs—which are also troublesome, as they lie up in the pods and eat the petals quite through at the base, so that when a flower is shaken they all drop out—may be caught at night by the aid of a lamp. It is a good plan to place a dressing of some rich compost on the surface of the pots some time in May. The numerous plants in beds and borders out of doors do not require much attention. Keep the ground clear of weeds of course, and, if necessary, stir the surface of the ground with a hoe or a small fork. I treat the out-of-door plants the same as those grown in pots, and top-dress them in May. To make these few remarks more complete, I would just allude to the tree, or perpetual-flowering varieties. The preliminary part of their culture is given in *THE GARDEN*, Jan 28 (p. 80). Many amateurs may not know the difference between an ordinary border Carnation and one that is termed perpetual flowering. Suppose a young plant of each is grown together; they would each throw up their flower-stems, and so far would appear alike; but the perpetual flowering variety would throw out from the flower-stem many lateral growths, which would in their turn produce flowers. This peculiar habit, at first obtained

casually, in time became fixed, and now we have a whole group of beautiful self-coloured varieties with this habit.

The following is a list of good border Carnations in the various colours:—

White.—The Bride (Hodges), Bridesmaid (Gorton), Gloire de Nancy, W. P. Milner. *Blush*.—The Governor (Cross), Comte de Chambord, Souvenir de la Malmaison. *Pink or rose*.—Lord Rosebery, Mary Morris. *Scarlet*.—Scarlet Gem, Coroner. *Purple*.—Purple Emperor, Prince Imperial. *Buff*.—Mrs. Reynolds Hole, Amber, Florence. *Yellow*.—Ernest Benary, Will Threlfall, and Edith.

J. DOUGLAS.

FRUIT GARDEN.

FRUIT PROSPECTS FOR 1888.

It may seem early to write of these, yet it is not too early to note that the drought of last season has well and truly laid the foundations of fertility for the present year; and that seems to me almost the only promising legacy it has left us; and even as to that, it is but a promise, which may or may not be fulfilled. If the views that have been recently expressed on the effects of root-drought on fruit-dropping under glass are sound, a reduction of the rainfall from a mean of 24 inches to 17 inches for the year just closed may be expected to tell injuriously on the actual fruit yield of 1888. Stone fruits, too, especially Plums, are actually on the move. We have had a few days of semi-summer weather (this is written on January 25), and the Plums, as frequently seen, are the first to feel the stirrings of new life, and to make dangerous tracks towards precocious development. These suffice to show the prodigality of bloom, and this is the more striking, as Plums here were one of the heaviest crops of the season last year. The old saying, that there is seldom two heavy Plum crops in succession, is, therefore, not very likely to be verified this year. As it is profitless to prophesy unless we know, it must suffice for the present to note the plentiful promise of blossoms and fruit on Plums in particular and stone fruits in general.

Apples and Pears are much later and give less pronounced notice of coming events. However, these also promise a full fruit basket this season. Bush fruits and Raspberries also promise well. Strawberries in some gardens suffered much by the early frosts, and such sorts as British Queen and even President are almost leafless. Still, such early, and even almost entire, denudation does not greatly, nor always seriously affect the yield. The year 1887 was not really favourable for Strawberries; the crops were generally seriously deficient and unprecedently evanescent. One, two, or three gatherings were all that were obtained in not a few gardens. In others, and chiefly by turning a river over them, the yield was up to an average alike in quantity and quality. The deficiency of runners, however, was almost universal. It seemed impossible to fetch these up to average time, quality or quantity, do what we might, and in very many gardens a serious lack of plants both for forcing and planting in the open was the worst result of the unprecedently severe and long protracted drought.

HORTUS.

Winter Pears.—There was not a good English grown winter Pear in Covent Garden last week! A man who has a quantity of good winter Pears would have no difficulty in obtaining 1s. apiece for them. What is the value,

then, of the winter Pears fit for our country in any part? Pear growing is a costly delusion, and must be changed root and branch.

STANDARD PEARS FOR BRITAIN.

WITH reference to Mr. Wildsmith's note in *THE GARDEN*, Feb. 4 (p. 85), we certainly cannot leave out Jargonelle in favour of Williams' Bon Chrétien. Although Williams' Bon Chrétien is considered a good market variety, we shall not include any Pear of second class flavour in our list of standard varieties. We want the very best flavoured sorts, and those that will do well over the length and breadth of the United Kingdom. Jargonelle has been in cultivation for centuries, and we think that a Pear which has maintained its character for such a length of time is worthy of being included among the standard Pears for England. Jargonelle is perhaps the best tried Pear in the world.

How does the Jargonelle fail? Is it from the climate being too warm, or from being grown on a wall in a warm county and district? For the slightest defect in flavour we will not pass any fruit. Many people either have no taste, or use it so badly, that they praise fruit of low quality.

We quote the following note sent by Mr. A. Young, formerly gardener to Sir H. S. Stanhope, of Holme Lacy, who grew the best Pears in England:—

As a rule I have found that the large handsome Pears are deficient in flavour. The vinous-flavoured varieties were the favourites. Such varieties as Williams' Bon Chrétien and Gansel's Bergamot were not allowed to be sent to table.

We shall be willing to exclude Jargonelle if our readers wish, but it must be for a better fruit! We shall not include Williams' or any of its class. It may go with the early Pears, but no fruit is to go in our "*Standard Pears for Britain*" the flavour of which is offensive to any one person. We think that musky flavours are not merely objectionable in Pears; they indicate unwholesome ones!

The Jargonelle Pear in Essex.—I have grown this Pear on light, and also on heavy, soils in this county, but it is not so good as it is in Scotland. We have it here as a large tree on the Pear stock, and as a dwarf bush on the Quince, and again on the Pear stock trained to a north wall. The best flavoured fruits are obtained from the dwarf bush on the Quince stock. And they are quite as large again as those gathered from the large standard tree on the Pear. Those from the wall are the largest, but have not quite such a good flavour. I have noticed that this variety of Pear does not form a good union with the Quince, a large swelling being produced at the base of the scion. I plant the tree deeply enough to cover the lower part of the swelling. For a permanent tree in the south of England I recommend planting it against a wall facing the north or west. Worked on the Quince and planted as I suggest, it forms a dwarf free-bearing tree. It is quite hardy and bears freely under any conditions. The fruit, however, unfortunately, decays quickly after it has been gathered, and I do not know any fruit more liable to be attacked by wasps and birds.—J. DOUGLAS.

The six best Pears.—In answer to your inquiries respecting the best six Pears, I will send seven, as I am very doubtful which to place first out of the two first on my list. I think their points are about equal; they are as follows: Williams' Bon Chrétien, Louise Bonne of Jersey, Marie Louise, Doyenné du Comice, Winter Nelis, Josephine de Malines, and Olivier de Serres. These are, from my observations, the best, and although only small in size and poor to look at in comparison to many, I fail to see the use of growing fruits that are

deficient in flavour, let their appearances be what they may, and I think flavour should be the first consideration. It may be just worth asking those who are promoters of horticultural exhibitions if they are teaching the public the value of good fruit by encouraging on the exhibition table large Pears, that have no merit except appearance, as most of the prizes go to this class of fruit.—JOHN CROOK, *Farnborough Grange, Hants.*

PEAR WINTER NELIS.

I THOROUGHLY agree with you and your numerous correspondents in placing this Pear at the very head of the list for quality. I have grown it in various places and positions as cordons, bushes, pyramids, and on walls, and in all forms, shapes, and sizes, and have always found the quality first-rate. The fruits have been largest on west, north-west, and east walls. But one of the most notable features of this Pear is its uniformly high flavour on widely differing soils and in a great variety of conditions. While the size of the fruit varies much under different circumstances, I have never found the flesh harsh or gritty, nor lacking in that peculiarly delicate aroma and rich vinous flavour that seem constant in this fine variety. This constancy is well-nigh invaluable among Pears, among which changes of quality are so constantly occurring, that no one, not even the most experienced, can ever be quite sure of what they may find in the majority of sorts. I should be glad to hear the opinions of others on this point, but the flavour of Winter Nelis has never failed me, provided the fruit was fairly ripe. Most of the authorities give its season of ripening from November to February. But that very much depends, as the East Anglian farmers' wives mysteriously affirm. With us it is mostly in season from October to the end of the year. Possibly it might keep longer, but its superb quality and popularity finish it up by Christmas or thereabouts.

It is too small and sober-looking ever to become a profitable market fruit. More's the pity. But in the market the eye of the purchaser must be satisfied before the grower's pockets can be filled; and hence to a great extent the numbers of hard, gritty Pears that crowd our stalls and tables to the exclusion of such genuine sorts as the Winter Nelis. Its modest size, slender, long stalk, undemonstrative colours of green, drab, and russet, conceal rather than reveal its transcendent merits. The skin is specially thin, and the flesh tender, rich, and melting. The tree is hardy, of moderate—some might say weakly—growth, and so continuously fertile as seldom to miss a full crop. Take it for all in all, it is difficult to name a Pear to equal Winter Nelis, while no one but a gourmand among Pears need wish for one to beat it. I write thus advisedly after many years' experience, and with the full consciousness that some have dubbed the flavour of Winter Nelis flat!

D. T. F.

SHORT NOTES.—FRUIT.

Pear Gratioli of Jersey.—I have always found this Pear of good flavour, and consider it one of the best early kinds. I have heard that it is grown for market round London, for which purpose I should say it is well adapted, being very prolific and of good habit of growth. —A. BARKER, *Hoodby.*

Californian Pears.—During the past week we examined some specimens of Californian Pears, which were the best in the market, though by no means so good as we should expect to find them. Mrs. Lewis Solomon told us that in two small cases there were as many as five dozen decayed fruits. Being the only good Pears available, the trade had to give a high price for them. Naturally the retail price must therefore be very high; but what we want to point out is, that if the winter Pears that our friends speak of as good at this time exist there is a good market for them.

Pear Easter Beurre.—We have bought some noble Easter Beurre in Covent Garden, wonderfully fine and rich in flavour, but the freshness of their juice a little gone off. Doubtless it will not be long before this precious fruit, which now brings 1s. to 1s. 6d. apiece in the London market, will be grown in other countries suited to its wants, and there will not be the slightest need to grow it in England, where, indeed, it is grown only with great trouble, and with the best care only becomes a most imperfect fruit. The space given to it in our country is wasted.

THE PEARS TO GROW.

THE individual properties of most of the popular varieties of Pears are sufficiently known to those who have had much experience in Pear growing. In choosing a limited number out of the perplexing quantities that have hitherto been grown, there is usually a difference of opinion as to what varieties it is best to include and what should be left out. Soil and climate have a greater influence on Pears than most fruits, as they vary so much in different localities. I may here say that the selection which I have in view refers to such varieties as are best for growing in a private garden where the object is to have a continuous supply for home use during the time in which Pears are in season. This, needless to say, is quite a different matter to growing for sale, where the aim is to limit the kinds to such as will make the most money, regardless of either the quality of the fruit or the length of time the supply lasts. If there is one thing more apparent than another, it is that with Pears, as with most fruits, the tendency for a good many years has been to put size before quality. Without in any way disparaging a fine appearance when combined with more essential properties, size in any variety of Pear only holds an inferior place; quality, which includes both flavour and texture, stands first; freedom in bearing, with a sufficiently hardy constitution, second; and size, third. In making a selection of varieties I hold that these are the points to be guided by, taking them in the order they are put. It is also important that the list should consist of sorts that do not ripen too much together, a matter that Pear planters of the past seem to have given little attention to, through which in most places where Pears are grown to any extent there are as many sorts ripe during October and November as would suffice for the whole of the Pear season if a better choice had been made.

Fortunately, some of the very best sorts thrive and bear freely, producing fruit of good quality in places where soil and other matters are widely different. One of the chief considerations to be kept in view when making a selection of varieties that can be relied on for planting in different parts of the country is to choose the kinds that succeed under widely different conditions. Any Pear that will only answer in exceptionally favourable localities should not be included in a list that is made with the object of confining the selection to a reasonable number of the best varieties that will give a regular supply through the Pear season.

With one or two exceptions, I have proved all the varieties in the accompanying list in parts of the country where the conditions are so far different as to show that these might be depended on for general planting anywhere where Pears will do fairly.

Ripe in July or August.—Doyenné d'Été, Citron des Carmes, Beurré de l'Assomption.

End of August or September.—Jargonelle, Fondante d'Automne, Williams' Bon Chrétien, Beurré Superfin.

October or November.—Comte de Lamy, Louise Bonne of Jersey, Seckel, Marie Louise, Doyenné du Comice, Beurré Diel.

November or December.—Prince of Wales (Huy-she's), Beurré Duval, Glou Morceau.

December or January.—Knight's Monarch, Beurré Bachelier, Beurré d'Aremberg.

January and February.—Marie Benoist, Beurré Sterckmans, Winter Nelis, Josephine de Malines.

February, March, April, or May.—Beurré Rance, Ne Plus Meuris.

I give the months in which the different varieties named may be expected to ripen with the intention of showing that at no time will there be too many sorts in—a mistake that in most places where Pears are largely grown usually occurs, and through which much waste follows. In some years, such as the past, Pears ripen so much out of season that there is no certainty about them. After hot, dry summers the late keepers usually are much later in ripening than they are after cold, wet summers. After a hot summer I have had Beurré Rance in April, and Ne Plus Meuris in May in

better condition than I ever saw them when they have ripened two months earlier.

Those who have grown Pears on moderately light soil, and also on land of a clayey nature, cannot fail to have noticed the superior flavour of the fruit of most varieties from the light soil. There are exceptions to this, however. Williams' Bon Chrétien, for instance, grown in the heavy, tenacious soil about London is of finer flavour than I have ever met with it from any other part of the country.

Fruit of any good variety of Pear when of medium size is almost invariably better than the same variety is when very large. Of this, Louise Bonne of Jersey may be named as an example. With me, in a season when a tree happened to carry only a few fruits, which attained a large size, they were never so good as others not more than half as big borne by other trees that carried a full crop. This excellent sort has few equals, taking all its properties into account, including the hardness of the tree, its freedom of bearing under varied conditions, and the quality of the fruit. Amongst fifty picked varieties that I had in a garden where Pears of better flavour and finer in texture than I have ever met with elsewhere grew, Louise Bonne was one of the three best, Seckel and Marie Louise being the other two.

For a considerable time back the tendency which I have already mentioned, to give too much favour to size, has been gradually spreading. In proof of this, one has only to look back to the Pears that used to be shown at the leading exhibitions of hardy fruits in times past as compared with those that are now staged. Take, for instance, the Royal Horticultural Society's autumn shows that used to be held before the South Kensington Garden was in existence. Then the highest-flavoured, finest-textured small varieties not only held their own, but had the preference over the bigger and better-looking, but worse-eating sorts that now leave some of the best kinds out of competition altogether. At the exhibitions held by the Royal Horticultural Society, in the class of single dishes of Pears, ripe and fit for immediate use, any variety was admissible except Seckel, which, if my recollection is correct, was excluded, a separate class being made for it, by reason that Seckel was then looked upon as so much better than the large varieties that now have preference, that they had no chance in competing against it. Now, Seckel or any other really good small variety is rarely seen on an exhibition stage, the reason not being far to seek. The exhibitors feel that with the preference given to size, the presence of small sorts, however fine in quality, would tell against their success. It is not alone by the encouragement that is given at the exhibitions to the biggest kinds that people are led in the wrong direction, but equally so by the prominence that is almost invariably given to the largest examples of the respective varieties shown, though more often than not they are coarse and much inferior to medium or small examples of the same variety, a fact that is not likely to be disputed by anyone who has had much to do with Pear growing.

When collections of Pears are shown at the autumn exhibitions, say in from twelve to twenty-five varieties, it will generally be seen that the awards are given to the exhibits which have the greatest number of sorts in them that are ripe and fit for use at the time, yet a collection that was composed of varieties that would give a regular succession up to the end of the Pear season would be much preferable. To some extent the preference that exists in favour of ripe fruit accounts for the awards being made in this way. Many are led to select the sorts they grow from what they see exhibited, and if those who have the arrangement of the schedules for the autumn hardy fruit shows would insert a clause to the effect that in the Pear competition the collections that contained the best kinds for keeping up an unbroken succession would have preference, it would be a step in the right direction.

T. B.

Medlar preserve.—The Medlar may be considered ornamental at all seasons, but when in flower it is really beautiful. The fruits, too, are

more useful than is generally supposed. In *THE GARDEN* (p. 71) it is stated that Mr. Rivers, of Sawbridgeworth, exhibited before the fruit committee of the Royal Horticultural Society a pot of Medlar jam, which was pronounced delicious. Might I ask if this was a jam or a jelly, as the two are, of course, distinct. If "R. D." meant jelly, then he is wrong in supposing that this is a new use for the Medlar, as this excellent conserve has been made in this neighbourhood during the last thirty years or more. As regards its quality, the two small pots which I send will speak for themselves. The contents of one were made last December, and the other about the end of the year 1881. In case any of your readers may wish to preserve a portion of this fruit, the directions for doing so are as follows: Let the fruit be ripe, or nearly so, put it in a copper saucepan, and cover with spring water. Let it simmer gently until the fruit becomes a pulp. While quite hot strain through a hair sieve, pressing the fruit very gently. To every pint of juice add 1 lb. of lump sugar. Boil for about three-quarters of an hour, stirring all the time, when it may be poured into glass, saucer, &c.—P. G., *Bury St. Edmunds*.

PEACH BLOSSOMS DROPPING.

IN this note Peach also means Nectarines and Plums. It is needful to be precise to prevent future inquiries as well as fatal mistakes and needless reiteration. In brief, then, the cause of the dropping of Peach buds is dryness at the roots. There may be, there are, other causes, such as immaturity of wood, over-cropping, insufficiency or an excess of food; but while any or all of these causes pull off their hundreds of Peach blossoms, drought at the roots causes tens of thousands to fall.

Neither is the cure so simple as it may seem, for though drought is without doubt the cause of the buds dropping, it by no means follows that a deluging of water at any given time will with equal certainty keep them on. The questions of time of drying as well as of watering are, in fact, the very core of the question as well as that of the degree of drought.

The time when the mischief is done is, as a rule, far earlier than is generally supposed. The popular fallacy that dryness at the roots hastens and heightens the maturity alike of fruit and wood is very much to blame for much of our bud-dropping. Translated into every-day practice, these phrases mean that the wood is the harder, the buds the plumper, and the fruit the more highly flavoured in proportion to the dryness at the roots. This is assuredly not so in regard to stone fruits such as Peaches, Nectarines, and Plums.

On the contrary, moderately moist root-runs favour the highest quality alike of fruit-buds and wood. They also so firmly strengthen and cement the union between buds and wood, as to hold them firmly attached until they are transformed into fruitlets, when any danger of the vital connection being severed ceases. If all this is true, those who attempt to hasten maturity through root-drought not only miss that mark, but lose their buds as well. For it is absolutely certain that root-drought during the finishing process endangers the stability of the buds in several ways. For example, it prevents them being perfectly finished or filled up. And it is well known that unfinished or imperfect buds are those most liable to be withered up or dropped in the early process of further development. The roots as well as the buds are also checked by drought; and the supplies of moisture as well as food needful during the dormant season to sustain the connection being forcibly cut off, the buds are so loosened that

fall they must when the slightest extra vital or atmospheric strain is put upon them.

And once this inclination to drop is established, it is almost impossible to cure or change it. Even the most obvious means of cure—a sudden rush of water—not seldom aggravates and confirms the predisposition to fall, and the buds come off with a rush; while as for watering in the spring as an antidote to bud-dropping, it not seldom proves worse than useless, though indeed it is difficult to see what else anyone can do. Instead, however, of soaking or drowning them by one drenching, it is far safer to water gradually five or six times in succession, thus making the transition from drought to moisture as gradual and imperceptible as may be. But the only real cure for bud-dropping is prevention, and the secret of prevention is simple enough, and repeated at large by every outside Peach border throughout the kingdom every year. In a word, it is simply, never allow the roots to get dry, and there will be no bud-dropping. Who ever saw Peach blossoms drop in the open air in this country? No one. Why? Because the roots of the trees in the open are always rather too wet than too dry.

Climatal extremes, hoar-frosts, east winds may blight and destroy the blooms in the open air, but such mishaps are widely different from the common phenomenon of wholesale bud-dropping under glass.

Occasional, indeed sudden and severe rises of temperature exaggerate, if they do not cause this evil in houses. But these are but accidental outbreaks of one of the most provoking incidents of Peach culture indoors. And of that it may be affirmed with absolute confidence, that the buds drop because the roots are too dry, and that they will cease to drop provided they are supplied with from 25 inches to 30 inches of water, skilfully distributed over the entire year. Some would confine it to the growing season—a most misleading phrase, for growth, like life, is continuous, and a constant supply of water at the roots all the year round is the first necessity of both alike. D. T. F.

HARDY FRUITS.

TIMELY MULCHING.—Work in the hardy fruit garden this season should not be in arrear, for as yet we have hardly lost a single day through stress of weather; moreover, the ground being so fresh and dry and thoroughly pulverised by the intense drought of the past summer, root-pruning and planting have gone on merrily. A mild dry, open winter no doubt is very pleasant for all engaged in outdoor operations, and to young gardeners who have to spend so many hours shivering against brick walls especially so; but what about the future? With 10 inches of rain due at the end of the past year and a dry January, the chances run strongly in favour of gardeners paying back with interest the comfort Nature is lavishing upon them by toiling on many a long broiling day with hose and water-barrel wherever that useful element can be found for horticultural purposes. Water in this part of the country is very scarce indeed, and although several who have the means have been discussing the wisdom of making large tanks and tapping our richly stored hills, the matter, so far, has ended in talk. Here, fortunately, provision for domestic use, fire, and irrigation purposes was made years ago, but it is very sad to see our neighbours so lukewarm upon a matter of vital importance. It is yet early to talk of watering, as we may have a wet spring, but, supposing the rain does not come, the man who now looks ahead and shuts in existing moisture by liberal mulching will have many points in his favour next season. The pruning, nailing, and cleansing of all wall trees will now be finished, and the most important seasonable work I can think

of is this timely mulching with manure or other non-conducting materials. Manure in all cases, be it understood, is neither necessary nor desirable, but all trees and plants, like Pears on the Quince, Apples on the Paradise, Cherries on the Mahaleb, Raspberries and Strawberries, which revel in a rich larder, will take it in any quantity. Peaches and Apricots, on the other hand, growing in the best of compost and with roots already creeping into the heavily manured vegetable border, will do equally well, if not better, with a good shake down of long stable litter. If rain comes, so much the better; if not, why then much good will be derived from the timely application of water. Apricots are the first to show the effect of a too dry condition of the border through the autumn and winter, and Peaches come next, but I never knew either of these drop their buds to any extent after a wet season. The retention of moisture is not the only advantage the trees derive from mulching, especially in forward seasons. Just now the buds are swelling very fast, and next to shading—a troublesome, if not an impracticable business—I know of no more effectual mode of retarding than preventing the sun from striking into the surface of the borders. By this means we kill two birds with one stone, and now, before work becomes pressing, is the time to perform this operation.

PROTECTION OF FRUIT BLOSSOMS.—Although timely mulching, to which I have just drawn attention, will retard the flowers by keeping the roots of the trees cool, it will not shield them from the effect of spring frosts. At the present moment the buds are rather forward, but our climate, being so fickle and changeable, the impending earliness, as well as the drought, may yet be set aside by a cold, wet protracted spring. The later the season, many people say, the brighter our fruit prospects; but this adage of late years has been reversed, as we have witnessed the total loss of promising crops of fruit when frost has never touched the trees during the time they were in flower. A cold, sunless spring or continuation of winter, with the temperature ranging between 30° and 40° for weeks together, by checking and weakening the flow of sap, although slower in its action, is sometimes quite as fatal as frost itself, and, unfortunately, this climatal condition cannot be corrected by any amount of artificial covering. This fact, however, does not justify our neglecting the preparation of the best materials we have at command for warding off frost, as we never have two seasons exactly alike, and the sooner these are got in readiness for use the better. Peaches, Apricots, Pears, Plums and Cherries all need protection to ensure their safety—blinds, glass copings, fishing nets and light Spruce or Yew branches, one or all being most frequently used for this purpose. Glass copings 2 feet in width, with movable blinds extending from the ground to the eaves, no doubt look and answer best; but the masses cannot incur the expense, and search for rougher and cheaper materials than which, I question, if there is anything better than a broad coping board with two or three thicknesses of fishing-net suspended 1 foot or 2 feet from the trees. Whether the boards do, or do not, check radiation, it is quite certain that they are a powerful aid in warding off storms of rain and sleet from all points excepting the south, whilst the nets in front let in light and air, and give very little trouble, as they can remain a fixture until the fruit is set. I have used Frigi-domo canvas and other expensive materials which require daily attention, but now for some years the broad coping board and fishing-nets have taken their places, and I cannot say when I lost a full crop of Peaches.

LATE PRUNING.—With the exception of Figs, all fruit trees, including Gooseberries, should now be pruned and cleansed by hand washing or copious supplies of soapsuds from the garden engine. Hardy fruit trees will stand strong insecticides through the early part of winter, but great caution now the sap is on the move should be exercised. Soapsuds, however, are not only safe, but coming regularly from the laundry they may be plied long after the trees are trained. When Moss or Lichen become troublesome, we sometimes add a few gal-

lons of lime water to the soapsuds for Apples and Pears, but this I do not think absolutely necessary, as the latter, without the lime, produces the desired effect. When Gooseberries are pruned, birds, now numerous and troublesome, must be kept at bay. Here, the beautiful bullfinch is most troublesome, and having a great aversion to killing, I have dashed the trees with a wash of soot and lime passed through a fine sieve, and down to last spring always saved the crop. Literally starved out, or the birds having acquired a taste for this condiment, they commemorated the jubilee by devouring the buds in spite of the dressing, and I am now obliged to use nets, not permanently, but from the time I prune until the fruit is set. The crop safe, insect-eating birds have full play until the wary blackbird appears upon the scene.

PEACHES.—These we have detached from the walls, and every tree has been well washed with soap water, but the walls have not yet been dressed, as we prefer putting off this work until the worst of the wintry weather has passed away. Practically speaking, the pruning of these trees was performed last October, but, as usual, we now find a few more shoots may be spared, and a general smoothing of cuts necessarily left rough when the leaves were upon them will be deferred until they are loosened from their supports for nailing in. By keeping the branches a good distance from the wall the swelling of the buds is more or less retarded, and in this position they remain until the flowers show colour, when further delay might prove dangerous, certainly injurious to the swelling buds. I do not object to the removal of a quantity of blossom buds after the trees are trained, but when they are knocked off by the workmen we are apt to think they have not made a judicious selection. If not already done, Peach and Apricot borders should now be well covered with fresh stable litter, as there will be much traffic over them for the next two months, when, independently of a clean, comfortable foothold, a mulch of this kind will keep in a great deal of moisture. The roots of Peaches and Nectarines lifted and replanted three months ago have made considerable growth, and will continue this satisfactory progress if a check from drought does not overtake them. To such trees, the fresh soil being abundantly rich, we give a thick surfacing of old lime rubble, but not one atom of manure, the only stimulant being a trifle of ammonia in the stable litter, which a dry atmosphere soon absorbs.

DIGGING AMONGST FRUIT TREES.—When pyramids and bushes upon open quarters have been pruned and dressed, it is necessary to turn over the surface of the soil if only to destroy weeds and expose it to the pulverising influence of spring frosts; but this work in many gardens is sadly overdone. Once in my life I saw a man digging a heavy dressing of rank manure into a Vine border in a nobleman's garden, and in my own mind strongly condemned the practice, but in degree I question if this man on the Vine border was more out of place than he would have been on a square of Quince Pears or Paradise Apples. These fruits form wigs of roots on the very surface, and their disturbance or mutilation with the labourer's spade is fatal. Top-dressing and mulching, which keep down weeds, they may have, and a steel fork may be used for loosening the surface between the rows, but beyond this the less the soil is disturbed the better. Gooseberries, Currants, Raspberries, and Strawberries, if anything, are still more sensitive, but the first and second being so subject to the caterpillar, the surface soil should be raked from beneath the bushes and burned to destroy the larvæ. A good dressing with quicklime will then settle the account with any that remain, and at the same time kill Moss and Lichen upon the branches, when a top-dressing with fresh soil or rotten manure will finish the work as far as the space covered by the branches extends. Beyond this limit, digging can do no harm—possibly much good—on cold or heavy soils, whilst others which are thin, light, and subject to drought will be the better for an uniform mulching. The introduction of spade or fork amongst Raspberries at one time only is pardonable, and that is when suckers a distance away

from the stools are ready for removal. This done, the light mulch oft repeated is the best weed-killer, and certainly the most profitable pottle-filler. Strawberries that were well mulched or top-dressed in the autumn for the present may be left alone, but the time is at hand for giving old plantations light, but repeated broadcast sowings of old soot, to be washed in by rain. Soot is an excellent fertiliser, and being distasteful to slugs, which harbour in the old stools, three sowings at least may be made through February and the early part of March. New soot which is more fiery should be sown sparingly over the rows or stools, especially after the crowns begin to swell. If young plants have been upheaved by frost, advantage may be taken of the present dry time for treading firmly, when a rough cast of old Mushroom manure will do them no harm.

THE ORCHARD.—All pruning and cleansing, especially of large old trees, should now be brought to a close, but cutting down worthless varieties and preparations for planting may still be carried on. November is considered the best time for planting, as the roots then have time to take to the soil and the trees are less liable to be affected by a dry spring. This season, however, has been so exceptionally fine and the land in such excellent order, that few, I think, would hesitate even in December and January. Last year I planted a number of standard trees in a Grass orchard early in April, mulched well and watered once, and so well have they done, that I have decided on repeating this year on a larger scale. This driving the work so late into the spring is not altogether a matter of choice, as I have made a clearance of sixty cumberers of the ground, converted the butts into cordwood, and the branches into ashes—the best of all fertilisers in exhausted plantations. The ground cleared, new stations 8 feet wide, 2 feet deep, and 30 feet to 40 feet apart have been prepared in the following manner: The soil being stiff, but well drained, the bottom of each station was deeply broken up by steel forks; the stake for supporting the tree as well as the three posts for forming the cradle were then fixed in position, and two cartloads of fresh soil from the roadside—an accumulation of years as well as a nuisance—worked in with the best of the old, have raised the mound to the height of 1 foot above the ground line. When settled, although there is no danger of the stakes sinking, the trees will be planted, mulched, and once watered before they are left to shift for themselves. The sorts are Blenheim Orange, Cox's Orange Pippin, Northern Greening, Hambleton Deux Ans, Hanwell Souring, Brabant Bellefleur, and Bramley's Seedling. Having already an abundance of early and mid-season sorts and plenty of store-room, we want a good supply of late Apples that will keep fresh well into the spring. It is easy enough in a good fruit room to keep early varieties for months after their usual season, but they get woolly and lose their sharpness, whilst four out of the six I have named do not reach their best before February. A few kindly Bitter-sweets have been headed back for grafting with the same sorts when the proper time arrives. This French Apple makes poor cider, but an excellent stock, and it would be well if thousands in this part of the country were converted into rent-payers by being grafted with better sorts. Now is the time to head back for this purpose, but not too close, as the more small branches the size of one's wrist and those furnished with old spurs for producing foliage are left for grafting, the better the chance of recovery and the quicker the formation of a new head. Here we generally use two years' growths for scions and put on more than we actually require, our object being an abundance of young wood and foliage for carrying off the superfluous sap the first and second years. Many large trees are killed by being headed too close and the removal of every bit of spray and spur, when by cutting further away from the bole and working on a greater number of smaller branches, the shock would be less severe and the tree would quickly recover. The cost of putting on an extra score of grafts compared with the loss of the tree is trifling, and these superfluous growths make the best of all scions for future operations. A whole batch of old, but kind stocks

treated in this way with Blenheim Orange four years ago are now bearing trees with heads nearly as large as those of the originals.

PREPARATIONS FOR GRAFTING.—If trees of mature age have not been shortened back to within a foot or so of the most suitable point for the insertion of the grafts, this work should no longer be delayed. Early in January the sap in Apples as well as Pears which are forwarder was flowing freely, a sure proof that it is high time to look after the wood intended for grafts also. When these are obtained from a suspicious tree, they should be well washed or soaked in an insecticide that will destroy woolly aphis, and laid in under the shade of a wall until they are wanted for use. Stocks in like manner may be scraped, scrubbed, and dressed, not only to free them from Lichen and insects, but also to expose the bark to the invigorating influence of sun, and rain, and air. When stocks infested with the aphis have been headed and cleaned, the scrapings from the stems as well as the lopped branches should be carefully cleared away and burned, together with hedge-trimmings, roots, clay, and other refuse, for forming the best of all fertilisers for application to the surface-roots of bearing trees in May and June. Headed stocks on Grass land may be greatly assisted by the removal of a few feet of turf from the boles, when the impoverished soil lying immediately below it may be forked out and replaced with fresh compost and a good dressing of quicklime. If these bare circles are unsightly the turf may be relaid—not otherwise, as the Grass soon impoverishes the new soil and robs the surface-roots of the trees of a great deal of moisture. The temperature, moreover, under a rank sward being lower than it is under friable compost, the replacement of the turf, especially in cold, heavy orchards, is an unquestionable disadvantage. These remarks do not apply to headed trees only, but to Apples, Pears, Plums, and Cherries in full bearing.

W. C.

Long names for fruits.—There are some fruits which have names of greater length than could be ever adopted for common usage, but as they are varieties which will never find their way into general cultivation, they can afford to carry those cumbersome names for the little usage they will ever meet with. Such fruits are Baron Deman de Lennick, Jalousie de Fontenay Vendée, Edwards' Seedling Saint Germain, Delices d'Hardenpont of Belgium, Queen of the Low Countries, Twenty-fifth Anniversary of Leopold I., &c. But there are other sorts of more merit, and which may become favourites in some localities, that deserve to be shorn of their heavy load, such, for example, as the excellent little Pear known as Bonne du Puits Ansault and the showy Pitmaston Duchesse d'Angoulême, the first of which is properly shortened to Ansault, and the latter to Pitmaston. The widely-known Duchesse d'Angoulême is commonly called Duchesse; but there are several other sorts by the name Duchesse, as Duchesse de Brabant, Duchesse de Bordeaux, Duchesse de Berry, Duchesse d'Areberg, and some others, and hence the greater fitness of the name Angoulême. The common Louise Bonne of Jersey is in general usage cut down to Louise Bonne, but as there are two or three others of this name, it would be both more convenient and more correct to adopt the simply word "Louise," as there is no other Pear with this name. Josephine de Malines (which retains its excellent flavour till mid-winter, and is scarcely equalled at this season, and is always best when well grown) must have its name abridged either to Malines, or, as some colloquially call it, Jo-Malines. Among Apples, King of Tompkins County may properly be reduced to Tompkins, as the fact that there is a county of that name need not be announced every time the Apple is mentioned, and it is not specially appropriate to be ushered in as a King. The American Pomological Society has very properly made desirable changes in nomenclature, to which other changes may be properly added. Some of the new and valuable Strawberries have been unfortunate in the length as well as in the bombastic character of their names, such ones, for example, as Monarch of the West, Miner's Great Prolific, Cumberland Triumph, Great Ameri-

can, Triple Crown, &c. More commendable are the simple appellations of Sharpless, Wilson, Manchester, Hovey, Downing, and others, which have not needed any grandiloquent adjectives to aid their popularity, as well as C. A. Green's new and promising variety with the modest name Jessie.—*Country Gentleman*.

DESTROYING BLIGHT AND SCALE ON FRUIT TREES.

JUST as the spring is the usual time for cleansing dwelling-houses, so are the winter months the most favourable for the thorough and radical cleansing of gardens. By this is not so much meant the eradication and subjugation of weeds, though the winter months are the best for these purposes, as also for the destruction of such persistent insect pests as those above indicated. These can hardly be successfully grappled with unless during the season of semi-dormancy, for the best of all reasons, that they are hidden by the leaves, and cannot be destroyed without injury to buds and bark when the trees are in a state of active growth. There seems but three modes of destroying these pests successfully, smearing them in, touching or showering them to death; the first is the oldest and the clumsiest method. Like not a few old-fashioned practices, however, it had its advantages, apart from the direct purpose for which the mixtures were applied. They were meant to kill all insects infesting wood, bud, wall or trellis, and they assuredly cleared off all Moss and Lichen and got rid, to a great extent, of earwigs, woodlice, and the larvæ of many other insects. By using manurial matters in the mixtures many of the old cultivators also imagined that not only the buds were fed, but that nutriment was directly imbibed through the bark and wood. This is more than doubtful, but it is as certain that the manurial matters added to their adhesiveness—the latter proving a vital factor in their potency. So much was this the case, that the efficiency of not a few of the old cures for insects might be measured by the time they would stick on, and the closeness or firmness with which they hugged the branches, boughs, and stems.

Most of the old mixtures, in which oils, soap, grease, tallow, or tar formed important constituents, owed most of their potency to the closeness with which they hugged the trees and the long time they adhered to them. The insects were, in fact, slowly, but surely killed. The poisonous constituents of such dressings as arsenic, nux-vomica, or nicotine were designed to hasten the process of destruction. But even most of the poisonous insecticides were mostly potent in the ratio of their thickness; and hence the heavy white or other coloured washings to which trees and plants in the old times were subjected.

But smearing may now be said to be virtually abolished in favour of the lighter and swifter methods of touching or sprinkling insect pests to death with spirits of wine, pure or methylated, turpentine, paraffin, and train oil. The first is the safest, the swiftest, the cleanest, and the best, and but for the extra cost the pure spirit of wine is to be preferred. Use a small cup or other handy vessel, pour out a very small quantity at one time, and keep the bottle closely corked, as the spirit is highly volatile. Dip a small brush in the fresh spirit and touch the blight, bug, or scale with it, passing the brush rapidly over it. The effect on the blight or bug is prompt and peculiar. The white filaments disappear like snow at the touch of hot water, and the fleshy, flabby insects perish under the burning touch of the spirit. The influence on scale is less rapid, but almost equally certain. From the harder character of their structure and texture it is not apparent at the moment; but it will be found if all are touched with the spirit most of them perish, and a second dose will seldom be needful. Turpentine is equally potent, but not so safe; and paraffin, as generally sold, is about half-way between the spirits of wine and turps. It must, however, be borne in mind that all these, if applied neat, must be carefully used, and by no means carelessly applied. They are powerful reme-

dies, and should be swiftly as well as sparingly applied, and so as to touch the insects solely or only, and the stems or branches as little as possible.

The process of showering or syringing these insects to death is far less certain or safe, as well as infinitely more extravagant. Some may be disposed to call the last statement in question. They assert that the saving in labour will more than pay for the prodigal waste of material. In answer to this, it may be replied that, by applying such mixtures overhead, the material as well as the labour is often almost wholly wasted. Still, certain mixtures of nicotine, paraffin, petroleum, methylated spirits may be so used on fruit trees as to destroy American blight and scale.

One of the readiest ways of preparing mineral oils is to thoroughly incorporate, say, a pint of petroleum in a quart of boiling water, violently agitating the two with an egg whisk or syringe until the whole is whipped into a frothy liquid like thin cream; add a pint of this to a gallon of water. Mix thoroughly and apply overhead with the syringe, or the concentrated mixture thus diluted may be applied with a brush more freely, as recommended for the application of spirits of wine; in fact, the touching of these very troublesome insect pests to death is far preferable to any wholesale attempts to shower or wash them off. True, it is tedious, but then it is a saving of material, and every touch will carry death to a fresh insect or colony. Practice in such matters also begets dexterity, and measuring up work by results is the only sure test of its value. I have no hesitation in saying that the touching of such troublesome insects to death is not only the surest, but cheapest mode of destroying them, while it may be pronounced absolutely safe for the trees, and ensures the cleanliness and wholesomeness of the succeeding crop of fruit.

HORTUS.

TREES AND SHRUBS.

W. GOLDRING.

THE BEST AMERICAN OAKS.

OF the many Oaks which are natives of North America there are about a dozen species that can be recommended as suitable for planting in England; the rest, though interesting to those who make a study of trees, need not be considered in making selections for park or garden. This selected dozen can again be reduced to one half the number if only those are required that



Leaf of Black Jack Oak (*Quercus nigra*). Quarter natural size.

are very distinct. My selection would include the Scarlet Oak (*Quercus coccinea*), the Pin Oak (*Q. palustris*), the Willow Oak (*Q. Phellos*), the Laurel Oak (*Q. imbricaria*), the Black Jack Oak (*Q. nigra*), and the Chestnut Oak (*Q. Prinus*). These, all different from each other, as well as from the European and Asiatic Oaks, are quite hardy, of quick growth, and calculated to grow into fine trees in all but the poorest soils and wind-exposed places. One of the beauties peculiar to some of the American Oaks is the richness of tint which their foliage

assumes in autumn, and for this alone they are invaluable in planting for ornamental effect. A well-coloured Scarlet Oak in October forms a glorious picture; and what, again, can be more charming in May than the delicate primrose



Leaf of Plane-leaved Oak (*Quercus bicolor pannosa*). Quarter natural size.

tints of the unfolding leaves of the Pin Oak, a tree I would plant in every garden, if only for the exquisite tints of its leaves? Plant a Pin Oak near a Copper Beech, and let an early-leaving Lime be near, and you will have a pleasing picture in spring for a fortnight, especially if the background be that of Evergreen Oak, Holly, Yew, or some deep green Conifer.

THE PIN OAK (*Quercus palustris*).—From the name it would appear that it preferred marshy or damp places, but it is a mistake to infer from this that a swamp is essential for it. It grows well in dry sandy soils, and only last week I saw it growing luxuriantly in Hampshire near the edge of a deep railway cutting, which must obviously drain the soil of moisture. The light and elegant foliage of the Pin Oak makes it a remarkable tree throughout the year, and as its leaves change in autumn to



Leaf of Scarlet Oak (*Quercus coccinea macrophylla*). Quarter natural size.

various shades of red and brown, it is the more noticeable. Placing the Scarlet Oak first, I should look upon the Pin Oak as the second best American Oak for ornamental planting.

THE SCARLET OAK (*Quercus coccinea*).—So much resembling this in appearance is *Q. tinctoria* called

the Quercitron Oak of dyers, because its inner bark yields a dye), that one can hardly tell the difference, and it need not be included in a selection, while its foliage in decay does not turn to red or scarlet, but to a coffee-brown colour. The Red or Champion Oak (*Q. rubra*) nearly resembles the Scarlet Oak, although its autumnal tint is a dark brownish red, and not nearly so brilliant in this country as that of *Q. coccinea*. Mr. Anthony Waterer has, by the way, a wonderful new form of American Scarlet Oak that is superior to all the others in the brilliancy of its autumn tints. I saw some young trees of it in the Knap Hill Nursery last November, and though the foliage was past its best, I thought I had never before seen anything so striking in the way of autumn tints. The Tupelo and Liquidambar are dull compared with it. It is presumably a form of *Quercus coccinea*, but it may turn out to be something different. Those who plant special groups for autumn effect (a practice much to be commended) should go to Knap Hill to see it in October. I think it is not in commerce yet.

Q. COCCINEA MACROPHYLLA—a name given in nurseries to a form of the Scarlet Oak—has certainly a bigger leaf than usual, and Mr. Webb, the manager of Messrs. Lee's arboretum at Isleworth, will tell you that it differs in other particulars. He gave me some specimens of it last year, and from a leaf in this nursery the little outline drawing given with this was prepared. The leaf measures 11 inches in length, by 7 inches in width. The young trees of it with their great leaves have a very handsome appearance, and if they assume as bright a hue in autumn as the ordinary form it must be indeed a fine thing. Another form in the Isleworth arboretum is called *Q. coccinea borealis*, the leaves of which differ from the ordinary form in shape, but are not remarkable for large size.

THE WILLOW OAK (*Quercus Phellos*) is so very distinct from all others, that on this account it is worth planting. There are some very big trees of it in this country in old gardens, and a venerable specimen at Kew is the admiration of tree lovers. Its leaves are about 4 inches or 5 inches long by about half an inch in width, and look more like those of a Willow than an Oak; hence the name. It grows in the States of New Jersey and Kentucky as high as 50 feet, but it is a long time in reaching that height in this country; in fact, it cannot be recommended as a quick grower. I planted some young trees of it about five years ago, and I noticed last autumn that they had grown only about a foot. It is not a common nursery tree, but good trees of it can be obtained. It is very twiggy, and its branches are horizontal and inclined to droop.

THE LAUREL OAK (*Q. imbricaria*) is very unlike an ordinary Oak in its leaves, which, instead of being cut into lobes, are quite even and edged like those of a Laurel. It is an uncommon tree even in good tree collections, and in only a few nurseries in this country is it grown. At Lee's arboretum, at Isleworth, there are some good trees of it, from which I have leaves measuring 9 inches long, and in shape just like those of the Laurel. But the largest tree I have seen is that growing in Mr. Maurice Young's nursery at Milford. It is, I daresay, one of the fine trees that Loudon so often alludes to in his writings, for it must have been a big tree when Loudon used to visit the place fifty years ago. The tree has a dense head, rounded and symmetrical, and as it stands out clear from everything, it shows itself to the best advantage.

THE BLACK JACK OAK (*Q. nigra*) has large and handsome leaves to recommend it. These are of peculiar shape, as may be seen by the accompanying outline drawing of one. They are of a deep green colour with reddish veins. I do not know much about this as an ornamental tree, but it is unquestionably a fine tree in a small state. Gray in his "Manual" says it grows from 8 feet to 25 feet high. A variety called *nobilis* in some nurseries is preferable to the typical form, as the leaves are larger and the tree is a stronger grower. It costs twice as much as the type, but is worth it.

THE CHESTNUT OAKS include *Q. Prinus*, *Q. bicolor*, *Q. monticola*, *Q. pannonia* among others. All are fine-growing trees, with large leaves cut into

lobes in a varied way. These names are to be found in the catalogues of nurserymen who make a speciality of trees, but the trees they have corresponding to the names are not always the same in different nurseries. The finest of them, I think, as an ornamental tree is what is called *Q. bicolor pannonia*—an outline of which is here given—a name now, I believe, "not kept up," as the botanists say, but is considered to be a variety of *Q. bicolor*, which again Gray puts as a variety of *Q. Prinus*. Anyhow, the tree is pretty well known as *Q. pannonia* in our nurseries, but Lavallée puts it as *Q. bicolor platanoides*, or Plane-leaved Oak, which is not a bad name, because the leaves resemble those of the Plane. The leaves of this Oak are very distinct, being covered on the under sides with soft velvety down. This character has apparently not been overlooked by botanists, as among its synonyms are *Q. velutina* and *Q. mollis*, both in reference to its downy or velvety leaves. It makes a handsome young tree, with a dense head, and its leaves are uncommonly effective, being almost as broad as long.

The other American Oaks worthy of the planter's attention are *Q. alba* (the White Oak), *Q. stellata*, *Q. falcata*, *Q. aquatica*, and *Q. cinerea* (the Grey Oak).

MAGNOLIA MACROPHYLLA.

OF the varieties of *Magnolia* introduced during the last century, not many seem to have obtained a great amount of favour with planters, specimens being seldom met with, and (I suppose from the fact that the demand is very limited) many sorts are not to be found in the ordinary tree nursery catalogue. I cannot quite understand the neglect of the tree, for in its several varieties it meets many requirements. *M. acuminata*, for instance, is a capital subject for the large lawn or pleasure ground, and may be associated with such trees as the *Gymnocladus*, *Ailantus*, *Tulip tree*, &c. *M. macrophylla* and *tripetala* are highly ornamental trees for the small lawn or sheltered nooks in the pleasure ground, and *glauca*, *purpurea*, and others are very useful either as isolated specimens or for the mixed shrubbery.

M. macrophylla, although introduced from Georgia as far back as 1800, is the least known and the most ornamental of all. I know of no tree nor shrub, either indigenous or exotic, and considered hardy in this country, that can approach it for size of foliage. Our particular specimen was probably planted about 1840, and has attained a height of 35 feet, a girth of 2 feet 6 inches, and a spread of branches of 28 yards. There is not much to recommend it in its winter garb, as it presents a somewhat naked appearance with its irregular outline and long, straggling shoots coming out at wide intervals from proportionately long, straggling branches. But in summer it is decidedly one of the most striking features of the pleasure ground, its immense leaves forming a dense canopy of foliage that has justly earned for it its synonym of the Umbrella tree. The individual leaves average with us a little over 2 feet in length and about 8 inches in breadth, and I find they are considerably influenced in size by the rainfall, being smaller, for instance, in the hot and dry summer of 1887 than I have ever noticed them. The flowers, which are produced in fair quantity, are of large size, averaging 10 inches across, nearly flat, and of a somewhat ragged appearance; colour white, or rather a dirty white, with a tinge of purple at the base of the petals. I find they are described as fragrant, but with us the scent is hardly perceptible. If anyone feels inclined to give this *Magnolia* a trial, I would advise the selection of a spot well sheltered from the north-east and north-west, and, at the same time, well exposed to the sun, as the neglect of the latter precaution will have a prejudicial effect on the ripening of the wood and the production of flowers. In common with other *Magnolias*, the variety *macrophylla* does not seem very particular as to soil, as it will do fairly well alike in a moderately stiff loam, a sandy loam, or peat. In all cases where the subsoil is not first-class, and,

indeed, with very few exceptions, it is advisable to provide at planting time a fair amount of prepared soil, say a good cartload to each tree, in order to give it a fair start. I find equal parts from a good heap of road-scrappings and old potting soil answer capitally for the purpose. Nearly all ornamental trees and shrubs take kindly to such a compost, and the good start made will lay the foundation of a handsome specimen. The tree is propagated from seed and layers. It seeds freely here, but I have not been able as yet to ripen the seed, nor have I heard that it has been done with any amount of success in England.

E. BURRELL.

Claremont.

Japanese Allspice (*Chimonanthus fragrans*).—It was a happy thought to give this *Chimonanthus* the specific name of *fragrans*, as its flowers have a fragrance which few possess, rivalling the delicious odour of the *Stephanotis* and quite as powerful. At this dull season it is quite refreshing to find a specimen, for we may travel far without finding our wish gratified. Although an old introduction, it is, strange to say, uncommon, notwithstanding having merits of no mean order. There used to be a fine spreading plant on the wall facing the lawn in the Royal Horticultural Society's gardens at Chiswick, and the leafless twigs every winter from December to January were beset with the curiously formed, pale yellowish flowers. It could be detected, though unseen, loading the air for yards around with its heavy, penetrating fragrance. As much of the young wood as possible was laid in each year, the rest spurred back, so as to obtain as much neatness as possible, consistent, of course, with the proper treatment of the plant. The main branches were well spread out, so that a good space was covered. The way to propagate it is by the suckers that spring up comparatively thickly round the base of the main stem. It is a plant that would delight the amateur, and we hope will be brought from obscurity into the position it deserves. In small gardens there is generally a wearisome monotony of shrubs, resulting in a sameness that becomes tiresome. Here, however, is a plant that will give pleasure all the year round; it shows plenty of good foliage in the summer, and a profusion of deliciously fragrant flowers during the very time we want them, viz., December and January. I may add that it grows best on a wall facing south or west and in a deep light soil.—X.

Varieties of *Cupressus Lawsoniana*.—Of the hardy Conifers there are none which vary so much as Lawson's Cypress. It will be, as a rule, possible to pick out several forms that differ greatly from each other. Owing to this, the list of recognised varieties is a long one, and among them are some very distinct forms. In looking over a large and varied collection recently I noted the following as being some of the finest: *C. L. erecta viridis* is an erect-growing variety that never loses its character, and its rich green foliage enhances its beauty. *C. L. intertexta* is very different from the last, as the branches are stouter and less compact than in the ordinary form of Lawson's Cypress, while the habit of the plant is far more graceful. It has also a peculiar glaucous tint. This variety is well suited for planting as a single specimen; so also is *C. L. filiformis*, which has long branches and branchlets. The last-named bears a very great resemblance to *Retinospora filifera*. *C. L. gracilis pendula* is a free-growing variety, the branchlets being light and graceful, and the foliage is of a pleasing glaucous tint. *C. L. lutea* is the best of the yellow-leaved kinds, for it is vigorous in growth, and throughout the growing season is of a rich yellow colour, which is retained during the winter. The dwarf variety *C. L. nana* and its glaucous form are two pretty little shrubs that seldom grow more than a couple of feet high. They are well suited for planting on rockwork or in any place where dwarf shrubs are needed. It is also noticeable that some strike from cuttings far more readily than others. The easiest of all to strike is *erecta viridis*, while the most difficult is the loose-growing *intertexta*. The habit of the plant is a very good guide as to the difficulties attending its propagation, for, as a rule, the

compact-habited forms root more readily than those of a looser character. Though the varieties must, of course, be propagated either from cuttings or grafts, seeds of the ordinary type are readily obtainable, and the young plants raised in this way are not only of good constitution, but also grow away quickly during their earlier stages. Lawson's Cypress may, when it grows out of bounds, be pruned, and if this is carefully done the graceful character of the plant will be preserved.—H. P.

Myrtle-leaved Portugal Laurel.—This variety differs from the common Portugal Laurel both in habit and foliage. It is denser in growth and dwarfer; the leaves are narrower and altogether smaller. It makes a pretty dwarf bush, particularly suitable for planting in masses that have to be kept within certain defined lines. This is the variety that one sometimes sees trained into those prim conical specimens 6 feet high or more. For geometrical terrace gardens where strict formality is essential, these cone-shaped, Myrtle-leaved Portugal Laurels are well suited, as they require but little attention in the way of pinching to keep them in perfect shape. This variety is perfectly hardy, and stands exposure exceedingly well.—W. G.

Ford's Evergreen Oak is one of the best of the numerous varieties of *Quercus Ilex*. It is more densely branched, and always has such a tendency to spread out horizontally that the branches sweep the ground. The leaves are much narrower than those of the common kind, more shining, and of a brighter green. It is so distinct that it may be at once recognised. I saw it last week in great perfection at Chiltley, Liphook, in Mrs. Robb's arbutum, which includes, I imagine, all the forms of the common Evergreen Oak besides the rarer species, such as *Quercus granuntia*, *Ballota*, and *virens*, all of which seem to succeed well with her. It is to be regretted that there is such a difficulty now in getting in nurseries good plants of Evergreen Oaks especially of such varieties as *Q. Fordi*, &c.—W. G.

Pruning deciduous trees.—Mr. Goldring will hardly find gardeners generally agree with him if he proposes that all tree-pruning should be done in the summer and autumn. Apart from the many objections inseparable from performing work of that kind during busy seasons, and especially when it would create needless litter, there is the fact that pruning whilst the trees are in leaf is apt to induce the formation of numerous small shoots behind the cuts, and these unable to ripen prove of more harm than good. If there is one instance in which deciduous trees, and the Lime amongst the rest, have suffered from winter pruning, there are probably thousands of cases in which no harm has resulted. Whilst the removal of a branch here and there which disfigures the outline of a tree may be desirable in the summer, it is obvious that systematic pruning can be best performed in the winter when the leaves have fallen. It is peculiarly objectionable to prune Lime trees in the summer or autumn, especially young ones, because these being shallow-rooted too readily feel the effects of drought and drop their foliage all too early; therefore not a leaf can be spared during the leafy season. I should prefer to prune young Limes or similar trees, the branches of which needed regulating, rather towards the spring than in the autumn. Whilst in the latter case there would not be time for the bark to grow over the cut, the strong growth in the spring will help to that end admirably. After all, winter pruning is mostly a matter of convenience, because the work can always be done best when frost is prevalent and other labour is less pressing. Winter pruning may always be performed with safety after warm ripening summers, but after cold, wet summers the later the pruning is deferred the better.—A. D.

The Wig tree, or Venetian Sumach (*Rhus Cotinus*).—Not for a very long time have I seen this peculiarly distinct shrub in such good form as I did the other day when paying a visit to Down House, the residence of the late Charles Darwin, and in the grounds of which it formed a tall, spreading shrub of the most peculiar appearance from the feathery blooms with which it was thickly covered. Although the flowers are small, yet the plant is one of great interest

during the autumn and winter months. To anyone in search of a rare and peculiar shrub, I would strongly recommend them to purchase this particular Sumach.—A. D. WEBSTER.

AUTUMN COLOURING—"JACK FROST" NOT THE ARTIST.

It is really surprising in these modern times that so many cling to the old and foolish notion that the autumn colouring of deciduous leaves is produced by the action of frost. I, too, was interested in the pleasant descriptive article of "B. C. R." on these autumn-foliage pictures (page 474 of the last volume of *THE GARDEN*), but, like "D. J. Y." (p. 496), I was impressed with the erroneous assumption of the writer as to the cause or agency of this glowing transformation of our landscapes. Many a writer has been moved to pen delightful pictures upon this theme, and oftentimes admiration for their pleasing imagery has led me to seek anew for some plausible excuse for so much clever error, but all in vain. There is absolutely no foundation for any such theory. "Jack Frost," if I may be permitted thus to use the familiar personification, is indeed an artist of great versatility and the highest possible ability. In proof of this we have only to look upon our window-panes on a sharp wintry morning, or step outside and examine a tiny flake of snow, the full beauty of which no microscope yet invented has been able to reveal. And then the silvery sheen with which he gilds the trees and shrubbery, causing them to scintillate in dazzling splendour and defiance in the morning sunlight. An artist! Aye, and a most consummate workman. And, despite all his blighting cruelty, proceeding from his native enmity to animal and vegetable life, we are compelled to admire the exquisite beauties attending his method. But he is only an artist in "black and white." His icy touch upon the tender leaf only blackens it and hastens its decay. There are no gorgeous pigments upon his palette. His favourite implement is the pencil rather than the brush, and at times he wields it ruthlessly always to the obliteration of colour.

Now, if the autumn colouring of leaves was due to the action of frost, we would see a very different state of things. In the first place, every observant person knows that the leaves begin to colour long before the advent of frost every year. Weeks before Jack's hoary breath foreshadows his icy tread the leaves and leaflets in every forest and garden have fully decided upon the tint they shall wear, just where the charming splashes of colour shall be, and just how the soft gradations shall blend into the cellular groundwork. In August, and even in July, in the latitude of New York, before any suspicion of frost, brightly coloured leaves may be found in every woodland, especially upon the Sumach, which is usually the first to colour. The only influence Jack can have is to cut short the brilliant season of the leaf's existence by blackening its gorgeous robes, when it soon separates from the twig and falls to the ground. It is thus apparent that frost destroys rather than causes or induces any portion of these regal robes of autumn. Our prettiest leaves are secured before frost comes at all and before they fall from the tree. Once fallen, their beauty is half spoiled. No intelligent leaf-hunter will delay her fascinating ramble until after a sharp frost.

No; I believe these garlands of summer would colour and fall, attract and decay, just the same if frost never came at all. The leaf attains maturity; it has performed its offices in the development of flower, fruit, and vegetable fibre;

and it dies clothed in a glowing robe of glory. How and by what subtle influence these gorgeous robes are produced none can tell. There is, perhaps, no process of Nature where all is more mysterious than this very thing. The best conjectures of scientific men allude learnedly to the transformation of chlorophyll at the autumn season by the action of certain elements imparted to the sap of the tree or shrub at this period. But all this only complicates the problem. Nothing is more beautiful in death than the leaf, and its entire life is a profound mystery. There it hangs in mid-air, carefully performing its ordained functions in the respiratory economy of Nature, and whispering its part in her grand symphonies; and anon it is woven into a gorgeous chaplet for the crown of autumn, king of the year, presenting every colour of the spectrum and every shade of blended hue, challenging the admiration of the civilised world.

Kingston, N. Y.

H. HENDRICKS.

Crataegus Lelandi.—Where protected from birds, this variety of *C. Pyracantha* still retains its berries in as bright a condition as ever. Taken altogether, however, it is one of the finest of our wall shrubs, as even should the beauty of its fruits be but short-lived, the neat evergreen foliage is ornamental at all seasons, and the clusters of white blossoms so freely borne in the spring impart quite an additional feature. That it will fruit freely in a small state is shown by some specimens which I recently saw not more than a couple of feet high, and heavily laden with berries. They had, however, been propagated from cuttings, which is the best way to increase the good varieties, as seedlings are apt to revert to the type. Cuttings strike readily if taken early in the autumn and dibbled firmly into some sandy soil protected by a frame.—H. P.

Daphne Mezereum.—When we consider how valuable and well-known an old garden occupant the above plant is, it may be considered fortunate that Louis Kropatsch has corrected the mistake "W. G." has made regarding the situation best suited for it. The latter says, "it particularly resents being overshadowed by any other growth;" while Louis Kropatsch rightly adds that this pretty shrub he found "in rather shady woods" in the Austrian Alps. This latter quite agrees with what I have noticed regarding its likes in its native wilds, or where it has become naturalised in abundance, and in planting, most gardeners usually assign to it a situation where partial shade is secured. Unfortunately, but particularly for amateurs, too much dependence must not be placed on the suitability of positions chosen for hardy plants at our great public garden—Kew; indeed, a friend and myself some time ago were not a little surprised to see there a specimen of the Chili Pine struggling for life beneath the shade of lofty trees, and where the *Daphne Mezereum* would have found a most congenial home.—A. D. W.

The Lily of the Valley Tree (*Andromeda floribunda*).—This low-growing shrub is very beautiful when in the open border, or at the outside of large mixed beds of shrubs on the turf. It thrives well in good peaty loam, and does best on the most sheltered side of beds in cold or exposed situations, as it commences to bloom early in the year and is often injured by frost should the weather be severe. We have some bushes in a warm sheltered situation that make a grand show in good seasons, and form a fine contrast to the hardy Heaths with which the beds are edged. But it is as a pot plant for growing under glass that I wish to recommend it. This autumn I selected plants of this *Andromeda* that were well set with blooms and potted them, placing them first in a sheltered spot outside. They were put in a cold house for a short time, and then brought into warmer quarters as wanted, the temperature maintained being between 45° to 55° by night. I find the flowers come much whiter when the plants are placed at a distance from the glass. Flowering specimens are useful for conservatories, especially if these are dark. I have also found

the blooms useful for making wreaths, as they associate well with Christmas Roses. The plants do not suffer when taken up and potted in large pots, boxes, or even when wrapped round with mats or bast, that is, provided they are kept moist and not forced too quickly. When the flowers open the plants can be placed in a cold house. All who require a supply of flowers for winter and are short of room, &c., should give *Andromeda floribunda* a trial. All the *Andromedas* are beautiful, especially *pulverulenta* and *japonica*. The last-mentioned will be a great treasure if it proves a good grower and is hardy.—J. C., *Farnborough*.

DRACÆNA IN GUERNSEY.

THE hardy *Dracæna* is often seen doing very well in the south and west of England or Ireland, but we do not remember to have



Hardy *Dracæna* in Guernsey. Engraved for THE GARDEN from a photograph by Lieutenant Horton, R.A.

seen it growing so gracefully and vigorously as shown in the photograph of this bush, taken in the Hon. J. Saumarez's garden in Guernsey. Since the photograph was taken we hear the plant has assumed quite the proportions of a tree, flowering and seeding with great freedom. It is one of the few plants of its family which grow well in our gardens.

Colletia bictonensis.—Under this name I met with one of the *Colletias* in a Devonshire garden a few years ago. As the plant appeared to thrive within a few yards of the seashore, I have looked for it in other gardens, but without success. I call attention to it now because I think it should be better known by those who reside in a good climate by the sea. The plant in question grows in the form of a low-growing shrub with spreading branches. I was told that the original example was found in the gardens at Bicton, and was distributed by one of the Exeter nurserymen many years ago.—J. C. C.

KITCHEN GARDEN.

TOO MANY VARIETIES OF VEGETABLES.

For a long time past it has been felt that too lengthy lists of various kinds of vegetables are published. This, coupled with the custom prevalent throughout the country of nearly every seedsman claiming a considerable number of Continental as well as home-selected novelties as their own specialties, has had, to say the least, a most bewildering effect upon a good many vegetable growers. It was bad enough about six years ago, but has grown worse since the introduction of a legion of genuine novelties. A weeding-out process is necessary, but who is to begin? The Chiswick trials are conclusive enough, and prove what

may be justified in connecting their name with it, and taking every credit for the same, always supposing that the real raiser has no objection to being in the background. When, however, it is discovered that about six claim a certain variety which may have originated on the Continent, no English prefix ought to be attached to it. No doubt it pays to include so-called novelties in the various catalogues, but eventually it will lead to a re-action among purchasers, these refusing any longer to purchase them, and as a consequence real improvements will not be given a trial. The bulb trade is much interfered with, owing to foreign competition, and if the English seedsmen lose their good name for straightforwardness or honest dealing, they will find that their Continental rivals will gradually steal away their seed trade also.

One of the worst features of the case is the fact that exaggerated descriptions of varieties of vegetables very frequently lead to the swelling of various seed orders. I do not affirm that those responsible are now in the habit of increasing the sum total of the money spent on seeds, but when lesser quantities of well-tried varieties are ordered so that more novelties may be included, it is certainly a doubtful gain. By all means find room for what appear improvements on old forms, but do not hastily discard old favourites. The independent enthusiast may grow as many varieties as he can find room for, but those who are not concerned about names but know what is good when served and what is only middling object to almost daily changes. When too many and much varying sorts are grown they not only bother the cook, but the consumer is annoyed by these frequent changes, and this sometimes leads to unreasonable orders being given to the gardener. Thus one gentleman will have nothing but Telephone Peas; another pins his faith on the good old Champion of England, and a third insists upon having Ne Plus Ultra both in and out of season. All are of excellent quality, but each has its season. Add William I. for the earliest sowings, the others in the order given, and a good supply will be maintained for a whole season. Order enough seeds for several rows of each, and depend on these and not the novelties on trial.

Too many varieties of Potatoes are grown, and it is in connection with these that novelty lovers get into most trouble. Weekly changes consequent upon storing forty bushels in forty varieties inevitably end badly. Better by far depend upon four or six well-tried varieties, growing these in quantity and the untried novelties sparingly. Old Ashleaf, Myatt's Ashleaf, Scotch Champion, and Magnum Bonum constituted the sole selection at one time grown in a large garden connected with one of the best establishments in this country, and if Champions could have been supplied all the year round the "family" would have been well pleased. The gardener was actually invited to grow them in frames on hotbeds. The Champion does not suit all soils, and others must be substituted; but that is no excuse for forming unlimited collections.

The varieties of runner Beans are also being added to, those having immense pods being in the ascendant. For exhibition purposes they are doubtless valuable enough; but as regards table quality, they are greatly inferior to the old scarlet, and, seeing how heavily the latter crops, it is surprising that it should have been largely ousted out by the coarser, long-podded varieties.

Brussels Sprouts are deservedly popular, but they would not long have remained so if the Aigburth variety had superseded all others.

a number of so-called distinct varieties may be classed as synonymous, yet no heed is paid to the carefully tabulated results arrived at. Were it otherwise, and each variety was given its proper name, we might then be better able to discuss the merits of really improved varieties. As it is, all the new arrivals only serve to swell the lists, and every successive disappointing trial further disgusts those who make them. A craving for novelties may have much to do with the advent of so many more or less distinct varieties, but they would not be so readily forthcoming were it not for the chance it gives of high prices being obtained for them. I would respectfully urge the most noted and reliable seedsmen to be careful how they set the example of claiming every good thing as their own, attaching their prefix being, as I understand, a method of conveying that impression. The firm introducing a really "good thing"

It is a sure cropper, but the sprouts are much too large and strongly flavoured. Plenty of other examples could be given, but I will conclude with Lettuces. According to the catalogues, numerous improvements on the Paris White Cos and Black-seeded Brown Cos have been effected, but only a very few of them merit the glowing descriptions given; in fact, it is doubtful if there are any real advances made in this direction. Both, if given the treatment accorded to novelties, can be grown large enough and good enough for all purposes, and I find them of the greatest value all through the summer and early autumn months.

W. I.

SEAKALE.

TEN acres of Seakale, the ground rented for the season at £12 an acre, shows that the culture of this root on a large scale is a costly business. Ten acres should give many thousands of roots, and only a grower in a large way could undertake the responsibility of producing so large a quantity, as ere any profit is derived, the roots have to be forced in suitable places, an immense quantity of long manure being employed for the purpose, with, of course, a very considerable quantity of somewhat expensive labour being utilised also. The ground when Seakale is planted largely is first deeply ploughed and subsoiled, thus moving it to a depth of 15 inches. Then a heavy dressing of manure is added and ploughed in the ground, harrowed down, and rows marked out either with lines or by means of an ordinary field-marker. The sets, some 4 inches long, are prepared, carted to the ground in baskets, and quick hands dibble the holes, whilst women follow, plant the sets, and fill in. As the real grower in the above case forced his Seakale several miles away from the growing area, of course the cost of labour and cartage, even with the soil previously prepared by the farmer from whom the land was rented, was considerable. To have really good single crowns to the roots, it is advisable to have all duplicate crowns removed early in the growing stage. If that trouble is taken, the expense is added to. Then it is not possible to work the horse-hoe amongst Seakale, and hand labour in hoeing and cleaning, too, is costly; still, it must be done. Presently the strong growth will smother the weeds, and the breadth is for the rest of the season fairly clean. Great labour is again needful in the winter in lifting the roots, for the leaves die off so late that the lifting cannot be well done until after the middle of November, and sometimes later. Seakale, like all tapering roots, cannot be ploughed out or even dug out rapidly, as Potatoes are. The roots have penetrated some 12 inches at least, and must be got out with care, for the branching rootlets are needed to furnish sets for the following year. Naturally, in the face of all the heavy charges incidental to Seakale culture in a large way, for the same course must be gone through each year, the cost of good forced Seakale heads must be considerable. People sometimes advise cottagers to embark in Seakale culture, but they could only do so in a very small way; they would be at their wits' end to find forcing material and space, and very likely be unable after all to find a profitable market. Without doubt to the bulk of cottagers an equal area of Potatoes, Parsnips, or Cabbages would pay far better. After all, even the best of forced Seakale must have the best of cooking and dainty accompaniments when served up to render it acceptable. In private gardens provision for an ample supply of Seakale must be made if the table of the household is to be supplied during a difficult period of the year with a vegetable which proves most helpful to all gardeners in its season.

A. D.

Potatoes.—Some Potatoes were cut in two. Holes were found in the middle, which rendered them totally unfit for table. There was, however, no outward mark or sign of the (disease?) imperfection. 1. What was the cause? 2. What remedy?—E. B. MILSTEAD.

* Kindly send samples and we will endeavour to assist you.—Ed.

KITCHEN GARDEN NOTES.

VALUE OF WALL BORDERS.—The borders in front of garden walls are generally very closely cropped, more so, in fact, than any other part of the garden; but it is not often that the ground is utilised close to the walls. In most instances a narrow ungravelled walk is formed about 18 inches from the walls, and it is the narrow space between this and the walls that can be made to produce very serviceable early crops of vegetables. Instead of digging these narrow borders, loosen the soil, and on this place first a layer of half-rotten manure, and next a depth of about 6 inches of good loamy soil. This being made fairly firm, it is then fit for the reception of a row of either Ashleaf, Early Border, or Mona's Pride Potatoes, these being planted 8 inches apart and about 5 inches deep, temporary protection of the haulm from late frosts being all that is needed. Radishes may be sown in front, and the bulk of these will be ready for use before the Potatoes cover the ground. If preferred, a row of American Wonder or Chelsea Gem Peas may be sown about 9 inches from the wall, and in front of these plant Early Paris Market Cabbage Lettuce. The Peas, being lightly staked, will not encroach upon the Lettuces, and both crops will be appreciated. Our sunniest borders are devoted to Kidney Beans and Lettuces, these being more in demand than either Peas or Potatoes. The former are either sown early or planted out from small pots, and in front of these the Lettuce just mentioned is grown. A narrow similarly raised border at the foot of a west wall is cropped with Brown and Hick's Hardy White Cos Lettuces, planted 10 inches apart, and in front of these there is a row of the Paris Market Lettuce, and a capital lot of salading results. Later on these raised borders may be occupied with Capsicums, Tomatoes, and, if need be, Beet, raised in heat and transplanted.

SEEDS TO BE SOWN UNDER GLASS.—An early start with several kinds of vegetables is a decided gain, and in many instances it is the best plan to sow the seed under glass. If it can be spared, either a two-light or larger frame should be set upon a gentle hotbed, inside of this being placed a firm layer of short heating material, and on this about 6 inches of sifted soil. Water the surface, divide into squares, sow the seeds thinly, and cover with fine soil. What should be sown at the present time are Cauliflowers, Veitch's Autumn Giant and Eclipse; Cabbages (if there is a scarcity of autumn raised plants), Ellam's Early Spring, Heartwell Marrow, Wheeler's Imperial, Defiance, or any other selected variety; Brussels Sprouts, Ne Plus Ultra, Exhibition, Perfection, or Matchless, one or two varieties being sufficient; Broccoli, Veitch's Autumn Protecting; Lettuces, Black-seeded Brown Cos, Paris White Cos, or one of the many selections from the same; and Early Paris Market and Perfect Gem Cabbage Lettuces. Give plenty of air after the seedlings appear, and draw the lights off on sunny warm days, thus producing a sturdy growth and hardening off the plants for pricking out in the open. Those who cannot afford hotbeds and frames ought to raise a few plants under glass at least of Brussels Sprouts, Broccoli, and Cauliflowers, and the rest if badly needed. The seed may be sown thinly in pans or boxes, and set either on shelves near the glass or in a cold frame or pit. Plants thus raised will be much earlier than any obtained by sowing in the open. Snow's Winter White Broccoli ought not to be sown until near the end of April, those plants raised much earlier being apt to develop into monstrosities.

LARGE LEEKS.—If extra fine Leeks are needed, and they cannot well be grown too large, a pinch of seed ought to be sown at once in a pan of fine soil and plunged in a gentle hotbed. When the plants are well advanced, set the pan on a shelf in a warm house for a few days preparatory to pricking them off into shallow boxes of rich loamy soil. Keep them in heat till strongly rooted, when they may be hardened off and finally planted in shallow trenches prepared as for Celery. The Lyon variety grows to a great size and the quality is good. The monstrous Carentan is too coarse-grained.

SCARCITY OF ONIONS.—Onions in many districts were not so large and plentiful as usual, nor do they keep well. As they are indispensable to the cook some steps ought at once be taken to forward as many as possible. Instead of throwing away all those that have commenced growing in the store room, these should be bedded out thickly in any convenient border, where they will grow strongly and form fresh bulbs. These are known as "scalions," and may be drawn, trimmed, and sent to the kitchen in advance of the autumn-raised Tripolis. Those who have a row or breadth of autumn-raised plants of The Queen and Golden Queen ought, on the first favourable opportunity, to plant them thickly on a well-enriched warm border, where they will bulb quickly. Seed of the former kind may also be sown in heat and planted out, and thus treated will be fit for use some considerable time in advance of any of the same or other varieties raised in the open. Many of the largest and best ripened spring-sown Onions to be seen at various exhibitions are raised in boxes or pans of fine soil in heat, hardened off, and transplanted to the open ground. For this purpose, those of the White Spanish type are to be preferred, these including Banbury Improved, Improved Reading, Naseby Mammoth, and Rousham Park Hero.

RETARDING BROCCOLI.—Few good heads will be cut from the open quarters during February, and when this is the case an undesirable glut occurs the following month, or it may be as late as April before Broccoli is abundant. It is the large breadths of one variety that are the most troublesome in this respect, and rather than have too many available at one time I prefer to transplant a portion to a north or north-east border. If all were of equal quality there would be no need to take this trouble, but there are four varieties that ought to have their respective seasons prolonged as much as possible. These are Veitch's Spring White, Leamington Model, and Late Queen. During the prevalence of dry, mild weather a portion of the plants of each variety most preferred on the table should be carefully lifted any time this month, with a good ball of soil about the roots and carried on hand-barrows to where they are to be closely bedded in. Open a trench across the west end of the border, lay in a row of plants, sloping them to the west, cover the roots with manure, and on this firmly pack the soil obtained by opening a second trench, proceeding in this manner till all are planted. The stems being buried will not be injured by severe late frosts, and the tops sloping away from the morning sun thaw gradually whenever frozen, while the roots take possession of the manure and assist in the growth of fine heads. The Leamington may be kept in this manner till late in May, Model and Late Queen keeping up the supply till near the end of June.

SEED POTATOES.—These ought never to be mixed among "ware" Potatoes or those stored for table use, nor should they be neglected in any way. It is advisable to store seed Potatoes thinly on benches, shelves, or in trays, but all have not sufficient room for thus treating them, and various contrivances are frequently adopted to keep them from starting into growth too early. If stored in heaps or hampers in either rooms, outhouses, or cellars, they are certain to sprout prematurely, and a number of greatly weakened sets has to be planted in consequence. It is the Ashleaf section that is most injured by the loss of the first strong or central sprout, the side shoots being invariably of a much more weakly character, and these tubers, at any rate, ought to be stored on their ends in trays, shallow boxes, or flat baskets. This is advisable even if the first sprout is lost. All, both round and kidney varieties, ought to be thoroughly overhauled. Plenty of light and air ought to be admitted to them, warmth and darkness inevitably inducing premature growth. Those left in the ground and well moulded over usually remain fresh and plump, sprouting much later than those lifted and stored.

THE BEST GREEN WINTER VEGETABLE.—It is a curious fact, and rather surprising, it may be, that the dwarf Ulm Savoy should be selected as the favourite winter green, but such is the case with us.

We have a constant supply of either Cauliflowers or Broccoli, abundance of close and good Brussels Sprouts, plenty of Cabbage, including tender Coleworts and Chou de Burghley. The last-named is uncalled-for, being far inferior to the Savoy under notice, and the latter is also preferred in the dining-room to either Broccoli or Sprouts. The seed was sown late in April, and the plants put out, 15 inches apart each way, on a good, open piece of ground. All through the late autumn and winter, or up to February 1, we have cut almost daily from this breadth, and there are yet a few more heads available. The Ulm Savoy is of dwarf, close-growing habit, forming neat, well-blanching heads, which when boiled whole are very tender and mild in flavour. No other Savoy proves so serviceable and good, and room ought to be found for it in every garden.

W. I. M.

ORCHIDS.

W. H. GOWER.

STENORHYNCHUS SPECIOSUS.

THIS, one of the most showy of the West Indian Orchids, is now flowering beautifully in Mr. Buchan's gardens, Wilton House, Southampton, and it is remarkable that, although so extremely showy and introduced to this country so long ago as 1790, it is seldom seen in cultivation. In my earlier days it was more frequently to be seen in collections, but usually in a very neglected state; while even then it would produce quantities of flowers, so that its scarcity does not arise from any difficulty in its management. The roots are numerous, very thick and fleshy, and from these the leaves spring in a rosulate manner. The inflorescence consists of an erect dull red spike, bearing a dense many-flowered raceme clothed with numerous brilliant red bracts, from which the flowers protrude in a similar manner to those of Bromeliaceous plants; the footstalks of the flowers and the sepals are also bright red, the petals and the lip being pure white. The various members of this genus are all terrestrial, and this plant in its native haunts is found in shady woods and banks of streams in stiff loamy soils. Under cultivation it thrives best in a stiff loam, which seems to suit it when made very firm. When growing it requires an abundant supply of water, and when the leaves die away, which they do annually, less water should be given. Too often the roots are deprived entirely of moisture during the time the plant is dormant, the consequence of such treatment being that the plant gradually decays. It used to be largely grown in the Messrs. Jackson's nursery at Kingston, and should certainly obtain a greater amount of favour than it does at the present time amongst Orchid growers. I regard it as one of the very few showy West Indian Orchids, and it deserves a place in every collection.

Cœlogyne asperata.—This is one of the early introductions of Messrs. Low, of Clapton. It has never become common. I recently noted a fine example of it in Baron Schreder's collection at The Dell, Egham. An excellent illustration of this species forms the 311th plate in the "Orchid Album" for December last. The plant is also known as *C. Lowi*, and is said to require a high temperature and a very moist atmosphere.

Dendrobium in baskets.—Referring to the article on the above in THE GARDEN, Jan. 28 (p. 77), growers of Dendrobiums should remember that the beauty of their plants is liable to be much spoilt by any interference with the position of the pseudo-bulbs when once the flowers are opened—that is to say, it is natural for the blossoms to expand with the lip below, not at the top of the flower, as in an Epidendrum. If a bulb of *D. Wardianum*, for instance, which has been hanging over the edge of the basket or pot is raised from its position by being tied to a stick, the effect of the flowers on their backs, their sides, or their heads is anything but as pleasing as it might be. The plants so often have to be moved when in bloom from their previous

quarters, that it is worth taking the trouble beforehand to drill them ready for their inspection, and the frequency with which in a photograph one sees them in doubtful and inconvenient attitudes shows the necessity of attending to such a simple detail.—C. R. S. D.

Dendrobium superbiens is a native of North Australia and various islands in Torres Straits. It is one of Mr. Williams' introductions, and he says it is a most profuse bloomer, and that the old bulbs continue year after year to produce fresh spikes, evident proof that the display of flower would be considerably reduced under the pruning system. The flowers are said to retain their full beauty for three months, and I have now before me a spray of this species which was sent me about the middle of December. Although I cannot say it is as fresh as ever, the flowers are in fairly good condition. The colour is delicate warm rosy purple. The plants require a very moist atmosphere and full exposure to the sun ("Orchid Album," plate 312).

Cattleya eldorado splendens.—An excellent portrait of this beautiful Cattleya appears in the December number of the "Orchid Album." The sepals and petals are clear rose colour, the large cucullate lip being deep orange in the throat, bordered with a band of white, and the front portion is rich violet-purple. This plant was introduced some years ago by M. Linden, of Brussels, from the district about the Rio Negro, where it passes into the mighty river Amazon. The country about there is somewhat low and hot, and consequently this plant requires more heat under cultivation than the majority of the kinds. It appears to remain scarce.

Lælia superbiens.—This grand plant is a native of Guatemala, where it is said to be called the Wand of St. Joseph. It was discovered by that indefatigable collector, Mr. G. Ure-Skinner, and introduced to this country about the year 1842, and for many years an immense specimen adorned the conservatory in the Horticultural Society's gardens at Chiswick. It is a somewhat shy-flowering plant under cultivation until it has attained some considerable size and age. The above fact has led to its cultivation being discontinued in many gardens. A form of this species, however, now flowering in the Studley House collection would either appear to produce its blossoms in a smaller state than usual, or the result has been brought about by superior management. The bulbs are very bold and stout, and the scape is several feet in length, the flowers being borne on a clustered raceme near the top; the flowers are some 5 inches across, and the lovely pencillings of the lip are more beautiful than usual. The sepals and petals are of a deep rose colour, lip large, the side lobes yellow streaked on the inner side with radiating lines of purple, the middle lobe rosy purple, beautifully veined with deep crimson. It is a plant which enjoys full exposure to the sun, but very little artificial heat.—W. H. G.

Cypripedium Marshallianum.—This is a perfect gem among the Slipper Orchids, and the fact of its having been exhibited before the committee of the Royal Horticultural Society without receiving recognition is one more proof of the necessity of establishing a special Orchid committee to adjudicate upon these plants. The great number of gentlemen who grow these plants and are deeply interested in them, independent of the intrinsic value of the subjects exhibited, would fully warrant such a step, and it is to be hoped that this subject will receive the early attention of the newly elected officers of the society, as its adoption would doubtless tend in a marked manner to increase its numbers and render the society popular. This Cypripedium, one of the earlier hybrids raised by the Messrs. Veitch's, has from some cause become very rare; indeed, the plant I recently noted flowering in the collection of Mr. Tautz, at Studley House, Shepherd's Bush, is the only one known to exist at the present time. It is thoroughly distinct from any other kind. It is the result of a cross between *C. venustum* and *C. concolor*, and, like all the hybrids from the concolor section, is very slow growing. The leaves are dark green curiously marbled over the upper surface with deeper green,

the flowers are large, the sepals and petals being particularly beautiful. The dorsal sepal is broadly ovate, white suffused with rosy pink and profusely covered with dots of deep crimson, mostly arranged in irregular lines, the petals being about 2 inches long, nearly an inch wide, and about the same width throughout, white suffused with rosy carmine, and dotted with deep crimson; lip pale straw colour, in front dull crimson, the interior being also covered with deep crimson dots. It is evidently one of those kinds which require strong heat to develop its beauties.—W. H. G.

RARE ORCHIDS AT KEW.

AMONG the Orchids in bloom at Kew at the present time, *Maxillaria aureo-fusca* is quite out of the ordinary run. It is a small plant with round bulbs as big as pigeons' eggs and thick stiff leaves. The flowers are in shape more like those of *Ada aurantiaca* than *Maxillaria* flowers usually are. The colour, too, is uncommon, being best described as terra-cotta with pencillings of brick-red, so that it is pretty as well as rare. *Sophrontis violacea* is a gem in its way, and is one of the very few Orchids having a peculiarly bright rose-magenta, or, as an artist would call it, a rose-madder. It is also a dwarf grower with egg-shaped one-leaved bulbs, and flower-spikes carrying from one to three flowers. It lasts a long time in bloom, and being so bright is noticed even among the crowd of other things. Being a native of the Organ Mountains, it is grown in the cool house. *Aerides vandarum*, also known as *A. cylindricum*, resembling in habit of growth *Vanda teres* and *V. Hookeri*, both of which it mimics by its quill-shaped leaves, seems to be perfectly at home among the Cypripediums. The flowers, which are pure white, curious in shape, and chastely beautiful, are about 2 inches across and produced in pairs on slender footstalks. It seems to delight in a moist and warm atmosphere such as suits most East Indian forms. The lovely *Saccalabium bellinum* is particularly fine in bloom. Many think it the most beautiful of all the Saccalabiums. Remarkable for its tininess is *Angraecum hyaloides*, which has dense little clusters of white transparent flowers—a contrast to its giant neighbours *A. sesquipedale* and *A. eburneum* in flower on the same bench. In the cool house, *Pleione humilis* is noteworthy, being the only Indian *Crocus* in bloom, the others being past long since. It is a good deal like *P. præcox*, having pale mauve flowers, with a lip bearded at the edge and marked with crimson-purple. Its chief value lies in its being the latest of all to bloom. Near it is *Cattleya Walkeriana*, a synonym of *C. bulbosa*, one of the prettiest of the dwarf species. Its sweet perfume adds to its value. Other noteworthy Orchids in bloom are *Cœlogyne lentiginosa*, not by any means a common plant. It has a profusion of pea green flowers, each lip being marked with bright orange. Among the Cypripediums is *C. meirax*, a hybrid that well exemplifies that the result in intercrossing beautiful species is not always satisfactory. The hybrid in this case is not so beautiful as its parent, *C. venustum*. W. G.

SHORT NOTES.—ORCHIDS.

Sophrontis violacea.—This is quite different to the brilliantly coloured *S. grandiflora*, and in its way quite as beautiful. Each of the small pseudo-bulbs carries a narrow leaf, the scape bearing a dainty little flower, almost round, and of a fine magenta hue—certainly more this colour than violet. It is one of the sweetest of winter-flowering Orchids.

Angraecum eburneum.—This Orchid is in bloom now in several collections, and is one of the most robust and free-flowering species of the genus. The racemes carry many flowers, which appear upside down by reason of the curiously twisted ovary. The ivory-white lip is the great feature. There is an inferior variety with smaller flowers named *A. e. virens*.

Cattleya Trianae alba.—The pure white form of this magnificent Cattleya is flowering at Mr. Bull's, and though rare it cannot long remain so, now that Orchids receive such marked favour. The only colour in the flower is the lemon stain at the base of the fringed lip. A fine specimen in full flower must be a lovely picture.

Odontoglossum blandum.—Of the many *Odontoglossums* that now have a place in our plant houses this is one of the most beautiful. It has small

flowers; the sepals and petals narrow, pointed, and beautifully freckled with crimson on a white ground; the lip is of a similar colour, but the spots are larger. A small plant was recently flowering at Mr. Bull's, Chelsea, and the wonder is such a gem is not more seen. But this is the fate of some kinds, notably the lovely *O. cirrhosum*, which was also blooming here freely.

Masdevallia racemosa Crossi.—"A. D. Herts," at p. 86, says of this plant that it is a natural hybrid. I should be glad to learn his authority for making that statement, or, if it is a conclusion of his own, how he arrives at it. I may say that *M. racemosa* is the proper name of the plant, Crossi being a garden synonym. There are extra good varieties of the species, and it would be simple courtesy to attach the name of Mr. Cross to one of the best of them, as I believe he tried more than once to get it to England when on his Cinchona excursions.—JAMES O'BRIEN, Harrow-on-the-Hill.

Dendrobium chryseum.—This is a pretty species, which I have not before noted in flower. The stem-like pseudo-bulbs are slender and erect, from 6 inches to 9 inches high, and bear near the top a profusion of golden yellow flowers, which yield a pleasing fragrance. Although the individual flowers are not large, the plant is well deserving of a place in every collection, on account of the season of the year at which it blooms and the grateful perfume which the flowers emit. I recently noted it flowering with Mr. Tautz at Shepherd's Bush.—W. H. G.

Dendrobium Dominicanum.—In growth this pretty variety resembles *D. Linawianum*, and the flowers also remind one of that species, which for so many years has been grown in our gardens under the erroneous name of *D. moniliforme*. It is one of the Veitchian hybrids, and bears the name of the first Orchid hybridiser, Mr. Dominy. The plant is the result of a cross between *D. nobile* and *D. Linawianum*; the size of the flower is nearly that of *D. nobile*; sepals and petals white, flushed with rose, and tipped with rosy purple; lip white, tipped in front with rosy purple, and blotched in the throat with deep purple. This plant is flowering with Mr. Tautz at Shepherd's Bush, where it is grown in the intermediate house.—W. H. G.

Saccolabium bellinum.—One of the prettiest Orchids in flower at Kew is this Burmese *Saccolabium*, which is grown in a small basket suspended near the light in the East India house. The flower-stem is inclined to be pendent, and bears three medium-sized blooms of the richest hues, and herein lies the great beauty of the plant. There is a combination of pure and vivid colours; the sepals and petals ovate, fleshy, and thickly blotched, almost entirely covered, in fact, with rich brown, that shows up strikingly against the olive-green ground; the upper portion of the lip is pitcher-shaped, fleshy, and blotched inside with lake, the expanded portion being pure white, and coated at the apex with short, thickened hair-like processes; the centre rich yellow. It is a choice and dainty gem.

Cypripedium nitens.—This is the result of a cross between *C. villosum* and *C. insigne* Maulei, and the beauties of both parents are remarkably well blended; the leaves are similar to those of *C. villosum*; the lip and petals are also much like those of the first-named parent, and they have that fresh varnished-like appearance which is so peculiar to *villosum*. The dorsal sepal is exceedingly beautiful and much larger than that of *C. insigne* Maulei. Nearly the whole upper half is soft woolly white, as in *C. Maulei*, and extends on both sides to the base in the shape of a broad border. The centre of the dorsal sepal is greenish yellow, over which are scattered in an irregular manner large spots of purple. It is a bold and handsome kind, forming a conspicuous object at a great distance. It is now flowering in the Studley House collection.—W. H. G.

White Lælia anceps.—Two magnificent forms of this species are now flowering in the Studley House collection, one named *L. anceps* Schroedere, in which the flowers are very large, the sepals and petals broad and spreading and of the purest white; the lip is also large, the front lobe very square and pure white with a yellow disc, the side lobes being heavily streaked with deep crimson. The other form is *L. anceps* Williamsi, and is scarcely less beautiful; the sepals and petals are pure white, as also is the front lobe of the lip; disc yellow; the throat is white, bearing numerous broad streaks of deep crimson-purple. Both these forms, I believe,

were introduced to cultivation by Mr. Sander, of St. Albans, and appear to thrive under exactly the same treatment as the typical plant.—W. H. G.

THE GLASSHOUSE GARDENER.

THE introduction of the greenhouse to English gardens was a great improvement, but, like other changes, it has cut in two ways, and not always beneficially. If the glasshouse always took its proper place in our gardens, we should have nothing to say. Few things can be more pleasant in the middle of our winter than the enjoyment of the flowers of warmer climates. If a man makes a garden in or near a town where he cannot grow outdoor things, a good way is to have a greenhouse. But in our country—a delightful one for gardening in—we can do so many things in the open air that the best conservatory of all is the open air. At one time our gardeners had no chance of displaying their skill indoors, but of late years they have become so possessed of the greenhouse idea that many of them despise everything else. A nurseryman was telling us the other day that youths of the roughest kind who came to him to learn their work, when asked what kind of place they desired to go to, always said that they would like to go where there is plenty of glass. It is very unfortunate for our gardens. A consequence is that if one has a beautiful outdoor garden for which a gardener who has a knowledge of fruits, flowers, and vegetables in the open air, is sought, it is often difficult to get one. The other day we offered a man a good place. He was out of a situation and seemed anxious to get one, but when he heard there was no glass, and that it was an outdoor garden, his heart seemed to sink within him, and he gave it up.

Many people pay attention to their hothouses and to nothing else, and do not even mind sticking a glass shed against some beautiful old house—a hideous mistake. No money is spent out of doors except in simply keeping the place clean; no trees are planted with any taste; no flowering shrubs, except the commonest; no graceful, lasting, hardy flower garden, but a common bit of evanescent bedding out. It is natural, perhaps, that gardeners, under such circumstances, and not having any opportunities of knowing better, should suppose that the best of everything in gardening is in the hothouse! A greater mistake there could not be. In any country with a mild or temperate climate the best gardens may always be made in the open air. A man ignorant of outdoor work is useless for any of the beautiful places throughout the country. If people's eyes are shut to the manifold interests that gardening of the nobler sort may unfold to them, they do well to grow nothing but Orchids; but it will be a misfortune if young gardeners are led to believe that such specialities are the only things in gardening worth doing. If we had any proper way of teaching gardeners, they would all be sent to the outdoor departments of a good garden before they took up the cultivation of hothouse plants. Now-a-days many people, thinking of a better system of gardening than the carpet-bedding and the bedding-out of the last generation or so, seek a man who can make a change for them, but it is not easy to find him.

So, again, nothing is more important for the health and pleasure of a family than first-class vegetables. It is a common thing, we know, to talk about Covent Garden as the best of gardens. There can be no greater mistake. A well-cultivated kitchen garden, in which one can get fresh vegetables and herbs, is one of the best investments that can be made in health, if in nothing else. In the case of a family, how very important it is that one should have first-rate vegetables! What a difference in the weekly bills, avoiding all carriage and all purchase, and being able to get the numerous things that in our mild and moist climate a good kitchen garden may afford. Few fairly appreciate its advantages, but people who keep houses in London and get all their supplies from Covent Garden know well that the bill is a very heavy one, and that the goods are far inferior to those which they get from their own gardens. We have often

bought, regardless of cost, the best that Covent Garden could afford, and compared it with the produce of a country garden. The difference is enormous in favour of one's own garden. Some things, for example, Peas, are never tasted in proper condition at all in the market. How important it is then that a gardener should be a good vegetable grower!

Take, again, the question of flowers. How much more important is it that a gardener should know, say, the best Roses and be able to grow them well than that he should be an expert in some family of greenhouse plants! There is no reason why he should not do both, but hardy plants, that if well grown and well chosen adorn the open garden and afford plenty of cut flowers, should come first. No system of greenhouses, unless carried on in the most extravagant way by a millionaire, could equal a good garden of hardy flowers for eight months out of the twelve.

Hence we say that people should resent this pretension to exalt the greenhouse and stove above far more important things, and should insist on gardeners being trained in outdoor gardening as well as in the hothouses.—Field.

NATIONAL CHRYSANTHEMUM SOCIETY.

THE annual general meeting of the members of this society was held on Tuesday evening, Jan. 31, at Anderton's Hotel, Fleet Street. The meeting was by no means largely attended. The usual preliminaries having been disposed of, the report and balance-sheet for 1887 were read and adopted. As evidence of the progress that the society is making, it is only necessary to quote the following items: Members' subscriptions, £160 19s. 6d.; donations, £149 1s.; total income from all sources, £704 odd. The amount disbursed in prize-money at the three shows was £398 13s. 6d. The hon. treasurer, Mr. Starling, rendered his account of the reserve fund, which now amounts to £78 19s. 4d. Consols.

New members and Fellows were then elected, and the secretary announced that Lady Lytton had consented to become a patroness of the society. The following societies having applied to become affiliated, it was resolved that their wish be acceded to: Wimbledon Chrysanthemum Society, Tooting and Balham Horticultural Society, and the Pembroke-shire Chrysanthemum Society.

The next business was the election of officers, which resulted in the following appointments: President, Mr. E. Sanderson; vice-president, Mr. R. Ballantine; treasurer, Mr. Starling; hon. secretary, Mr. W. Holmes; following this the election of auditors and members of the general committee.

It was resolved that in future the floral committee be constituted of fifteen members, with the officers as permanent members, and that one-third of the members retire annually. The election of this committee was referred to the next meeting of the general committee.

A long list of special prizes and donations was then read and accepted.

Professor Alexander Dickson.—It has been remarked that no obituary notice of Professor Dickson, of Edinburgh, has appeared in THE GARDEN. Will you allow me, as his cousin, to correct this? Scotch and English papers have done justice to him as a landowner, a botanist, a lecturer and friend of his class, but I have not seen his love of garden flowers noticed. Among his favourites were Pansies; he had some very fine sorts in his garden at Hartree, in Lanarkshire. Our best ones at Wisley came from there.—GEORGE F. WILSON.

Names of plants.—*Salforth*.—1, *Taconsia* var. cannot name unless we see flowers; 2, *Deutzia gracilis*; 3, *Kleinia repens*; 4, *Acacia armata*; 5, *Kalosanthes coccinea*.—*J. M. Wilson*.—It is the ordinary form, and has evidently been grown well. The flowers are always sweet-scented in this variety.—*W. Leach*.—*Azalea obtusa*, a Chinese variety introduced nearly fifty years ago.—*A. Charlton*.—1, *Calanthe vestita* luteo-oculata; 2, flower arrived smashed.—*A. S. W.*—India-rubber plant; see THE GARDEN, Jan. 21 (p. 60).—*J. Mc*.—*Anemone fulgens flore-pleno*.—*Trevittrick*.—*Smilax tamnoides*.

WOODS & FORESTS.

THE HAWTHORN.

THE common Hawthorn is a hardy, useful and ornamental small tree, and forms a good standard on the lawn of a suburban villa or other places where the grounds are of limited extent. Notwithstanding its hardness and great beauty, it seems to be a neglected and, in many cases, a badly-used tree. We often see trees of this species hacked and slashed in such an unmerciful way by the hands of the ignorant that the sight cannot be otherwise than repugnant to all who have acquired the slightest knowledge of tree culture. The great rage, for some time back, has been for trees and shrubs of recent introduction, and I by no means despise the practice of giving them a fair trial; at the same time I think that the culture of the Hawthorn might be extended and improved with the best results. It is an excellent tree for planting on vacant ground along railway lines, as it will grow on almost any kind of soil and in situations where many other trees and shrubs would perish. I was deeply impressed with the usefulness of this tree for that purpose whilst travelling on the Ulster railway, between Belfast and Lurgan, about the middle of last June. At that time the trees were loaded with their beautiful white fragrant flowers, and as I passed them they appeared as if mantled in snow, and attracted the attention and admiration of everyone. One great mistake in the culture of this tree for ornament is the pernicious practice of clipping the branches with a shears in order to form a uniform head, as when the trees are subjected to an annual pruning of this kind they very seldom produce flowers; consequently the principal beauty of the plant is lost. This is to be regretted, and cultivators should take note that the top can be kept in a perfectly uniform shape by using the pruning knife only. When the tree requires pruning, the strong rambling side branches should be cut back, and in doing so, the branches to be removed should be cut off at the base of a lateral twig. By this practice the top can be kept in perfect shape, and as the twigs and branches left are not interfered with, they produce their flowers and fruit in great abundance. This tree is also a capital subject for the town garden, and as such is largely used, but a great many cultivators complain that their trees do not flower, the cause of which and the remedy I have already pointed out.

Although the Thorn is perfectly hardy, yet it is impatient of wet at the roots; consequently the ground where it is to be planted should be thoroughly drained, more especially soils of a stiff, heavy texture, as well as those of a light mossy character. In addition to thorough draining, this class of soil would be much improved by being dug up into rough ridges and exposed to the weather during winter, by which means the stiff, retentive nature of the soil would be broken up and rendered more fertile and pliable for the roots of the trees, while the mossy portions will be much improved by the reduction of the tannin properties which they contain. Both classes of soil would also be much benefited by a good dressing of lime. When the trees are planted as standards, the work of planting may be proceeded with when the ground is in proper working order any time during autumn, winter, or early spring. In mild, open weather the Thorn bursts into leaf early, so that I always prefer autumn and winter planting, and on no account should the work be delayed until the buds are beginning to move. In planting moss ground a little clayey soil

should be incorporated with the staple, as it assists decomposition and renders the whole mass more fertile. Well-prepared young trees that have been specially trained as standards should be selected, always choosing such as have good roots, a straight clean stem, and a well-balanced top. In lifting the plants care should be taken not to cut or in any way mutilate the roots. Plant the trees very carefully, afterwards staking them to prevent their being wind-shaken. Those who are fond of variety may also plant the double crimson, double pink, &c., all of which can be had at any nursery.

The Hawthorn makes a very good hedge, and is largely employed for that purpose, and when used for the division of fields it affords excellent shelter for grazing stock, while the numerous sharp-pointed spines form an efficient barrier against the inroads of cattle and sheep. Notwithstanding the usefulness of this fence, a person may travel in some parts of the country for miles and not see a well-kept Thorn fence. This state of things is to be regretted, for I believe in many cases the expense incurred in looking after and mending gaps exceeds the cost of pruning and keeping the hedge in proper order. The average cost of pruning an ordinary hedge being but 1d., or at most 1½d. per lineal perch, there is no excuse for such a system of mismanagement. Nothing gives an estate such a ragged and neglected appearance as badly-kept hedges. The best time to prune a Thorn hedge is the month of August—at least, such has been my practice for a great number of years, and with the best results. In planting a Thorn hedge the line of fence should be marked off and the ground trenched to a depth of some 20 inches or 30 inches, and about 6 feet broad, and in cases where the soil is of a poor, thin texture a good dressing of rich compost and fresh soil may be added with advantage, the quantity used to be regulated according to the circumstances. I have sometimes used well-decomposed manure, and although it gives the plants a good start, yet it is not so lasting as the fresh soil. Stout plants with good roots that have been properly prepared in the nursery should be used, and may be inserted at a distance of about 5 inches or 6 inches apart. These may be had at the rate of about 20s. per 1000, and sometimes less, but a shilling or two extra is always well spent in procuring healthy, well-furnished stuff. The hedge should then be protected until it gets thoroughly established, and it is very important to keep the plants free from weeds for a series of years, and even in cases where no surface weeds appear I have always found the plants thrive better by breaking the crust of the surface occasionally during the growing season with a hoe.

Although the Thorn is not grown as a timber tree for profit, yet the wood is of excellent quality, and is used by the turner and others for a variety of purposes, and I have never experienced any great difficulty in selling good sound stuff at prices ranging from 20s. to 30s. per ton.

J. B. WEBSTER.

Pinus parviflora.—This Pine, so named from the small size of the male catkins, which are very numerous and thickly crowded into a cylindrical spike 1 inch to 2 inches long, is indigenous to Northern Japan, where it attains an average height of from 25 feet to 30 feet. In this country it has proved to be perfectly hardy, and when allowed plenty of room to extend its side branches it makes a handsome specimen for a lawn, more especially in places where the grounds are of limited extent. Its habit of growth is conical. It extends its rather long and slender branches in a horizontal direction, and as these are well furnished with small lateral twigs clothed with abundance of rich glaucous foliage which it retains for three years, it con-

trasts well with others of a more sombre appearance. In spring it produces a great abundance of beautiful golden catkins, laden with pollen, in consequence of which I have never found it necessary to fertilise the cones artificially. It generally produces cones abundantly, these being of a pretty purplish colour, and ripe and ready for collecting about the end of harvest. This Pine thrives on any soil of ordinary texture, provided it is thoroughly drained. In soils of a stiff clayey nature I have found it beneficial to mix a little bog earth with the clay, exposing it for some time to the weather previous to planting. It is perfectly at home on peat bog, my practice being to mix a little soil with the bog at the time of planting.—J. B.

DURABILITY OF SILVER FIR.

WITH a view to test the durability for railway sleepers of the wood of the Silver Fir compared with that of the Baltic Pine, I made the following experiment:—

On the 17th April, 1877, I had four Silver Fir sleepers laid beside new Baltic Pine ones on the Caledonian Railway line four miles north of Perth. On the 21st June, 1884, one of the four Fir sleepers was raised for the purpose of having it exhibited at the forestry exhibition held at Edinburgh. Although it had been seven years and two months in use, it was in a remarkably good state of preservation; whereas, many of its Baltic Pine companions had been thrown out after being but six years in use.

In August last, 1887, when renewing sleepers on the line, two of the remaining three Silver Fir ones were thrown out, the fourth being considered still fit to retain its original bed. As the success of my experiment seemed fairly satisfactory, I consider the result obtained worthy of all publicity, for when it is remembered that the average duration of Larch sleepers is about eight years, it cannot but be regarded as noteworthy that those of the wood experimented on should have attained a duration of ten years and four months before being thrown out. But durability is not the only point in which the Silver Fir is equal to the Larch, for it luxuriates and produces sound timber on soils that will affect injuriously the Larch with dry rot, which lessens so much the ultimate value of Larch so affected.

I do not know any coniferous tree (*Abies Douglasi* excepted) that equals the Silver Fir in producing bulk of timber per acre, for on reaching and extending beyond its fiftieth year, it outstrips all other Conifers in size.

In planting this tree great attention should be given to the selection of favourable sites for its growth. Humid situations should be avoided. On estates upon which my advice has been asked, I invariably recommend the planting of Silver Fir on suitable sites for the permanent crop, at about 14 feet apart, and filling in the intervals with Larch only, to 4 feet apart over all.

When this mode of planting with Silver Fir and Larch has been adopted, and at an early stage of their growth, if the trees intended for the ultimate crop give indications of becoming healthy, the Larches may be gradually thinned wholly out, and the permanent crop may consist purely of Silver Fir; or the plantation may be grown as a mixed one; or should the Silver Fir trees fail to advance satisfactorily, the plantation may entirely be made up of Larch.—WILLIAM MCCORQUODALE, in the *Perthshire Constitutional*.

SHORT NOTES.—WOODS AND FORESTS.

Transplanting Larch.—Will any reader of THE GARDEN say if it is possible to move with safety Larch trees 10 feet to 12 feet high?—H.

Poplar for timber.—I have for some years been sensible of the profit of planting the larger kinds of Poplars, for the wood of which there is now so much demand for railway breaks, &c., and find the *Abele* Poplar grow rapidly in sheltered situations, but the *Black Italian* does better where the situation is more exposed. A damp clay or near the side of a runnel suits Poplars well; and in all cases their light fibrous roots require the soil to be well loosened when the trees are planted.—R. T.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NOTES FROM SCARBOROUGH.

WHAT a lovely Carnation you figure to-day! Comtesse de Paris must find its way to Scarborough when it is obtainable. As it is, I do not remember having seen its name before. Have you got a young plant or two of Clarisse? I know you agree with me in thinking it excellent in many ways. I find that Raby Pink, Beauty of Boston, Clarisse, Knaption Yellow, John Harrison, and several varieties of the old Clove are the only Carnations that really grow on for years and years without needing constant yearly propagation. Many excellent varieties (or indeed all) thrive under yearly propagation, but otherwise succumb to a hard winter, generally speaking. I shall be curious to know how far your experience coincides after a year or two. No good white Carnation that I know of has ever grown here into a great mass 4 feet across, as the varieties I have named will do here. Gloire de Nancy requires starving, or its grossness destroys it, and I have never kept a plant for more than three years as yet, but hope to do so now.

Anemone blanda (Ingram's strain) is perfectly exquisite here, growing close to that handsome and hardy evergreen Fern, *Lomaria chilensis*, and with a bold clump of golden Munstead Oxlip just above it makes one think of April rather than February.

Your Pear notes are always interesting to me, and I quite think that Jargonelle should be a select Pear. For my part I do not like Bon Chrétien or Louise Bonne in England, though I think the former delicious abroad. I fear there is no chance of any English-grown Pears being good enough for market at this season unless some new Phoenix should rise in wonder, for it is not warm enough in October and early November to properly finish the fruit before it is gathered. Once plucked, growers can only mature what they have collected. If we could ensure really ripening weather in October, generally speaking, then we could grow first-rate late Pears; but still, while owning fully and freely the inferior quality of English late Pears, I should be sorry to leave out Easter Beurré, simply because there is no other Pear at all that we can put on table so late in season and so sure in crop. Owing to our rather favourable autumn, we find it very pleasant, though, of course, far from the delicious flavour of a Lyons or mid-France-grown Easter Beurré.

Marie Benoist is, I fully expect, the best Pear for Christmas and early January, but it is newish, and not by any means well known. Has anyone praised it to you? We ate one on Christmas Day of our own growing, which really was as good as Marie Louise in No-

vember, and about the same size, though wider at the base.

EDWARD H. WOODALL.

CUT FLOWERS.

TO THE EDITOR OF THE GARDEN.

SIR,—I have read "Veronica's" letter and the remarks following. As you ask for the "ideas of some of the lady readers," I venture to send you mine on the subject of Bouquets *versus* Posies.

Let me say at once that I consider posies a decided improvement on the old stiff pin-cushion bouquet; indeed, if well arranged, there can be no more suitable and becoming hand accompaniment to a pretty toilette. As to the nomenclature, the posy "by any name will smell as sweet!" Too odorous it should not be. But why change a name so suggestive of all that is charming? The word posy has a delightfully youthful sound, suitable alike to the young *débutante* and to the *jeune Mariée*, and it may even bring to the mind's eye of the quiet, but imaginative chaperone a pleasant picture. Often during the last two or three seasons, when I have been patiently sitting in a heated ball-room, has the sight of an apparently carelessly-tied bunch of flowers, and the words, "Oh! may I leave my posy while I dance," given me a sudden day-dream of an old English garden full of the dear old-fashioned flowers which supplied the posy of olden time. That posy I imagine to have been a bunch of flowers gathered, one here, one there, for the pleasure of the beauty or the sweet scent, or may be for the association, like the posy gathered by poor, stricken Ophelia, and tied with a bit of thread or of ribbon. But the posy of modern days should be fashioned rather differently. It has a purpose to fulfil in the world of fashion. It is intended to be the last finishing touch to the full dress of the day to be worn at ball or fête. The flowers composing the posy should therefore be either in harmony in colour and kind with the gown and its artificial floral trimmings, or else in complete contrast. A handful of flowers of one sort with its own green foliage seems best suited to this purpose, though here and there may be exceptions, and it must be tied with a ribbon of suitable kind and colour. And here comes in the art. It should appear to be carelessly tied together, but in must in reality be so fastened, that it will not easily come to pieces. And the stalks must also be so covered, that they will neither discolour the glove, nor yet themselves suffer from contact with the heat of the hand. One of the greatest difficulties in posy making must be to choose the kinds of flowers suitable for the purpose. They must be sweet enough (unless perfectly scentless), yet not too sweet, and sufficiently tough to stand a few hours in a heated room. No doubt the reason for nipping off the heads of flowers and wiring them in the old stiff bouquet was to enable the arranger to twist a bit of damp cotton wool carefully round just under the petals; and certainly those poor heads lasted fresh for a long time—longer, I think, than the more naturally arranged posy.

Perhaps the next triumph of the florist's art will be to invent some way of keeping the lovely blooms fresh without spoiling the graceful simplicity of the posy; and as it is one of the prettiest fashions of hand bouquets that has ever been devised, I hope that it will find favour with the leaders and followers of the mode for many a long day.

E. F.

Standard Pears for Britain.—We do not want any more "selections" of Pears at

present. What we want is for our experienced readers to help us to say which is the next best Pear after the five chosen. What is No. 6 to be. Here are the chosen five:—

1. JARGONELLE.
2. MARIE LOUISE.
3. DOYENNE DU COMICE.
4. WINTER NELIS.
5. JOSEPHINE DE MALINES.

ROSE GARDEN.

T. W. GIRDLESTONE.

STANDARD ROSES.

In his interesting article on standard Roses in the "Rosarian's Year-Book," quoted on pp. 50, 51, Mr. George Paul sums up the whole matter in the one word "selection." The whole question of the desirability or otherwise of growing Roses as standards resolves itself into one of means to ends. If only growers would make up their minds before planting what they really want, and then see what varieties of Roses there are that will fulfil their purpose, more fine standards would be seen in gardens, and the foolish and ugly proceeding of making a bed or plantation of "huge stems with small dwindling heads" set at equal distances of 2 feet or 3 feet apart would more quickly become as extinct as it deserves to be. If really great Rose trees are wanted for isolated and conspicuous positions, the number of available varieties is very limited, and recourse must be had to the Hybrid Chinas or the Dijon Teas and their hybrids; not that this involves any hardship, for there is nothing more beautiful than a great plant on a stem some 5 feet high of such a Rose as Blaire No. 2 or Madame Plantier when sheeted almost to the ground with bloom; they bloom but once a year, it is true, but then it must be held in compensation that the profusion of their solitary flowering is not equalled, nor in most cases approached by the sum of all the flowers produced by an ordinary Hybrid Perpetual throughout the season. In addition to the above-named two varieties, which are both quite admirable for the purpose in view, there are one or two others to which Mr. Paul does not draw attention; one of these is Chênédolé, a brilliant red Rose, still unique in its telling brightness of colour and most charming, and another is the Persian Yellow, whose masses of rich gold are unsurpassed and indispensable in the early summer. Even the single Japanese Bramble-blossom Rose (*R. multiflora*) makes a most beautiful standard when worked on a tall 6-foot stem, and the flower continues in beauty for a considerable time.

When it comes to autumnal bloomers that will make genuine trees, there are only the Dijon Teas and the hybrids that have sprung from them. Gloire de Dijon and Bouquet d'Or run a close race for first place, the former a little the freer, the latter the more beautiful—the handsomest, in fact, of the family; and for a pale yellow, in place of Belle Lyonnaise, which, as is justly pointed out, is too tender

or a standard, the unduly-neglected *Emilie Dupuy*, almost identical in colour, may well be grown. There is, unfortunately, a lack of first-rate red Roses of sufficient vigour, for though *Mme. Isaac Pereire* "fulfils all the conditions," yet it is a rough, coarse Rose at best. But one very good one may be found in *Reine Marie Henriette* (the one bright and pure-coloured variety among the Hybrid Teas), which makes a fine head, and flowers exceptionally freely as a standard. Of those other Hybrid Teas, more happily named the *Noisettes*, the evergreen white cluster Rose, *Aimée Vibert*, quickly makes a handsome tree, and with the coppery *Ophirie* is especially valuable from its lateness in flowering. *Rêve d'Or*, often as glorious in young growth and foliage as in flower, is attractive throughout the season; and the unique bright orange *William Allen Richardson* is immensely free and quite hardy.

All these varieties have the great advantage of being so free in growth that their branches become sufficiently pendulous to hide more or less the point of junction of stock and scion, and so give the tree a more graceful and natural appearance; for when any stiff-growing Roses are worked as standards, such as *Baroness Rothschild*—which otherwise grows very well as a standard and makes a large and healthy head, the transition from stem to branches is so abrupt that the effect in the garden is anything but pleasing.

While mentioning the fact that there are few dark crimson Roses which make good heads, Mr. Paul gives one or two which most amateurs find difficult enough to grow as cut-back dwarfs, but omits to mention several which have been conspicuous successes as standards. Of these *Jules Chrétien II.* is a very distinct and handsome dark crimson, very free and constant, always expanding well, a good autumnal, and not much liable to mildew, and very vigorous and hardy. *Prefet Limbourg* is another fine crimson, which makes an immense branching head, and is one of the brightest-looking Rose trees in the garden either in summer or autumn; and a third is *Dr. Hogg*, one of the seedlings sent out from Cheshunt (although horribly maligned in their catalogue), which has proved itself a thoroughly hardy, vigorous, and reliable deep crimson Rose by no means dingy, but decidedly rich in colour.

These three, with *Abel Carrière* and Mr. Paul's own very useful *Duke of Connaught*, will probably be found the best of their colour to grow as standards, for *Prince Camille de Rohan* gets terribly afflicted with mildew, and *Jean Liabaud* is not very constant, and burns brown in the sun on very slight provocation. If, however, one or two additional varieties are wanted, *Mons. Boncenne* is exceedingly vigorous and free, although the form of the expanded flowers is not so good as that of some of the above, and *Duc de Montpensier* is also a very strong grower, and there is sometimes a very rich dark shade in its dazzling crimson flowers, which are developed in exceptional beauty in the autumn.

Mr. Paul's list of light Roses could not be

improved on, with *Boule de Neige*, *Mme. Lacharme*, and *Violette Bouyer* for whites, and *Duchesse de Vallombrosa*, *Princess Louise Victoria*, and, of course, *La France* and *Mrs. Bosanquet* for lights, though, perhaps, to the latter might be added *Miss Hassard*, which makes a large tree, and is very free and of a pretty shade of colour; and the *Bourbon Marie Paré*, which deserves to be better known, for its pleasing flesh-coloured flowers, which are freely produced early and late, and are most attractive either in the cut state or on the tree.

Everyone probably would uphold the recommendation of the reds, *Charles Lefebvre*, *Glory of Cheshunt*, *Dr. Andry*, *Dupuy Jamain*, *Maréchal Vaillant*, (not always one of the most valuable, but very vigorous and bright), *Ulrich Brunner*, *Duke of Edinburgh*, *John Stuart Mill* (none too bright, but an immense grower), *Camille Bernardin*, and *General Jacqueminot*, of which the handsome dark form *Prince Arthur* might, no doubt, be added, as well as *Thomas Mills*, *Duke of Teek*, of which some splendid standards have been grown, and *Ella Gordon*. *Eugène Appert*, too, although old, and with flowers expanding somewhat flat in shape, still deserves to be included, if only for its unique crimson colour and glorious foliage.

Similarly among the rose colours the delightful *Anna Alexieff* cannot possibly be dispensed with, making, as it does, the finest standard of its colour (which is the freshest rosy pink), always in bloom, and is among the hardiest and best-constituted of garden Roses. Besides *Jules Margottin*, *Alphonse Soupert*, and *Mme. Gabriel Luizet*, *Mme. Nachury* makes a fine free standard, and grown in this form is bright and never coarse; while *William Warden* may well replace the somewhat dull Rose from which it is a sport, and which it resembles exactly in vigour and hardness, only being far fresher and more attractive in colour.

That among the best Teas to grow as standards must be included such varieties as *Anna Olivier*, *Homère*, *Francisca Krüger*, *Mme. Lambard*, *Marie Van Houtte*, *Souvenir d'un Ami*, and *Souvenir d'Elise* is incontestable, but the omission of two such vigorous and handsome Roses as *Caroline Kuster* and *Jean Ducher* appears somewhat unaccountable, as well as the fact that in recommending the indispensable *Safrano*, no mention is made of its rosy form, commonly called *Red Safrano*, which is just as vigorous and free, and makes just as fine a head as the orange form, and in some places is even more popular for cutting.

One of the greatest winter dangers to which standard Roses—of Tea-scented varieties especially, on account of the persistence of their foliage—are exposed is the risk of being broken down by snow, and this danger is, of course, one which annually increases with the growth and extension of the plant, but though to ensure complete safety from snow involves a somewhat elaborate method of staking, no trouble is great that will preserve a favourite plant from destruction, and it is better to be

somewhat over-careful than to run the risk of having to deplore the neglect of simple precautions.

SHORT NOTES.—ROSES.

Odours of Roses.—"T. W. G." puts a query about this (p. 95). Few senses are so capricious as that of smell, and, therefore, possibly your correspondent may differ from me. Most Roses that are not sweet are, at least, not disagreeable, and I shall not attempt a list of those that are otherwise; suffice it to say, that such Bourbons as *Sir Joseph Paxton* and *Souvenir de la Malmaison* suggest the odours named. But I would rather discuss the sweetest Roses with "T. W. G." and suggest that he leads off on this more pleasant tack with the sweetest dozen.—D. T. F.

Manuring Roses.—There is no plant that enjoys plenty of good manure more than the Rose, and a lack of this will always result in scraggy plants and miserable blooms. Mulching the surface over the roots in summer is all very well, but it is not half so good as placing the manure under the soil and close to the roots. All Roses are much benefited by being well manured immediately after pruning. Manuring should not be left until the shoots are several inches in length, as then the roots are active, and it cannot be performed without injury to the rootlets; indeed, it is much better to manure Roses some time before pruning than afterwards. The manure from cows, horses, and pigs is very beneficial, while good artificial manures are also excellent.—J. M.

FERNS.

W. H. GOWER.

HARDY FOREIGN FERNS.

I WISH to draw the attention of the readers of *THE GARDEN* to a few of the hardy exotic Ferns which produce fronds so totally different from those of any of our native species, that a judicious admixture adds materially to the effectiveness of an outdoor fernery. This is too much neglected by suburban residents, for there are frequently spots in small gardens where no flowering plants will succeed, and such places are often just the ones in which Ferns would thrive. Although the spot may not be large enough to grow an extensive collection, a judicious selection of exotic kinds will greatly add to the effect. It does not much matter what the aspect is, but if facing the north or north-west, so much the better, as Ferns love shade. If the situation, however, is a somewhat sunny one, a greater supply of water will be necessary during the summer months. Although in a small spot such as I have mentioned above nothing grand can be effected in the way of rockwork, yet the surface may be diversified by the use of old bricks, burrs, and clinkers (the last are the worst), and such like things, and after having been arranged in position as irregularly as possible consistent with providing accommodation for the plants, they should be sprinkled or brushed over with a little cement. All this may be done and the place fully prepared at a mere nominal outlay. The next thing is the selection of plants to mix with the British species, which are now supposed to have been planted in the pockets and crevices of the rockery.

THE SENSITIVE FERN of North America (*Onoclea sensibilis*) is a noble plant, and produces fronds of two kinds, both of which are totally distinct to anything amongst British Ferns; it is deciduous, and its fronds are produced annually from a creeping rhizome. These attain a height of about 2 feet when the plant is well established; the segments are broad, more or less lobed, and bright green, the fertile frond being erect, scarcely so long as the sterile one, and the berry-like segments resemble a bunch of Grapes. It is a robust plant, and should be grown in loam and a little peat.

THE OSTRICH-FEATHER FERNS form striking ornaments, and they also produce dissimilar fronds. *Struthiopteris germanica* is a native of the north of Europe, and is often called the king of the hardy Ferns. The rhizome is subterranean and widely creeping, often extending its runners for several feet and then throwing up its fronds, by which means it in time forms a dense miniature forest of plume-like, rich green fronds from 18 inches to 2 feet high. The sterile fronds rising in a circle round the crown arch outwards, whilst the fertile ones, which have all the segments contracted, rise in a cluster in the centre. It loses its fronds in the winter, as also does *S. pennsylvanica*, which is a native of North America, Canada, and some parts of Northern Asia. It differs from the preceding in being more erect in contour, usually grows much taller, and is larger in all its parts, whilst the fertile segments are longer and very feathery in appearance.

ANCHISTEA VIRGINICA is another strikingly handsome North American and Canadian Fern, which produces from an underground stem fronds from 1 foot to 3 feet in height and from 6 inches to 9 inches broad; they are lively green in colour, the arrangement of the sori on the under side adding considerably to their beauty. The fronds die down in winter.

THE ROYAL OR FLOWERING FERNS are well represented in England by the grand *Osmunda regalis*, but one or two others from America are distinct and handsome, as *O. cinnamomea*, which, however, is not confined to North America, as I have received it from the West Indies, and I believe it is also found in Brazil and New Grenada. It is, however, common in Canada, and plants from that country thrive well in the open-air fernery in Britain. The fronds are deciduous, the fertile and sterile being distinct, the latter attaining a height of 12 inches to 3 or more feet. They are from 6 inches to 9 inches broad, the segments somewhat glaucous, and the stems densely clothed with dull red woolly hairs. The fertile fronds are smaller, seldom exceeding 2 feet in height, all the segments being closely covered with cinnamon-coloured woolly hairs. *O. interrupta*, sometimes called *O. Claytoniana*, is another handsome and singular species, which also loses its fronds in winter. The latter attain a height of 3 feet, and a breadth of nearly 1 foot when the plant is strong, the stems being woolly when young, but naked when mature. The segments are broad and of a brilliant green. It must be borne in mind that the *Osmundas* are swamp or sub-aquatic plants, and therefore require abundance of water during the summer season.

THE MAIDEN-HAIR FERN of Canada and the United States (*Adiantum pedatum*) should never be absent from a hardy fernery. The fronds are from 1 foot to 18 inches long, the segments bright green, and the long stem is jet black. It is a deciduous plant.

SHORT NOTES.—FERNS.

Lomaria gibba.—Would you or any of your numerous correspondents inform me through your columns if *Lomaria gibba* is considered a hardy Fern in England, and if it has been known to stand planted out in the open border in England without suffering any damage?—A. P.

* *Lomaria gibba* is certainly not a hardy Fern in England, and assumes a very miserable appearance in a cool greenhouse in winter.—W. H. G.

Adiantum decorum.—Like W. G. Marshall, in THE GARDEN, February 4 (p. 102), I find this *Adiantum* to be one of the best of Ferns for cutting, more especially if it is grown in a cool structure and well exposed to the light. As an ornamental Fern, apart from its usefulness for cutting, it occupies a prominent place, and when grown in a greenhouse temperature the bright tinting of the young fronds forms a very attractive feature. In a higher temperature, however, the colour is not nearly so pronounced. I have a large demand for Ferns in small pots for indoor decoration, and find this is one of the best of the Maiden-hairs for that purpose, as not only does it stand for some time, but even small plants produce an abundance of fronds, which are arranged in a bold and regular manner.—T.

FILMY FERNS AT BINFIELD HOUSE.

FILMY FERNS, although of comparatively restricted interest, are undoubtedly deserving of more attention than they usually receive at the hands of Fern growers, and it is always with a feeling of gratitude for the many hints given by the late and deeply regretted Mr. J. Cooper Forster that one refers to the justly celebrated collection which he patiently collected, and which at his death in the beginning of March, 1886, was left to his only son, Mr. Stuart Forster. These valuable plants, then known as the Grosvenor Street collection, were absolutely unique as regards either the varieties or the sizes of certain specimens. References to these plants were from time to time published, and always received the approbation of the owner, who always strongly recommended cool treatment for them, and to whom the success in their cultivation in many private places as well as in Kew Gardens is principally due. It is to his repeated entreaties that a few years since a case suitable for them was provided in that great national establishment. For years past Mr. J. Cooper Forster contended that, with very few exceptions, all the *Trichomanes*, *Hymenophyllums*, and *Todeas* might with advantage be grown in a temperature allowed in the winter to reach within a few degrees of freezing point, for, as he justly remarked, even those kinds from tropical countries are generally found in mountainous parts where they usually grow at a high elevation. There are certainly a few exceptions, which do not greatly affect his theory, as the result of his tuition is fully exemplified by the appearance of the majority of the Filmy Ferns, which have undergone a notable change for the better since their transfer from the warm to the cool department at Kew. While at Upper Grosvenor Street, where the atmosphere was by no means congenial to them, it was only by constant attention, carefully bestowed upon them by a most diligent observer and devoted admirer, that these plants were kept in perfect condition. They were, however, greatly admired by all Fern lovers, as they were also a source of constant recreation to their owner, who possessed such a thorough knowledge of their requirements, and was acquainted not only with their names, but also with their various habitats, and, in many cases, with the history of their discovery, and was particularly fond of discoursing upon the same, thus imparting a most valuable and somewhat miscellaneous information to his visitors.

Their present owner had a house built from his father's instructions and according to notions which that excellent cultivator had found was the most suitable for them. The structure, a lean-to with a walk in the centre, is sunk about 2 feet below the surface of the outside ground upon which the glass roof rests, so that there are no upright front lights. The house extends from north to south. In this way the Ferns have to be protected but very little from the sun; the more so as the dwelling-house itself produces a semi-natural shading. The central path is really a tank covered over with iron gratings and constantly supplied with water, producing a not very abundant, but constant amount of moisture, so beneficial to these plants. The house was also provided with a flow-and-return hot-water pipe in the event of very severe weather. I am not aware that this has ever been used. In such a structure not only does the temperature remain pretty even, but the atmosphere itself is always moist and the advantages of such a combination are seen in many ways, as, in addition to the healthy condition of the plants, the trouble they give to their owner is reduced to such a point, that the house being lightly shaded so as to produce a subdued uniform light, it may, during anyone's absence, be safely closed for several weeks without any harm resulting to the inmates. The rockwork, of which but a small portion is seen above ground, is made of huge pieces of sandstone cemented together, and resting on a foundation so built as to render the under part completely hollow, and thus prevent the stagnation of water.

With the exception of one specimen, all the Ferns have been planted out since the middle of May, 1886. During that comparatively short period,

and taking into consideration the reputation for slow growth of the majority of these plants, it is really surprising to note what progress they have made. Most of them had already last summer taken such a firm hold, not only of the ground, but also of the stones, that no one would have thought they had been planted so recently. This result of their unwonted vigour will add a serious difficulty to the work of removal which is contemplated. As may be gathered from a note which appeared recently, Mr. Stuart Forster has generously presented the collection to Kew, where it is to be hoped they will continue to flourish. It will be very interesting to watch the effect of the transfer, and if, as is confidently expected, the Ferns do not suffer from it to a greater extent than would other plants under similar circumstances, it will be one more good point in their favour, as two sudden changes within two years can hardly be expected to benefit any class of plants. If these operations do not seriously affect them, then it undoubtedly proves that the idea of their being *too delicate* for general cultivation is, as has been frequently shown, an erroneous one.

Not only such species as the commonly met with *Todea superba* and *pellucida*, *Hymenophyllum demissum*, *Trichomanes radicans*, which are there seen in a state of perfection, but the most uncommon species, such as *Trichomanes exsectum*, *T. javanicum*, *T. venosum*, and especially the extremely curious and beautiful *T. reniforme*, are there in better form than anywhere else. The specimen of *T. reniforme*, which is the only plant remaining in a pan (all the others having been planted out), measures fully 30 inches across, and is a perfect mass of fronds, new and old, testifying not only to the good treatment received, but also showing the suitability of the spot selected for it by the innumerable rhizomes. These have extended on all sides over the rim of the pan, and through burying themselves in the material surrounding it, gather up additional strength as they grow and form a perfect mass of vegetation. The lovely little *Trichomanes parvulum* from Japan is another of the choicest plants to be found in the collection. It was imported accidentally some eight years ago on a block of wood covered with *Dendrobium japonicum*, and is still growing on the same block, from which the *Dendrobiums* have been detached. Its exceedingly pretty little miniature Palm-like fronds, of small dimensions, and of a particularly dark green colour, are very transparent, and are admired by all visitors. In *Hymenophyllums* the collection is particularly rich, for there are a couple of fine specimens of *H. Forsterianum*, a species which has the general appearance of a much-enlarged *H. caudiculatum*, and which was also imported accidentally among some *Cattleyas* from Brazil. Then there are *H. dilatatum*, *chiloense*, *flexuosum*, *caudiculatum*, *asplenoides*, *pulcherimum*, *pectinatum*, &c., which are also very handsome specimens; but the rarest gems among the *Hymenophyllums* are undoubtedly the beautiful *H. dichotomum*, the curious *H. cruentum*, the downy *H. obtusatum* and *aeruginosum*, the rare *H. valvatum*, and the beautiful *H. pectinatum superbum*, a variety which greatly surpasses in beauty the typical species. Besides the above-named *Hymenophyllums*, immense masses of the long drooping form of *H. demissum*, very seldom met with now-a-days, and of the lovely *H. nitens* and *crispatum*, as well as huge clumps of *Trichomanes radicans* and its varieties, *concinnum*, *Andrewsii* and *dissectum* are subjects which will considerably improve the already very rich collection of Filmy Ferns, for which Kew will now be without a rival either in botanical gardens or in private establishments. S.

Grubs destroying Ferns.—I herewith send you some grubs which I have found in the soil of some of my Maiden-hair Ferns, the young fronds of which they have eaten away below the surface of the soil and nearly destroyed the whole plants. Will you kindly advise me as to the best method of destroying them?—J. B.

* In reply to "J. B.," the roots of your Maiden-hair Fern are infested with the grubs of a beetle, the black Vine weevil (*Otiorhynchus sulcatus*), or

another member of the same genus. They are very destructive insects, both as weevils and grubs; the former destroy the foliage of various greenhouse plants, and the grubs feed on the roots of Primulas, Cyclamens, Ferns, and various soft-rooted plants. I cannot suggest any plan of destroying the grubs but lifting the plants and picking them out. No insecticide is of any practical use. The weevils only feed at night, during the day hiding themselves, so that it is very difficult to find them. They may be caught by placing the plants on which they are feeding on a white sheet, and in the evening causing a bright light to shine upon them suddenly; this will alarm the weevils, and they will probably fall, feigning to be dead; if they do not fall, even after giving the plant a sharp shake, search the latter well.—G. S. S.

NOTES OF THE WEEK.

Algerian Iris (*I. stylosa*).—We have received flowers of this from Mr. Burbidge, Trinity College Gardens, Dublin. It has been charming in many Sussex gardens this spring.

WE have received from Mr. W. Gordon, Twickenham, two Camellias, named respectively Lady Gordon and Lady Kekwick. They are both described as new, and, though single, have a good breadth of petal and excellent form. The first named is white and the other red.

Camellias in Cornwall.—It is not at all an uncommon occurrence for Camellias to be in full flower in many sheltered parts of Cornwall at Christmastide, but it is unusual for them to burst into blossom in the middle of January at such an exposed part of the country as Rosemouran, Galval, near Penzance.—W. ROBERTS.

Orchids from Perth.—We have received from Mr. W. Macdonald, Woodlands House, Perth, N.B., a choice gathering of Orchids, including amongst other things a spike of the brilliant orange-red coloured *Lælia harpophylla* and a delicately-tinted form of *Cattleya Triana*, the lip pale purplish lilac, coloured inside the throat with orange.

Primroses in Devonshire.—I send you a little gathering of early Primroses on this snowy February day (14th). Ground covered with snow and freezing hard.—R. W. BEACHEY, *Kingskerswell, Devon*.
** Accompanying the above were some excellent flowers of Persian Cyclamen.

The flower trade at Scilly.—A very large consignment of flowers was brought over recently by steamer from Scilly to the mainland. Mr. Richard Mumford, of Holy Vale, St. Mary's, shipped 6000 bunches of yellow Daffodils, whilst Mr. W. Trevellick, of Rocky Hill, despatched 3300 bunches of yellow and white Narcissi. There were nearly 1000 "flats" of other flowers in the same steamer.

Cymbidium eburneum.—Mr. Thomas Wheeler, The Gardens, Jesmond Towers, Newcastle-on-Tyne, has sent us flowers of this beautiful *Cymbidium*, one of the finest of the genus. Its leaves are abundant, narrow, and deep green, from which the pure white fragrant flowers stand out in bold relief. It is an Orchid that all who require waxy white flowers should obtain. It lasts in perfection for some time.

Lælia elegans Schroederiana.—This was named Schroederæ in my note of last week (p. 133), as reported flowering at Mr. Tautz's at Shepherd's Bush. The plant in question has a very large, bold, pure white flower, saving numerous radiating lines of deep crimson inside the convolute side lobes of the lip. The specimen now flowering in the Studley House collection is said by Mr. Sander, its importer, to be the first that has flowered in this country.—W. H. G.

Pansy King of Yellows.—I send you flowers of this variety to show what an early sort it is. Old plants have not ceased to bloom through the winter. The flowers sent are from young plants, and, though large, lack shape and purity of colour. This, however, is easily accounted for by the hard weather. It is the best of all yellow bedding Pansies.

** A fine, rich yellow Pansy, the flower large and handsome.

Chilian Crocus (*Tecophylæa cyanocrocus*).—There is every prospect, so far as I can see, of this very lovely plant proving quite hardy. One year-old seedling bulbs, that have never been covered or protected in any way, are now well above ground and apparently quite unaffected by the spells of bitter weather we have had; in fact, they have all the appearance and seem

as robust as seedlings of the common *Scillas* near by.—T. SMITH.

** A coloured plate of this beautiful flower was given in THE GARDEN for July 16, 1881.

White Hoop-petticoat Daffodil.—I have been rather successful with *Narcissus monophyllus* this year and send you a photograph of a plant in full flower. We are having extraordinary weather, almost summer, and no rain, bringing on things much too fast.—A. RAWSON, *Windermere*.

Cœlogyne cristata Lemoniana.—A specimen of this beautiful white-flowered Orchid growing in the gardens at Straffan, Co. Kildare, is now bearing forty-one spikes of flowers. As thus seen, it is one of the very finest of winter-blooming kinds. Another excellent variety is the large form of *C. cristata*, which produces longer spikes of five to nine flowers, the sepals and petals being less undulated than in the type.—F. W. B.

Flowers from Glasnevin.—Mr. Moore, of the Royal Botanic Gardens, Glasnevin, has sent us flowers of *Lachenalia aureo-reflexa*, noted in THE GARDEN last week (p. 113), the stem bright green and the flowers clear yellow. It is certainly a distinct and handsome variety. There also came *L. Nelsoni*, rich yellow, the flowers at the apex suffused with quite a pinky tinge; and the yellow *Cyrtanthus lutescens*. These three flowers are most welcome at this season, all displaying shades of yellow.

Veitch Memorial prizes for 1888.—We learn that the trustees have made the following grants of medals and prizes for the present year: Shropshire Horticultural Society, one medal with £5 in money for a collection of vegetables; Glasgow and West of Scotland, one medal with £5 for Roses, and one medal with £5 for Grapes; Crystal Palace, one medal with £5 for a collection of fruit; Hull and East Riding Chrysanthemum Society, one medal with £5; Bath Floral, one medal with £5.

The Lace-leaf plant (*Ouvirandra fenestralis*).—A very fine example of this living skeleton of a plant is now to be seen in a tank in one of the Orchid houses at Burford Lodge, Dorking. In these days, when it is too much the fashion to discard old plants, it is quite cheering to see such a specimen; it has dozens of very large and broad net-like leaves, and during the past season has evidently been flowering, as I noted numerous seedlings amongst the shingle. This veritable wonder had been long known to exist in Madagascar, but it was reserved for the late Wm. Ellis to be the fortunate introducer of the plant in a living state in the year 1855, after a vast amount of care and anxiety.—W. H. G.

Stanhopea platyceras is an Orchid that illustrates the extreme beauty and singular, not to say grotesque, character that marks some of the members of this great family. This particular *Stanhopea*, which was recently blooming at Sir Trevor Lawrence's at Dorking, has a flower of large size, robust appearance, and delicious fragrance, while the colouring is distinct and beautiful. The richest portion is the pouch of the lip, which is of a lovely velvety crimson colour, fading to the deepest possible purple, the front portion with the two horn-like processes being creamy white, sparsely spotted with crimson; the long column greenish on the upper surface, the point purplish. The massive sepals and petals are covered with crimson markings on a buff and flesh-coloured ground, so that we have a variety of hues. It is strange that the *Stanhopeas* are still held in the background, though possessing distinctive characters as regards shape, &c., and a strong fragrance, but the time will doubtless come when they will have a share of the popularity that is now accorded to the *Cypripediums*.

An acceptable change in the weather.—A slight fall of snow on Sunday night broke the spell, and there is now a fair prospect of the short, but proverbially rainy, month of February doing something towards filling up our ditches. Yesterday (Monday) the sky looked heavy, and towards evening the welcome flakes again commenced falling, continuing steadily through the night. Although 5 inches fell, the sharp wind from the north prevented a lodgment on the branches of our Evergreen Oaks and Conifers; consequently, so far we

are safe and delighted with this thorough check upon vegetation. After a few hours' lull, the storm has again set in, and I hope it will continue. Snow, it is true, locks up land and labour and makes the townsman miserable, but for all this I question if this first instalment of the downfall, producing, as it does, a uniformly cool atmosphere, is not worth thousands of pounds to the country. When the present month has redeemed its reputation, we may hope for still further showers, long enough and heavy enough not only to reach the lowest roots of our fruit trees, but also to fill up the wells, ponds, and streams in all parts of the country. Only the other day, when on a visit to a large domain in Yorkshire, the trout in a series of ponds, through which torrents usually rush from the hills were dying by scores for want of fresh water.—W. COLEMAN.

The Gardeners' Orphan Fund.—Mr. A. F. Barron, of the Royal Horticultural Gardens, Chiswick, writes: "I should feel obliged if you would kindly notice in your next issue, for the information of the hon. local secretaries who may be pleased to attend, that the meetings of the executive committees have been fixed to be held on the last Fridays in each month (excepting March 30, which, being Good Friday, the meeting will be on the 23rd), at the Caledonian Hotel, Adelphi, 6 o'clock p.m. Nomination forms for the first election of six children to the benefits of the fund on July 13 are now ready, and may be obtained on application to me."

Goethea Makoyana, formerly called *Pavonia Makoyana*, may be included in a select list of good winter-flowering stove shrubs. A good-sized flowering specimen of it in the Victoria Water Lily house at Kew is just now particularly showy. The flowers have an epicalyx or outer covering, which is cherry-red, while the rest of the flower is plum-purple, with a tuft of protruding stamens tipped with blue. The flowers are produced in dense clusters at wide intervals on the upright growing stems, and last a long time in good condition. In order to bloom well this shrub should not be pruned, but allowed to grow freely, so as to make stout stems. *G. multiflora*, known also as *Pavonia Wioti*, requires the same treatment, and both are very useful when well grown. In nurseries they are known under the original name of *Pavonia*.

Indian Azaleas in Wales.—Having been for some time a subscriber to your paper, I think, perhaps, you might consider the enclosed photograph interesting enough to reproduce in one of the numbers. This white Azalea has been growing over twenty-five years in the open without any protection whatever until the very severe frost in the winter of 1886, when a mat was thrown over it. This photograph was taken early in June, 1887. Never having seen this plant grown out before, I shall be interested to know whether you consider it at all unusual.—G. CAMPBELL-DAVIS, *Llandovery, South Wales*.

** Many thanks for photograph of this beautiful Azalea, an engraving of which we give in this week's issue. It is pleasing to know that this fine old variety succeeds so well in Wales.—ED.

Notes from Oakwood.—One of the latest novelties at Oakwood is a miniature mountain modelled partly after Schiehallion, in Perthshire. When the question of planting it arose, I was fortunate enough to find Mr. Anthony Waterer disengaged, so we inspected and thoroughly discussed his dwarf Conifers in their beds. I had no conception that he had such a number of beautiful forms. These and some species of *Box*, *Euonymus*, *Osmanthus*, &c., were duly planted, and towards the base of the east side a collection of hardy Heaths, and in the same line on the north side a number of seedling *Menziezias* taken from our old Heath bed, where they sow themselves very freely. The west side of the mountain is planted with seedling Conifers grown in the wood from seed kindly sent me from the Himalayas. The north side slopes down to a bog, of which, so far, the only inhabitants are offsets from a large plant of Bog Myrtle brought by me many years ago from Perthshire. So far all the plants look extremely well.—GEORGE F. WILSON.

WHITE AZALEA INDICA AT COOLHURST.

THERE are few plants or shrubs in our gardens that will produce such an intensely white mass of blossoms as this; consequently the effect which it creates when seen flowering as shown in the engraving, is to a great extent different from most of the things which we usually meet with. Few plants give so little trouble when once established, and even though the late frosts may now and again spoil the beauty of the flowers, yet in the intervening years it is something to be grateful for. I have before this called attention to its habit of growth when planted out and left alone, not much more than 3 feet or 4 feet in height, dense-growing and spreading, neither suggestive of a white umbrella lined with green nor of a gigantic sugar-

hovering about, and that it would be a mistaken kindness to choose any place, such as under a south wall, which would tend to make the blossoms open earlier in the season. We have some plants under a north wall which do admirably, but they seem to like association with other things and not to be spotted out by themselves in the open. The variety which does best here is the old typical white. Overgrown plants of other colours from the greenhouse have been turned out sometimes, but they do not seem so happy or produce so good an effect. I cannot but think that a good race of hardy sorts might be raised either by hybridisation with some other species or by careful selection of sturdy growers. Perhaps Messrs. Isaac Davies, of Ormskirk, might turn their attention to this point and render us indebted to them for treasures of

FLOWER GARDEN.

GLADIOLI CULTURE.

THE more that attention is drawn to this beautiful tribe of autumn flowers, the better it will be for its growth and for our gardens. Theories which have held their sway for a long time become exploded; new facts with regard to their growth are educed, and as these are brought forward the difficulties of culture become lessened, and it would be a good thing if the eliciting of these facts should induce more exhibitors to come forward. There is, however, this difficulty, that there is only one metropolitan show where encouragement is given to the Gladiolus, viz., the Crystal Palace; while the prizes offered at provincial shows are so small,



The White Indian Azalea in a wood at Coolhurst, Sussex. Engraved for THE GARDEN.

loaf which has been packed in coloured paper, as some of the much-praised inhabitants of the Azalea house usually are. The engraving shows a bush over 10 feet across with a shadow thrown over the upper part by a tree of *Magnolia acuminata*, which grows at the side. On the south-east is a large clump of *Rhododendrons*, &c., completely cutting off the morning sun, and behind it are *Hollies*, *Rhododendrons* and *Spiræa flagelliformis*.

This, perhaps, may give some idea of the position it occupies and apparently is satisfied with, namely, shelter from cold winds and too fierce a sun on the flowers or on the roots. Anyone who intends to plant this Azalea should remember that it flowers naturally at a time when there may still be late frosts and cold winds

this description. It would be worth while, as the effect produced by *Azalea indica* is far more distinct from that of *mollis* or any similar variety than one might expect. The photograph from which the engraving is made was taken last year, not because the bush was flowering more freely than usual, but because an opportunity presented itself by the kindness of a worthy friend.

C. R. SCRASE-DICKINS.

WILL someone kindly recommend what they have proved to be a good top-dressing for lawns? A composition of soot, wood ashes, fine earth, &c., would be preferable to London manure, as there would be little labour afterwards in sweeping. The lawn here is about 4 acres in extent.—W.

that they prevent any but those living in the immediate neighbourhood from coming forward, for, while money will not be the chief consideration, yet there must be some hope of paying expenses, or at any rate a portion of them. Although exhibitors were to "sweep the board," they could not hope to pay expenses with the few shillings to which the prizes amount. Gladioli are not by any means easy flowers to carry to a show, and require a good deal of personal attention in transit, and yet one sees the same amount of money offered for *Asters* as for them, the *Aster* being the most easily carried of all flowers, except *Chrysanthemums*, and a half-crown packet of seeds being perhaps the amount of expenditure—not half, perhaps, of what has been paid

for one bulb of *Gladiolus*. I do not, however, wish to convey a wrong impression as to the price of these bulbs; a great change has taken place in this respect, for while new varieties are brought out at higher prices perhaps than ever, they much sooner drop in value, while good exhibition varieties can be purchased at a price which no one begrudges for *Hyacinths*, although they have to be thrown away, while the *Gladiolus* will reproduce itself, unless attacked with disease, which all growers of the flower must expect.

With regard to soil, I become more than ever convinced that, while *Gladioli* will grow almost anywhere, they thrive best in a calcareous soil, and least on a soil containing much humus. My attention was first directed to this point by Mr. Burrell, of Cambridge, and I was enabled to try the experiment in my own garden, for although I am in the midst of the chalk formation, a portion of my garden has either been made with other soil, or else the continued cultivation of it for perhaps hundreds of years has led to its being full of decayed vegetable matter. I found a good deal of difference even last year between the growth of the bulbs in this as compared with a portion of the garden where the soil had been less highly manured and was more calcareous. So much do I feel this, that I am going to fork in some lime in my beds.

I take this opportunity of replying to "W. J. M.," who appeals to me in *THE GARDEN*, Jan. 28 (p. 76), on one or two points connected with the culture of these bulbs; one was about the bulbs that every year keep coming up amongst my *Roses*, although it is ten or a dozen years since I grew any there, and as to whether these were from seed spawn or old bulbs. In answer, as far as my knowledge goes, entirely from spawn. There may have been one or two instances where I omitted to take the bulb up, and then it reproduced itself, but still it was from spawn originally; but in the great majority of cases they were spawn bulbs. There is, I find, a good deal of difference in the appearance of the corms, whether they are from old corms or spawn. In the former case the base of the corms is large and exposed, where, in fact, it has grown on that of the preceding year; whereas in the spawn it is small and gathered in, as it were, so as to present a very different appearance; and it would seem that the French growers, Messrs. Souillard and Brunelet—Souchet's successors at Fontainebleau—send over in a great measure what I call spawn corms, doing thus much as the *Hyacinth* growers do—growing them up to a certain age, and then exporting them in what they believe to be their prime. We have found out that *Hyacinths* will do well after they have bloomed if properly treated and transferred to the open ground; and although it was at one time thought that the French bulbs of *Gladioli* deteriorated after the first year's blooming, I am convinced that it is not so, but, on the contrary, that as fine blooms can be had after they have been grown four or five years in England, and that the corms increase in size. There is a curious fact connected with this. In looking at Vilmorin's catalogue for the present year, it will be noticed that, while he inserts the two varieties *Hercule* and *Leda*, he puts opposite to them *manque*, implying that he has none for sale, and yet in Messrs. Burrell and Campbell's lists both varieties are inserted, and I can testify that their bulbs are very fine and healthy. This is, I should think, sufficient evidence that the varieties do not deteriorate, and that they only require proper soil to continue healthy and vigorous, barring disease.

I am very much inclined to think that the

Gladiolus can stand a good deal of frost in the ground, and that those which I left in the ground as an experiment all the winter were killed, not through frost, but wet and the attacks of worms of one kind or another. I am confirmed in this by the experience of those which have come up amongst my *Roses*. If they succumbed to frost, they would assuredly have perished, especially as we know it is the habit of all bulbs to come nearer to the surface each year, and, as a matter of fact, I found some of these within 2 inches of the surface, which is, of course, not half as deep as one would plant them, and which must have brought them much more under the influence of frost. But that is a very different thing to taking them out of the ground and leaving them exposed to its influence. I imagine there are a good many hardy things that would not stand this ordeal.

I cannot understand why "W. J. M." should have any prejudice against cutting the corms when its success has been so fully testified to by growers who know so well what success means. For myself, I can bear witness, as I have already stated, that some of the very finest blooms, plants, and corms were the result of cut corms. Thus, with me *Grand Rouge*, *Giganteus*, *Caméleon*, and others produced grand spikes of bloom 5 feet high, the corms when lifted being large and healthy. One bulb of *Shakespeare* I cut into three, and the result was the same; and, moreover, never in one instance where the corm has been cut do I recollect it lying dormant, as is often the case with whole corms. Let "W. J. M." dismiss his prejudice, and he will, I think, find the advantage in every way.

There is one sentence in your correspondent's letter which, I fairly own, puzzles me: "Where hundreds or thousands of varieties are grown, as at Langport or Fontainebleau, cross-fertilisation is probable, and the variety wanted to be reproduced may come from seed quite different." What does it mean? I have read it backwards and forwards and upside down, and can make neither head nor tail of it. Does he mean that a hybridiser wishing to increase his stock (say of Meyerbeer) crosses flowers for the purpose of obtaining it? If this be his meaning, I confess that it is something to me quite new in the art of hybridising. I know that hybridisers may set a certain object before them, such as to get a blue *Primula*, and, taking advantage of any tendency in that direction, may go on step by step to success; but having done so, I can hardly imagine that the same end would be obtained through some different channel. If this is not his meaning, I confess that I cannot make out what it is.

The time for planting *Gladioli* is at hand, and therefore, if anyone's stocks are low, or if they wish to add new varieties, no time ought to be lost. Bulbs keep well, and my experience is that where one is sound at the time of lifting it does not go off afterwards; but where it is at all diseased, the disease is sure to spread. I have thus far potted about two dozen which were more or less affected, and mean, if they do start, to plant them by themselves and see what is the result.

DELTA.

A useful plant for garnishing.—This is the Syrian Curled Mallow (*Malva crispa*). It is a hardy annual, easily grown and most useful for garnishing purposes during the summer season. Seeds of it can be purchased from any seedsman, and to secure a succession, seeds should be sown at, say, three different times between April and July. A fair-sized patch will produce a large quantity of leaves, which are of a dark green colour and of good size when the plants are well grown. It forms a symmetrical pyramidal growth, and produces white

flowers. I remember that some years ago the late Mr. James Cuthill, of Camberwell, recommended *Maloe trifida* for the same purpose; it is also a very useful hardy annual, and makes a handsome border plant, and produces pretty striped flowers. The leaves are not so much curled as those of *M. crispa*, but they are useful in the absence of the latter. *Maloe grandiflora* is one of the very finest and most striking of hardy annuals, producing an abundance of large crimson flowers of a very attractive character. All that I have named can be sown in the open ground, and therefore easily cultivated.—R. D.

Lifting *Gladioli*.—With reference to the communication of Mr. Murphy on this subject in *THE GARDEN*, Jan. 28 (p. 76), I did not misunderstand "Delta's" remarks on the hardness of *Gladioli*, and I quoted a sentence from his article to show that his experience was exactly the same as mine, which is, that self-sown corms (*i.e.*, the produce of spawn) will live in the open ground and produce flowering bulbs, when those which were planted and purposely left out all the winter invariably died. If Mr. Murphy will turn to my note in *THE GARDEN*, Jan. 7 (p. 8), he will see that I wished to know why self-sown bulbs will survive the winter in the open ground while the others do not. In no way, therefore, can it be even inferred that I considered *Gladioli* to be hardy, although in some cases they prove so, and I am disposed to think that in the case of the self-sown corms it is because they are deeper in the soil than would be the case with those which were planted. I hope to test this matter next year by putting the corms 7 inches or 8 inches under the surface and letting them remain through the winter. With reference to the bulbs which come up and flower every year on the space sown fifteen years ago, they are, of course, the produce of spawn, as are others which come up and flower in different parts of the garden.—J. C. C.

Dahlia cuttings.—During February it is necessary to place *Dahlia* roots on a brisk bottom-heat, whether produced by hot water or by means of manure. A layer of soil should be placed over the manure, and the roots put on this and half covered with soil, leaving the upper portion of the tubers, and especially the crown, bare. If on a bed heated by hot-water pipes placed underneath it, then slates should be put on the pipes. The soil should be put on the slates, and the roots put in position as above directed. As to the time the roots are put in heat, this must depend to some extent upon the number of cuttings required. The cuttings can be taken off when they are 4 inches long, cutting them through just above the eye nearest the root. The first cuttings are often too large and hollow in the stem, and may be thrown on one side, those that are smaller and harder being the best. When taken off they should be placed in light sandy soil in pots, and the pots plunged in a moist manure heat. At this season it will be four or five weeks before they root, but as the days lengthen and the weather becomes warmer, three weeks or so will suffice. As soon as the cuttings have rooted, they should be potted into small pots, kept close for a time, and then be gradually hardened off.—R. D.

Notes from Temple Hill, Cork.—In the private villa gardens facing the sea at Queenstown, *Calceolarias*, *Pelargoniums*, *Lobelias*, *Ageratums*, &c., are just the same as they were last October, and are now growing apace. At my grounds, Temple Hill, Feb. 5, all sorts of *Snowdrops* are in abundant bloom, as also the *Primroses*, including the hybrid coloured varieties and the early sulphur double form. This latter would be of great value in winter for market growers if planted out not later than September in frames near the glass. *Anemone fulgens* is in full bloom, *Chionodoxa Luciliae*, also *C. sardensis*. Winter *Aconites* are over. *Iris stylosa* is still sending up quantities of richly perfumed flowers. In sunny positions the large yellow *Crocus* and *Triteileia uniflora* are well in bloom. Among the *Narcissi*, *Paper-white*, *elatus* fl.-pl. of Italy, and *N. romanus* fl.-pl., *Ard-Righ*, *pallidus præcox* in quantity, and the major form, discovered in Portugal last year, are in

full bloom. *Telamonius plenus* of Italy (four years at Temple Hill) is also in bloom, and seems to retain its early character. The beautiful little white *N. Corbularia* has done well and flowered freely against a south wall. In shrubs, we have the crimson and white forms of *Pyrus japonica* in full bloom. *Azara microphylla* and *Jasminum nudiflorum* have been beautiful since Christmas. *Pyrus malus floribunda* and *Prunus Pissardi* with the Peach trees on the walls are full of buds. In the cool house two large pans of *Narcissus cyclamineus* are beautiful. The illustration in the *Botanical Magazine* does not do this little gem ample justice; many of the blooms are beautifully flanged at the rim, and the colour is a rich clear yellow, not that dirty brown tinge as figured; while the smallest bulbs bloom to perfection. All the white Trumpet *Daffodils*, of which we have a large and promising array, will also flower this month.—W. B. H.

THE RANUNCULUS.

THIS beautiful plant was well known in English gardens at least 250 years ago, but it had evidently been imported from Holland, where it was much valued. Van Oosten, a Leyden gardener, wrote about it nearly 200 years ago, and his work was translated into English and published in 1703. In those days single varieties were not despised. Van Oosten says: "There are two sorts of *Ranunculus*, single and double. The double ones are of one colour or striped. In the striped we have all sorts of colours, black and white striped with several colours, and the same is also in the single ones. This flower is admired because of its beautiful high colours, that dazzle one's sight when the sun shineth on them."

A dealer in Fleet Street, named Mason, published a catalogue of 400 varieties of *Ranunculus* in 1820. These were principally Dutch sorts, for it was not until 1815 that the raising of seedlings was begun in England; and, as usual, when Englishmen undertake any work, they speedily make their mark, and show themselves independent of any foreign source whatever. In Scotland the work of raising new varieties was begun about the same time. In fact, Mr. George Lightbody and Mr. John Waterston, who were the most successful of the Scotch raisers, produced a strain of named varieties somewhat different from that obtained by the Rev. W. Williamson and the Rev. W. Tyso in England. The flowers were smaller in size, but of very symmetrical form, and they may even yet be obtained under the name of Scotch *Ranunculuses*. I have grown them in my own garden, but they are not vigorous enough. Some of the very best varieties were raised both in England and Scotland at the beginning of the year 1840. So greatly were they esteemed at that time, that as much as a guinea was paid for a single tuber of the new varieties. Now 200 tubers of named varieties may be purchased for that sum. The old florists used also to take great pains in the preparation of the ground where the tubers were to be planted. According to their idea, no garden ground was good enough for *Ranunculi*, and the first operation was to clear all the soil away to the depth of about 2 feet, and to fill up the space with a prepared compound such as we would prepare for a permanent Vine border. Another supposed necessary arrangement was a canvas awning to shade the flowers from the sun, and this could only be supported above the plants by some sort of wooden framework, which would be an unsightly object in any garden. As the old florists insisted on this preparation of the soil and the necessity of careful shading, many persons would prefer to grow plants that did not entail so much expense. After 1850, the bedding-out system became quite a mania, and the beautiful *Ranunculuses* were utterly neglected.

It will soon be time to plant out the tubers, and those who are fond of such flowers need not be afraid to plant them out in any good garden soil. It is better to dig the ground up in the autumn, in order that the frost may act upon it, especially if it is of a clayey nature. Early in March is a good time to plant out the tubers, and at

that time the ground is not always in good condition, as it is frequently frost-bound or too wet. Under such conditions the best plan is to level the bed with a fork without treading upon it. Some finely-sifted, dry, sandy soil from the potting bench spread to a thickness of about 3 inches over the surface of the bed will be an excellent medium for planting the tubers in. It will also be necessary to plant the tubers at about an uniform depth. They do best when the crowns are as nearly as possible 2 inches below the surface, pressing them into the ground with the fingers and placing a little fine, sharp sand under the tubers and a pinch over the crowns, and then filling in the drills with the back of a rake. The *Ranunculus* is not very particular as to the soil in which it grows, but it seems to take most kindly to a moderately clayey loam with a clay subsoil. This class of soil retains the moisture best, while drought is detrimental to the successful culture of the *Ranunculus*. Ours were planted rather late last year, and as the early part of the season was cold, the tubers did not flower until nearly the end of June, when intensely hot weather set in, and even with careful watering the blooms speedily dropped and the leaves became yellow. As soon as this takes place the tubers must be dug up, for if they should get soaked with rain, after the ground has been dried up and made hot by the sun, a heavy shower of rain will start them into growth in a week, in this respect resembling *Anemones*. I merely dig the tubers up with the soil attached to them, and spread them out to dry in an airy shed; in fact, all ours have been left where they were placed after being dug up, and they will not be cleaned now until just before they are planted out. I find a large number of the tubers have increased fourfold.

The semi-double varieties produce seeds freely enough, and seedlings produce the largest number of blooms; in fact, I grew some very choice named varieties—which were obtained from an old Lancashire garden—until they degenerated so much that scarcely any bloom was produced. This is just what might be expected, as every class of high-bred plants degenerates more or less in the course of years. Seedlings flower most profusely the second year, and the way to obtain a good strain is to pull out all from the bed that are considered to be inferior, and mark a few of the very best to save seeds from. By this system of selecting the best varieties annually from seedlings only, a strain of a vigorous habit and bearing flowers distinct in colour and form from any others in cultivation is obtained. It was by this system of selecting seedlings that the old florists improved their strains, and in the course of a few years they worked up a class of flowers distinct in several respects from those they first started with.

J. DOUGLAS.

Saxifraga Burseriana.—Among the beautiful flowers that remind us of the approach of spring, none are more welcome or more highly appreciated than the charming little alpine that forms the subject of my note. It was introduced from Carinthia about the year 1826, and, notwithstanding the almost total neglect of hardy plants between then and now, Burser's Saxifrage has been one of the favoured few tolerated. Although this plant does better and yields greater abundance of flowers in the north than it does in the south of England, still, when properly handled and planted so as to avoid the direct rays of the sun during summer, it does well. All our attempts to establish it on a rockery with a southern exposure have proved futile, and the third or fourth season sees the last of it; while from the same batch of divisions those planted on a northern exposure have increased with surprising rapidity, and annually hide their Juniper-like leaves with their sweet pure white blooms. Even in a wild state, I am told that the variation it shows is considerable, so that the collector is ever on the watch for forms with larger flowers than the ordinary type. Among those found in a wild state on the Austrian Alps, that called *S. B. major* is by far the best. It seems to have flowers of finer substance than those of the commoner kinds, and blooms with us at least a fortnight earlier in the open air. There is said to be a

variety with a five-flowered stem, but we have never seen it in gardens. There is, however, another, called *Boydii*, found, I believe, by the gentleman whose name it bears, having creamy or pale yellow flowers, and as it is also an early bloomer, it proves a decided acquisition. In propagating *Saxifraga Burseriana*, our mode is to select one of the strongest and healthiest tufts, lift it about the middle or end of August, and break it up into suitable pieces for $2\frac{1}{2}$ -inch pots, potting firmly with a few small stones or pieces of brick round the neck. Place the plants in a cool, shady frame kept close until they begin to root. By spring they will have become established, when they can be either planted out or kept over another year to make larger examples. Loam, leaf-soil, and a little peat, with a liberal admixture of small pieces of soft brick and lime rubbish, is the compost used.—K.

Carnations.—If Carnations and Picotees in pots have generally wintered as well as my own, there is little room for fault-finding. They have been in a cold frame all the winter, and, with the exception of two or three nights, the lights were never entirely closed, but tilted so as to admit a free circulation of air. Not a sign of spot or rust is visible, and this is equally true of named varieties and seedlings. All the latter and some of the former will be planted out in the open ground at the end of the month or early in March. The ground to be planted was deeply dug and manured early in November and then thrown up rough, and it is so far in excellent working order. The soil in which I grew some specimen *Chrysanthemums* has been mixed with good loam and leaf mould, and this will be used to place about the roots when the plants go out into their summer quarters. They will be planted firmly, and any shoots that are liable to be blown about by the wind will be secured against danger. The young plants are now commencing to grow. It is time that some of them went into their blooming pots, that is the two dozen of select varieties that are to be grown in this way. Some rich fiery yellow loam, as soft as silk to the feel of the hand, some leaf mould and well-rotted manure from a spent Mushroom bed were thrown together at the beginning of the autumn, and the mixture has had the benefit of frost, wind, snow, sun, and rain. It is in admirable condition for potting purposes. March is the month when potting is generally done, but some growers commence in February, according as their plants require it. Amateur cultivators who are engaged in business during the day have, of necessity, to do their work at odd times, and so the potting up of a hundred or two plants has to be spread over a considerable time. I am in favour of early potting, for I like to know the plants are well rooted in the blooming pots by midsummer. Previous to potting the plants should be overhauled, and thoroughly cleansed of any decaying foliage, and of any insects that might infest them.—R. D.

East Lothian Stocks.—These useful Stocks, which are now much grown, appear to be identical with the autumnal (intermediate) Stocks of the Germans. Those grown and seeded in this country are in four colours, white, purple, crimson, and scarlet. In Scotland, where they are largely used for bedding and prove most effective, the usual plan is to sow the seeds about the month of March, generally on a south border. A hand-light is placed over the seed, and the young plants remain until they are large enough to place out in the open border to flower, which they do with great freedom during the autumn months, commencing with August. Treated in this way, they form an excellent succession to the summer-flowering, or Ten-week Stocks. In mild autumns I have seen them very fine in the open air as late as November. Any plants that stand through the winter will bloom in the following spring, and it is from these that seeds are obtained. It is easy to advance the time of blooming by sowing in a little heat in February and growing the plants on under glass, taking care that they are not too much drawn. Plant them out in the open at the end of April or early in May. The usual practice adopted in order to secure a crop of seeds is to lift all the single-flowering plants

about September, and either pot them or transplant them to some warm spot, where they can be wintered with safety to mature their seed. A south border is a suitable place when the soil is light and warm. Many persons fail to get a good head of bloom from their Stocks by planting them in poor soil, where they are starved. One of the finest lots of Stocks I ever saw was grown as a kind of carpet to a bed of standard Roses that had been well mulched with manure the previous winter. The soil was forked over lightly in the spring, and the Stocks made a wonderful growth in it and bloomed finely.—R. D.

Lilium Parryi.—In answer to the inquiry regarding *Lilium Parryi* (p. 122), I only wish to mention that at the Hale Farm Nurseries, Tottenham, it is grown successfully, year after year, planted on raised beds in peat, and shaded and sheltered by hedges. The roots of the shrubs keep the beds during the winter in a proper state of moisture. There are clumps of this Lily which produced last summer more than forty flowers on about five to six stems, each over 6 feet high. It does not seem to grow so well in exposed positions.—G. R.

FRUIT GARDEN.

W. COLEMAN.

GRAFTING ORCHARD PEARS.

I HAD hoped the discussion, I will not say controversy, upon Pears would have been brought to a close in time for intending grafters of inferior sorts to avail themselves of the outcome this season. Such, however, is not likely to be the case, and as the sap is now freely on the move, I am constrained to ask all who intend to succeed to lose no time in heading back their stocks, and, equally important, to lay in a good store of young wood for scions. Pears being more precocious than Apples, we always take them in hand first and finish off the latest trees before we commence upon the earliest Apples. When heading back the stocks, whilst bearing in mind the future symmetry of the heads, as great a number as possible of the small and intermediate branches should be retained for the reception of one or perhaps two grafts each in preference to cutting, as is too often done, hard into the main limbs. Some people say, "Oh, it is easy enough to graft large trees and make the scions grow, but they are short-lived and never bear fruit." Neither are they likely to; the only wonder is that such bare-headed pollards ever put forth leaf or shoot again, but treat them as an intelligent grafter of Camellias treats large old plants—shorten back a great number of small branches, stick a graft on the end of each, leave all the minor shoots and spurs clustering about the trunk and stems, and a fruitful head as large as the original will be formed in three or four years. Very large limbs, as a matter of course, must be cut sometimes, but their condition can be greatly ameliorated by attaching a graft to many minor pieces, not absolutely to assist in forming the head, but to act as safety-valves for the flush of sap which otherwise would remain in the roots and rot them. Free young stocks of thirty or forty years should give as many points for the reception of one or two grafts each, and as these would encircle a great deal of spur wood, no harm, but possibly much good might be done by allowing them to swell fruit to maturity. Indeed, it is no uncommon event to see grafts made of two-year-old wood bearing remarkably fine fruit, as we sometimes see bottle grafts on Vines carrying a bunch the first season.

Grafting in this part of the country is rather primitive, and no power will induce a native of the locality to depart from the methods and practices followed by his forefathers. Some years ago a native professor, grafting by the hundred or score, positively refused to jeopardise his reputation by working a few old trees with

yearling wood of popular sorts which I had received from a friend in Kent. The grafts, as a matter of course, were put on by another man and grew, but the shock was too great for the professor, and he left the neighbourhood.

Crown or notch, not cleft, grafting is the favourite and, I believe, the best method, and I have now learned to give preference to clean, straight pieces of two years' wood which stands sharp driving with the mallet, and properly let in does not require tying. The tools consist of a saw, a chisel, and a strong knife with a long, straight blade let into a stout handle made of wood. The saw-cut, running about 4 inches down the bark and 1 inch or a little more along the crown of the branch, is increased in width externally and made quite smooth with the knife. The scion is cut triangular shape, terminating in a point to fit; it is driven tight home, bark to bark; three or four are let into one large crown, clay is applied, and the work is finished.

Varieties that do well in the neighbourhood as far as possible—that is to say, provided they are first-rate—should be selected for orchard grafting. Where these are scarce, the soil and situation being fairly good, such sorts as Louise Bonne, Williams' Bon Chrétien, Beurré Superfin, Thompson's, the delicious Seckel, Marie Louise, Pitmaston Duchess, Marie Louise d'Uccle, Mme. Treve, and Clapp's Favourite might be used. Some of these, it is possible, might not do everywhere, but, provided they do not melt in bad seasons, they make the best of all stewing Pears. The old Hessele is sometimes excellent. Aston Town, a Cheshire Pear, and Beurré de Capiaumont are profitable market Pears.

PEARS.

YOUR several correspondents are doing good service in discussing the merits of various Pears, as it is not yet too late to plant, and those who are unfortunate enough to have worthless kinds can head them back and re-graft, after which in two or three years they will have fine bearing trees. There will also be very likely an improvement in the growth and fruit through the tree being double-worked, as this has a good effect on some sorts, and is necessary to make them bear satisfactorily. Although it is early yet to graft, it is not too soon to head back the branches, and this should be done at once to within a foot or so of the main stem. Before, however, putting the scions on, the cut-back branches should be trimmed over again, as then the bark heals more readily, and there is not so much danger of decay in the exposed part of the wood. To reduce this risk as much as possible, it is important to select the smaller-sized arms for grafting, as by this means a neater and more perfect union is obtained. The way to insert the grafts is to make a slit through the bark of the stock, and if the bark is then gently raised, the scion may be slipped in without bruise or damage. To raise the bark the best way is to get a shoot of hard wood about the size of a quill, and trim it by making a long slanting cut in the same way as when forming a pen. The scion should also be prepared in the same manner and be pushed in immediately after the stick is withdrawn. This done, the next thing is to tie in the graft securely, which may be done by the use of a strand of Raffia Grass, which, being soft and strong, is well suited for the work, and lasts until a union takes place.

As to varieties, the first to ripen and one that is very useful, is Beurré Giffard, the fruit of which is pyriform in shape and of fair size, the flesh being white, tender, rich, juicy, and slightly aromatic. The one I should recommend to succeed this is Williams' Bon Chrétien, a well-known Pear, which if gathered in succession at intervals of a few days will come in and last through into October. This is succeeded by Fondante d'Automne and Louise Bonne of Jersey, two of the best for that season.

My choice for November is Marie Louise and Doyenné du Comice, which are quite unrivalled either for appearance or high quality, and where these succeed and do well no others are wanted. Both these sorts succeed in most parts of England, either as pyramids, espaliers, or on walls, the first-named being the most tender of the two. It is well, however, to grow the trees in both ways, and if on walls give them a south-east or south-west aspect, as they require plenty of sun. This is even more necessary with the sorts that ripen later, and a very important matter with these is to allow the fruit to remain on the trees as long as possible, as otherwise it does not ripen and mature properly, and when stored it shrivels. The kinds that are best to succeed the Marie Louise and Doyenné du Comice are Winter Nelis and Glou Morceau, the only fault with the Winter Nelis being its small size, as it is a most delicious Pear, and the tree is a moderate grower, besides bearing freely. Glou Morceau also bears well, but requires a warm, sunny position, the quality of the fruit then being very fine, as it is also from pyramids or espaliers where the fruit is well exposed. There are also two others worth mentioning, and these are Josephine de Malines and Bergamotte d'Esperen. Both ripen slowly when stored, and carry the supply on till March or April, and even later if the fruits are kept in a suitable room. The habit and growth of Josephine de Malines is thin and spare, the foliage being narrow and small, but it, as well as Bergamotte d'Esperen, bears freely. It is a good plan to thin the spurs at each annual pruning by cutting away all those that project far or that are weak or misplaced. By doing this, the blooms are kept at home and the spurs less twisted and gnarled, and when in that desirable condition the sap circulates better and feeds the fruit more freely, thus rendering it not so liable to crack. This cracking is sometimes brought about by a check from want of water, when splitting will follow after a heavy fall of rain or a sudden soaking of the soil. This is especially the case if the trees happen to have been stopped back just before.—S. D.

— To judge by the notes which have appeared in THE GARDEN on this subject, the variety known as Winter Nelis appears to be highly appreciated, and one correspondent even goes so far as to say that if circumstances compelled him to grow only one variety, Winter Nelis would be the one he would select.

I think it would be difficult to name a more deserving variety. The fruit is of medium size, handsome, and universally admitted to be of the finest flavour, and it becomes fit for use at a time when good Pears are not too plentiful, viz., from about the middle of November to the middle of February. The tree does not appear to be particular as to soil. It is not a robust grower, but is, nevertheless, perfectly hardy, and succeeds in the north of Scotland as well as in the south of England. It is a free bearer, and succeeds as a dwarf pyramidal tree, but deserves to be grown on a wall.

MARIE LOUISE is a well-known and highly esteemed variety. Its highly-flavoured fruit ripens earlier, but does not keep so long as that of Winter Nelis. The tree, however, is quite hardy, and succeeds quite as well in the form of a standard as when trained upon a wall. Fruit from a standard, if not quite so fine as that from a wall, is, nevertheless, if anything, more highly flavoured and of a more russet-brown colour.

DOYENNE DU COMICE.—This is a most delicious and delicately perfumed Pear. It is large and handsome, and will generally be found to succeed Marie Louise in its time of ripening, viz., during the month of November. The tree is of robust growth, and generally bears well either as a pyramid or on a wall.

SUFFOLK THORN.—This is a delicious and very handsome Pear, which is possibly less grown than it deserves to be. The fruit very much resembles Gansel's Bergamot in flavour, but it is of somewhat larger size. The tree is an excellent bearer, quite hardy, and will succeed either as a pyramid or on a wall, and the fruit will be found to be

fit for use during the month of October and the early part of November.

BEURRE BOSCH.—This variety, like the former, is possibly less appreciated than it deserves to be. It is a free grower, as well as a very free bearer, but it requires a wall or a warm situation, and well deserves the same, being one of the finest dessert Pears. The fruit is large and handsome, somewhat resembling the Jargonelle, but of a uniform cinnamon-coloured russet, and will generally be found to be ripe or fit for use in the early part of November.

EASTER BEURRE.—This variety will generally be found in perfection during the months of January, February and March. The tree is quite hardy, and will succeed as a pyramid or an espalier, and when grown in this form, the fruit, which is large and handsome, as well as abundant, is frequently found to be highly flavoured. But during unfavourable seasons it sometimes cracks. When grown upon a wall, however, the fruit is nearly always fine, abundant, and free from cracking; and it is advisable to gather it before it becomes quite ripe, otherwise it is apt to be somewhat mealy. But even when this is to some extent the case the fruit is generally appreciated at a season when first-rate flavour can hardly be expected.

According to my experience, which has mostly been confined to light land in one of the eastern counties of England, the above are what I am inclined to consider as six of the finest dessert Pears. I should certainly select them if confined to that number of sorts. This number, however, will seldom be found to be enough, as few could afford to dispense with such homely varieties as the well-known Jargonelle, Williams' Bon Chrétien, Swan's Egg, with its peculiar flavour, which is so highly appreciated by many, and the Forelle or Trout Pear, which is well worthy of being grown on account of its beauty.

I have also found in practice that there are many varieties which are known to succeed admirably in some soils and situations which have not succeeded with me, and these are Ne plus Meuris, Knight's Monarch, Glou Morceau, Beurré Rance, Beurré d'Aremberg, and Passe Colmar. While the hardy Scotch Pears, such as the Grey and the Red Achan, Moorfowl's Egg, &c., so highly appreciated in the north, are found to be worthless when grown in the southern counties. An exception may, however, be mentioned, viz., that of the Green Pear of Yair, which, as a standard, has been found to succeed in the eastern counties, bearing very freely bright green fruit of excellent quality.—P. G.

Pears for West Riding of Yorkshire.—I have a piece of wall, in some places 20 feet high, facing full south, on which I should like to try Pears. The wall is of irregular shape, and will only admit of cordons. I want good bearers and also those of good quality. I shall be obliged if you would give me a list of half-a-dozen varieties, and say what stock is best for cordons.—PUZZLED.

****** You cannot go wrong in planting the base of your irregular south wall with cordon Pears on the Quince stock, but some parts being 20 feet in height much time may be saved by introducing tall riders on free stocks for covering the upper half. These eventually, if you feel so disposed, may be cut away to make room for the cordons to ascend; otherwise, allowing 10 feet for the latter, all irregular parts above that height may remain permanently covered by the standards. Prepare well by taking out a trench 2 feet 6 inches in width and 2 feet in depth, put in 6 inches of drainage, and cover with thin sods of good loam Grass side downwards. Use sound strong loam corrected with burnt earth and old lime rubble for your compost, fill in the trench, making it firm as the work proceeds and 9 inches higher than the surrounding level to allow for settling. Plant the trees 18 inches apart, water at once to settle the soil about the roots, and mulch well with good half-rotten stable manure. Having seen the most tender of the following bearing high flavoured fruit twenty miles east of your locality, I

can strongly recommend them for your favourable aspect:—

Cordons.—Beurré Superfin, Thompson's, Doyenné du Comice, Winter Nelis, Josephine de Malines, Olivier de Serres.

Riders.—Beurré d'Amanlis, Marie Louise, Pitmas-ton Duchess, Bergamotte d'Esperen.

If an earlier variety is wanted, plant one standard Jargonelle.—W. C.

STANDARD PEARS FOR BRITAIN.

THE JARGONELLE PEAR.

My father had a splendid tree of this on the east gable of the house in which I was born, and the late Dean Henry Alford, the then vicar of my native Wymeswold, Leicestershire, and a great lover of all good fruit, used to get a dish of the fruit from our tree on what my father called "Jargonelle Sunday," i.e., the second or third Sunday in August. The tree grew on the deep, rich Wheat and Bean-growing clay of Leicestershire, and fruited in a superb way, but in other parts of the county on warm, dry Barley soil the tree did not grow well, and the fruits were earlier, but small and poor. My impression is that the Jargonelle loves deep, strong clay soil, and that it succeeds much better in the cold and chilly north of England, even Scotland and north of Aberdeen,



Pear Jargonelle.

than it does in the good Hop and Cherry soils of Kent and Sussex, or further down in the sunny south. Fond as I am by early associations of the Jargonelle Pear, and much as I like its delicious, juicy, cool, and refreshing fruit on a sultry August day, I should certainly hesitate to place it first in a list of really first-class standard Pears. It seems to me first-class only in its size and earliness, for if flavour is taken into account, then I much prefer the rich little Citron des Carmes, a cluster of which you honoured with a good portrait in THE GARDEN some time ago. I should say, in reply to your questions at p. 85, that the reason of Jargonelle not being more grown in the south of England is because the climate and soils generally are too warm for its constitution. Contrast this statement with the note reprinted at p. 99, wherein the Jargonelle is said to be "the Pear of Pears for Scotland," and that it "does well fifty miles north of Aberdeen." This is, in part, an answer to your second question, and if this should catch the eye of the writer of the paragraph, "J. O.," perhaps he will kindly say if this is on walls and near the sea-coast, or otherwise. The question of how far north is not so important as details as to elevation, soil and shelter. As to the Jargonelle being driven out of cultivation by other kinds, I should doubt this, since I never yet visited a fruit garden of any pretensions in which one, or more, Jargonelle trees

were not to be found. It is really an old favourite Pear as an early sort in most gardens, but its tendency to become rotten at the core ere it is fully ripe, and, at the best, its extremely short season of excellence, and that when other good fruits are plentiful, tends to restrict the number of trees grown in any one garden. What would be the use of growing the Jargonelle in quantity for market when the earliest French and Channel Island, Williams' Bon Chrétien, and other fruit are coming in in any number of cases a day?

I believe the Jargonelle does fairly well throughout Ireland, and I need scarcely mention to you the noble and historical tree in Merrion Square, Dublin, in front of the town house which belonged to the late Sir Philip Crampton. Every spring this tree is covered with bouquets of bloom, but last year its blossoms were literally torn away by a sleety and windy frost, or on a small scale what our American friends call a "blizzard." It was the only total failure during the past nine or ten years, and even the leafy growths on the upper portion of the tree were blackened, and looked as if scorched with fire. Your etching in Vol. IV. of THE GARDEN (p. 417) gives an accurate impression of this tree when in bloom, and from the letterpress we learn that Sir Philip Crampton planted this tree in 1815. It is properly pruned every year and manured every second year; but the reason of its more than usual fertility was attributed by its late owner, Mr. John Hamilton, to a drain or sewer which runs about 3 feet in front of the tree, and in which bundles of its rootlets have been seen. As before stated, sharp frosts and high winds in March seriously affect the fertility of this tree, yet in 1873 it ripened no less than 1700 fine Pears! Shelter from the cold east winds during its blooming period in March is an essential item in the successful culture of the Jargonelle, and my own experience is that it does better at an elevation of 200 feet to 500 feet above the sea-level than either higher or lower. At about 300 feet above the sea, especially away from the coast, spring frosts are far less dangerous than in the low valleys or on higher ground, and this neutral or frostless zone is an item of which neither fruit growers nor meteorologists have made the most in our interests to-day.

Personally, I prefer the flavour, aroma, and cool juiciness of a perfect Jargonelle far before that of the finest of Williams' Bon Chrétien, or Bartlett's, as the fruit is technically known in London and in the United States respectively. But the great mass of Pear-eaters in England to-day vote for Williams', and it is as yet only the fruit-eating connoisseur who prefers the more delicate Jargonelle. But to the man who grows Pears not for his heirs, but for the market, this point makes all the difference in the world, and so for market the Williams' Bon Chrétien Pear will long stand as A 1 in Covent Garden, just as King of the Pippins Apple tops the list from all points of view, although from any one point of view it is a second or third-rate fruit.

I know of no hardy fruit so full of whims and fancies—so variable in its phases of growth, size, colour, and flavour as is the Pear, and both the market grower and the gardener who grows fruit for his employer must of necessity be prepared to grow far more Pears than are really required. This applies to varieties as well as to the number of trees of each kind. No twelve, no twenty-four, no thirty-six Pears can be named that are absolutely the best from all points of view for Great Britain and Ireland. Even in the same soil

and climate what a difference, very often an enormous difference, is found to result between, say, Marie Louise on a wall and Marie Louise as a standard. In any other, or even in the same garden, this difference may be entirely reversed the following year owing solely to variability of climate. Again, in a garden where a Pear succeeds perfectly on an average of seasons, it will fail entirely in a garden not half a mile away. As I have said, no hardy fruit is so subtly influenced by soil, aspect, climate, and elevation as is the Pear, and so variable is our British climate from one year to another, that one can scarcely wonder at the variable excellence of our best British Pears.

I submit the above remarks to the consideration of all who grow and value our best Pears, and I especially desire to hear the opinion of our leading fruit growers on that singular phase, variation in Pears as grown under the same conditions (except climate) every year, for it is an established fact that a Pear tree that one year produces rich, juicy fruits, aromatic and of excellent flavour, the next season may produce fruit unfit for table.—VERONICA.

—This is the best early Pear grown in this district, but requires the protection of a wall to do it justice. Some old trees in this garden trained upon a south wall bear heavy crops of excellent fruit yearly. It grows freely in the open garden, but it is only in seasons like the last that the fruit is equal in size and quality to that from walls.—J. DAY, *Galloway House, Garlieston, N.B.*

—I consider this by far the best early Pear grown in these gardens; in fact, the best to my knowledge anywhere. With reference to its cropping qualities, I find it to bear freely and satisfactorily both on east and west walls. Like all other early Pears, its season is but of short duration, yet by gathering the fruits at intervals and commencing when the Pears are quite hard, the Jargonelle may be had in capital condition three weeks earlier than the Williams' and till this latter is fit for use. The question is, Have we throughout Britain a Pear ripening as early in the season as the one under notice and containing so many good qualities? So far, I think not.—H. MARKHAM, *Mereworth Castle.*

—This Pear may be seen in some warm and sheltered gardens in Somersetshire doing well, both as a pyramid and a bush tree, and producing moderate crops of fruit of good quality. It is, however, when trained against a wall or a building with a southern aspect that it is most fruitful. It seems to me to require a large root-run and plenty of space for the branches. I know a tree of the Jargonelle that has some of its branches trained to the south front of a dwelling-house, and some of them extending round to the west side. The fruit produced on the tree growing in the western aspect is almost flavourless, and when ripe nearly green in colour. The Jargonelle is certainly A 1 in flavour, but there are many more reliable bearing sorts.—J. C. C.

In reply to your inquiries on p. 85, I am glad to be able to say a word in favour of the old and well-tried Jargonelle Pear. Here, in Sheffield and neighbourhood, large standard trees, twenty to thirty years old and upwards, are to be seen in many gardens, both of gentlemen and of cottagers. These trees, grafted on Crab stocks, make vigorous growth and are hardy in our rigorous climate, which in early spring is trying to all vegetation. The trees are, as a rule, more fruitful than those of any other variety, and would seldom miss were it not for late spring frosts. We have a number of large trees in the gardens here both as standards and trained wall trees. The standards are by far the most fruitful, and the fruits, I believe, are superior in flavour to those off the trained trees, but those on the wall trees have the advantage in size. All points considered, the Jargonelle is the most valuable Pear cultivated in our Sheffield gardens.—W. K. WOODCOCK, *The Gardens, Oakbrook, Sheffield.*

—This old and favourite Pear is worthy of the position you have assigned it, for no other variety can be compared with it in its season. Mr. Wildsmith, I see, takes exception to it on

account of its tendency to decay at the core before ripening. No early Pear is exempt from this fault, and the Jargonelle is not a greater delinquent in this respect than many other August and September varieties. We have a large tree of Jargonelle on a south wall, and in some seasons I have noticed this disposition to decay before ripening, but last year the fruit was finer than usual, also juicy and good. The Jargonelle succeeds best when trained to the side of a house, or on the gable end of a building where there is ample room for extension, for, being a strong grower, it is impatient of the knife, and not until the tree has covered considerable space and the spurs have become old will good crops result. By far the finest samples of this variety which I have seen were from two very old trees in a Suffolk garden. I have assisted in gathering bushels of fine Pears from these grand old trees. This Pear when grown in different aspects will produce a good succession. Only once have I seen it growing as a standard, and in this instance the tree was carrying a good crop. We have two bush trees here which bear freely, but the fruit is smaller than from those grown against the walls. Our trees are all on the Pear stock. Judging from the number of dishes of Jargonelle exhibited at the horticultural shows in this locality, it is deservedly popular. A. BARKER, *Hindlip, Worcester.*

—In Mid-Kent this is mostly grown as a wall tree, and very old examples exist both as dwarfs and standards. As a rule, they are fertile only at the points of the shoots, and are very liable to canker. As an open standard it bears profusely, but the fruit is rather small, though of high flavour, and it is not well adapted for this style, as it is a very pendent grower. It forms a very fertile bush double-worked on the Quince stock, but from its diffuse growth is not an object of beauty as a pyramid. As a cordon it is not good, as the growth is so free that the buds are too far apart, and many eyes are blind and do not form fruiting spurs. As an early Pear of handsome form it will always be in demand, and its flavour is very refreshing. The fruit is much better pulled before it parts readily from the tree, and a heavy crop can be gathered twice with advantage. As is well known, it soon rots at the core and becomes mealy. Trees should be planted on different aspects for succession. Its large bloom is very conspicuous.—G. B.

THE JARGONELLE PEAR.

THIS Pear, according to Leroy's *Dictionnaire de Pomologie*, has good right to be considered one of the oldest in the French pomology. Our gardeners have cultivated it for about four centuries. Its first name appears to be that under which it is still known in France to-day—Poire d'Espargne. Since 1600, and without doubt before, it bore this name at Orleans, as may be seen from the catalogue that was published in 1628 by the Procureur du Roi, Le Lectier, of the trees of its remarkable orchard, established towards the end of the sixteenth century at Orleans. At page 4 of this small treatise may be found, classed among the fruits ripening during July or at the beginning of August, the Pear "d'Espargne." But even before 1600 one can prove the existence of this Pear in another part of France, at the port of Dieppe. The following passage taken from an article, inserted in 1842 in the second volume of the *Bulletin de la Société d'Horticulture de Rouen*, shows that it had been already propagated there in 1580:—

There exists in the garden of M. Mengnot, at Pollet, outside the town of Dieppe (Seine-Inférieure), an espalier Pear tree, the oldest and largest that probably can be found in Europe. This is a tree of the Pear Cueillette or Espargne, grafted on the free stock; it is planted against a wall 8 metres high and in a clayey soil. The stem is 1 metre in thickness; each lateral branch is 70 centimètres in diameter; it is 30 metres in width, and is in a southern exposure. Its growth is vigorous, and the tree bears each year from 3000 to 4000 Pears. Its date of planting, written on a stone placed in the wall, was 1580, in the reign of Henry III. The property where it was found planted was formerly a hospital. This venerable tree is taken care of by the owners, so that even now a long life is assured to it.

Evidently we have here the origin of the Pear Espargne, and also probably one of the first fruit trees that has been grown as an espalier. At the same time it is believed that if it was really planted in 1580 on the wall on which it now grows, it was only towards 1600 that it was trained in the form of a true espalier, of which the origin in our country goes back only to the beginning of the seventeenth century; thus it appears in the lists given in our first volume, p. 57, of the history of the Pear. This tree was found exactly in the province where the espalier was well known, since the Abbé le Gendre, Curé of Henonville, near Rouen, was, as we have stated elsewhere (vol. i., pp. 57, 58), the oldest and most celebrated advocate of this method of tree culture.

Poiteau, who died in 1854, said in his "Cours d'Horticulture," edition of 1853:—

After having looked for a long time for a reasonable meaning for the word Espargne in the "Poire d'Espargne," I have thought that this word was a corruption of Poire d'Espagne (vol. xi., p. 142). This opinion has recently influenced one of our pomologists, who, adopting it, has supposed that this Pear came originally from the north of Spain. To us these two opinions are inadmissible. The Pear that since 1628 Le Lectier called "Espargne"—a word then synonymous with treasure—must be of French origin, and have come either from Orleans or Normandy, its common name in the last mentioned province being Cueillette. Our idea is also that of M. Jahn, one of the most competent German authors on the same subject (see "Illustrirtes Handbuch der Obstkunde," 1860, vol. xi., p. 195, No. 86). No Pear tree better deserved than this such flattering names which in our day it still fully justifies, since in 1858 M. Decaisne wrote in the first volume of his "Jardin Fruiter du Muséum," "L'Espargne is very abundant in the Paris markets, where choice fruits of it are generally sold at 25 francs the hundred;" and in 1866 M. Mas, publisher of the "Orchard," said, in describing it, "I have known a tree of this variety the crop of which often realised as much as 120 francs."

Let us add, in conclusion, that among the other names of this Pear, Grosse Cuisse-Madame is one of them. We have inscribed the name Grosse Cuisse-Madame among the synonyms of Espargne, this Pear having borne it for a long time and in different countries; but here we ought to inform the reader that in 1600 there was cultivated at Orleans, according to Le Lectier (catalogue of 1628, p. 17), a Pear tree originally of Moulins, and called Certeau-Madame, or Grosse Cuisse-Madame. Nevertheless, as its fruits ripen in December, said this author, it is proved that it was entirely different from Espargne; our efforts to find it again have been futile. Let us also remember that for a number of years L'Espargne has been grown in Anjou as La Cuisse-Madame, and we refer those who wish for more detailed explanations on this subject to pp. 606, 608 of vol. i., where this last-mentioned variety is described.

SHORT NOTES.—FRUIT.

MONS. F. JAMIN recommends the following Pears for growing in England, giving the names in the order of ripening: Doyenné de Merode, Beurré Dalbret, Urbaniste, Beurré Hardy, Ne Plus Meuris, Beurré Dumont, Passe Colmar, Passe Crassane, Olivier de Serres.

Melon Apple.—This Apple has been grown here for the last twenty years. The tree is a slow grower, both against the wall and as a bush; it bears freely about every other year. The fruit is large, highly coloured, very good, and keeps well. We have some very good samples of it now. By far the best fruit is obtained from trees grown against walls. It is very little grown about here.—E. PETERS, *The Gardens, Somerset Terrace, Guernsey.*

Medlar jelly.—In THE GARDEN of Feb. 4 I see an article on Medlar jelly. I have made this preserve for years, and prefer using the fruit before it is quite ripe. The jelly requires to be boiled for about two hours and a quarter at least. It should, when stiff, be of a beautiful red shade, rather like dark sherry. An astonishing quantity of the fruit is required for the jelly. I have found 24 lbs. of Medlars make only jelly enough to fill nine 1-lb. pots.—S. O. G.

THE APPLES TO PLANT.

ALTHOUGH the difference in soil and climate that exists in various parts of England has less influence on the quality of the fruit of Apples than of Pears, yet the nature of the land and the atmospheric conditions have so much influence on the growth of the trees and the bearing capabilities of many varieties of Apples, that in making a selection of sorts that will answer for general planting, it is necessary to be guided by the suitability of the varieties chosen. Any variety that will only succeed in exceptionally favoured places should be excluded from a representative selection. For instance, Cornish Gilliflower, though well known for the excellence of its fruit, is so indifferent a bearer in most localities as to be useless for general adoption. I have had this variety in several places where all the best sorts did well, yet although the trees bloomed well they did not produce half-a-dozen fruits a year each. I could mention many other sorts that are good in every way in places where they succeed, but that are too uncertain to be included in a reliable selection. This subject, as I have before remarked when touching upon hardy fruit culture, is one of the most important connected with gardening, for though other fruits in their respective kinds are well worth all the attention that can be given them, still Apples are of much more value both to the grower and consumer than any other fruit.

Respecting the cooking properties of many of the best dessert sorts, it seems that their merits have been little recognised. Ribston Pippin to my taste is the finest flavoured of all Apples when cooked, yet I have never met with anyone who had tried it in this way before their attention was drawn to it. This season I had Ribston Pippin, Cox's Orange Pippin, Golden Winter Pearmain, and Blenheim Pippin all cooked at the same time, so as to be able to see which was the best. There was little difference in the texture of the four sorts named, except that the Winter Pearmain was the firmest and shrunk the least. In favour of the Ribston was first, Cox's Orange second, Winter Pearmain third, and Blenheim fourth. Everyone who is at all observant and who knows anything about Apples is acquainted with the merits of the Blenheim Apple, and the fact of this excellent variety standing the lowest of the four speaks well for the others. Although some of the leading dessert sorts are equally good when cooked, it does not follow that it would be wise to depend on them for cooking. They neither come in early enough nor last long enough to cover the season during which cooking Apples are required. Another great objection is that the dessert sorts that I have mentioned, and others of a like description, do not bear anything near the quantity of fruit that the leading cooking varieties do. Neither are many of the leading dessert kinds such free growers as the best cooking varieties. These shortcomings are sufficient to show the mistake that would be made in excluding the best cooking varieties.

In making a selection of kinds, I hold that it would also be wrong to mix the dessert and the cooking sorts indiscriminately. To those who are acquainted with Apples and their cultivation it would not matter, but the greater number of those who require any assistance in selecting the varieties to plant will gain little knowledge by the mere mention of the name of a variety. The plainer and simpler that everything connected with the subject is made, the easier it will be understood. In selecting a limited number of varieties out of the quantities of good sorts there are to choose from, one feels some difficulty in determining what sorts to leave out. It is important that the selection should be such as will give a supply, say, from August to May. Later than this, even the cooking sorts, that will nominally keep longer, have, so far, lost both flavour and texture as to be of little account.

The undermentioned combine the best properties for which Apples are prized. They will give an unbroken succession throughout the season, and will thrive and bear satisfactorily in most parts of England:—

COOKING VARIETIES.

August and September.—Lord Suffield, Keswick Codlin.

September and October.—Cellini, Echlinville Seedling.

November and December.—Loddington Seedling (Stone's Apple), Blenheim Pippin, Lord Grosvenor, Prince Albert, Reinette Blanche d'Espagne (Cobbett's Fall Pippin).

January to May.—Dumelow's Seedling, Annie Elizabeth, Tower of Glamis, Yorkshire Greening, Alfriston.

DESSERT VARIETIES.

August.—Margaret, Irish Peach.

September and October.—Kerry Pippin, American Mother.

November to April.—Ribston Pippin, Margil, Cox's Orange Pippin, Court Pendu Plat, Claygate Pearmain, Golden Winter Pearmain, Boston Russet.

I have included Ribston Pippin, though there are some places in the south of England where the tree is subject to canker, but its combined properties are such that it cannot be left out of a selection for private use. Some object to its crisp, hard texture; whilst those who dislike soft Apples look on its firmness as one of its best qualities. American Mother is not much known in the north of England, and I have no experience with it in the northern counties. It is a remarkably high-flavoured variety and unsurpassed for tenderness of flesh. Amongst the cooking sorts there is one, Reinette Blanche d'Espagne, or Cobbett's Fall, which I have not grown in the north of England, nor have I met with it in that direction. But in the south it does splendidly, bearing immense crops of very large fruit, excellent for cooking and little, if anything, inferior to the Blenheim for dessert. Its long season of keeping—up to March—is also in its favour. The tree is a strong grower, attaining a size equal to that of Yorkshire Greening or the Blenheim. There is one matter connected with the cooking of some of the dessert sorts that requires to be taken into account: they need to be longer in the oven than the ordinary cooking varieties. It is scarcely necessary to say that the sweetest varieties of Apples need the least sugar. Respecting the use or non-use of sugar, there will naturally be a difference of opinion. Some do not like it, and therefore prefer Apples without any sweetening; others, with whom sugar does not agree, on that account do not use it; but the majority of people require sugar with even the sweetest Apples when cooked. T. B.

FRUITS UNDER GLASS.

VINES.

ALTHOUGH the temperature has varied to a most trying extent, the weather of late has been more favourable to early forcing, as may readily be seen by the improved colour and texture of the foliage. January has gone out a dry month, and February so far does not yet show signs of filling our cisterns and tanks, much less our ditches; but what has this serious aspect to do with the culture of fruits under glass? Why, a great deal, for in the first place, the absence of rain compels us to use hard water for damping, syringing, and watering; in the second, the roofs remain dark and dingy by an accumulation of soot, which we should like to see removed; the occupants of the houses lack the invigorating air which finds its way through every lap and crevice in rainy weather; and last, the prospect for supplying the summer evening bath looks unpromising, whilst the roots of Vines in well-drained external borders lack the stimulating matter which an average rainfall carries to them. Vines now coming into flower will stand and set well in a temperature ranging from 60° to 65° at night, with a rise of 10° to 15° by day, and just enough atmospheric moisture to prevent the tender foliage from suffering when bright sunshine renders liberal ventilation necessary. Should the weather be dark and cold, atmospheric moisture must be reduced, and a few degrees lower by night will do no harm, but extra fire-heat should be turned on every morning, not only to facilitate the admission of a chink of fresh air along the front of the house, but also to favour the ripening and expansion of the pollen. Foster's Seedling, Buckland Sweetwater, and Madresfield Court Muscat should be fertilised with

Hamburgh pollen when the temperature reaches the maximum and the air is fresh and buoyant. Hamburghs are supposed to take care of themselves, but, independently of the fact that the collection of pollen for the shy varieties produces the desired effect, the performance of this operation should not be neglected where the Hamburgh only is grown. When the Grapes are sufficiently advanced, and the best placed as well as the best set bunches can be decided upon for the crop, all superfluous clusters must be removed preparatory to the tedious process of thinning. It is the too common practice to leave all the largest bunches, but unless they are wanted for exhibition or any special purpose, the intermediate and well-shaped clusters, which invariably set best, and more of them are to be preferred. As Grapes vary so much in size, it is impossible to give directions for thinning, but one year's experience and practice in any vinery will set an observant operator right. If properly performed, the berries should not press each other out of shape when ripe, neither should the bunches lose their compact form when they are cut and laid upon the dish for use. All stoneless and doubtful berries should be removed, as nothing so much as inequality of size detracts from the pleasing appearance of the fruit, and on no account should the flesh, the hair, or water touch them after they are set. When the first thinning has been brought to a close, it will be necessary to examine and water if necessary all internal borders either with pure water, or, in the case of old Vines, with weak diluted liquid at a temperature of 80° to 85°. The evaporating troughs, too, must be kept constantly charged, and plenty of atmospheric moisture, especially on fine days, must be secured by damping the paths, walls, and stems, avoiding the pipes when heated, and last, but not least, by the renovation and frequent turning of the fermenting material. External borders well covered with dry, warm leaves when the Vines commenced pushing will not require renovating, but they must be protected from the chilling effect of snow and rain by tarpaulin, shutters, or sheets of corrugated iron, the cheapest and best of all materials for this purpose. As days increase in length and the sun gains power, the temperature must be gradually raised to 80° with air, and 85° for a short time after closing, but no advance on 65° by night, and that with a chink of front air, need be made for the present. Pinch all lateral growths, tie down, and regulate where the trellis is already fairly covered, extend them where space admits, but carefully avoid a crowded condition that will shut out the sun's rays and check the full development of the foliage.

Succession houses now closed must have plenty of tepid water and good syringing backwards and forwards two or three times a day until all the buds are on the move, when the use of the syringe may be relaxed. If extra long rods show a disposition to break unevenly, their points may be drawn down to the border until the defective parts form the crown of an arch, when the check upon the flow of sap will soon set the dormant buds in motion. As the young growths after this date will push very fast, disbudding, tying down, and, in due course, pinching must receive early attention. Where all double breaks have been reduced it will be well to wait for the best shows to become prominent, when, hand in hand with tying down and regulating, the reduction of the shoots to one or two upon each spur and to quite 12 inches apart on young canes may be proceeded with. A few days' delay in disbudding is of little consequence. Sometimes upon weak Vines it is beneficial, but when we arrive at the pinching stage each point should be taken out before a single superfluous point with leaf attached has time to rob the Vine. By paying special attention to this matter of detail the bunches are improved in size and quality; not an atom of sap runs to waste, and the ugly knife-cut stumps which still further weaken the Vines by bleeding are avoided. When stopping and the general tying down have been brought to a close, the retention of point laterals for covering vacant spaces, as I have just observed in my remarks upon early Vines, will claim attention. As soon as the bunches retained begin to lengthen, advantage must be taken of warm, sunny

days for running up the temperature to 75° with air, and 80° for a time after the house is closed, when steady fire-heat will allow it to descend gradually to 65° at banking time and 60° the following morning.

Muscats.—Where the houses are devoted to this prince of Grapes, the Vines in the first should now be well on the move if not already tied down. The roots being confined to internal borders of limited extent, good top-dressing or mulching with fresh horse droppings and copious supplies of diluted liquid at a temperature of 85° will not only help them on rapidly, but the ammonia from the manure will give colour and substance to the foliage and keep spider in check. Muscats may be worked throughout the season at a temperature 5° higher than is good for Hamburgs, and as this means extra fire-heat, the question as to whether the syringe shall be discontinued or used up to the flowering stage is a matter for the grower's consideration. If this course is decided upon, warm, soft water only must be used, as limewashed leaves are little less unsightly than spotted berries. In either case the bed of fermenting leaves, whilst economising and softening fire-heat, will be found a powerful aid when the weather is dark and cold, and altogether unfavourable to the use of the syringe.

The late or general house, now ready for starting, may be closed at once, or air may be kept on until the buds begin to swell. Meantime the external borders must be secured from sudden chills by a good covering of dry leaves, Fern, or litter, while those inside will require one, or perhaps two thorough waterings that will permeate every particle of soil quite down to the drainage. Lady Downe's and other late varieties in like manner may be helped on with gentle fire-heat and fermenting leaves, or they may be left to break naturally. As this excellent Grape cannot be grown to perfection without the aid of fire-heat, and we never know what the summer is likely to be, many growers now prefer stealing a march upon the season, and in this way secure crops of fruit as black as jet, thoroughly ripe, and in the best possible condition for keeping and eating. Further, they save money in production, as one ton of fuel in the spring is of more use than two in the autumn. If anyone doubts this statement founded upon experience, let him refer to his Grape-room notes after cold, wet seasons and then examine his present stock matured under brilliant weather.

Pot Vines.—If former directions have been followed, and quality as well as earliness are to be the test of merit, the bunches will have been reduced to six at most, and well thinned as soon as they were out of flower. Extra strong Vines started late may perhaps mature more bunches. But unless they are extremely well done, the smaller number will not only equal them in weight, but their colour and quality will be better. Assuming that the bunches have been thinned, and the Vines well up to their work are making laterals freely, all must now be closely pinched, unless space remains uncovered, when the plan adopted in the early vinery may be followed. Without good foliage, and plenty of it, we cannot have good Grapes, and as these are entirely dependent upon the support given to the roots, sound sweet top-dressing, rich and good, must be used little and often. This may be washed in with pure warm water, and when a second watering is found necessary, very weak diluted liquid may possibly be beneficial. Pot Vines being so subject to red spider, the syringe must be freely plied upon the walls, the stems, and the surface of the bed, and last, but not least, the fermenting material will require frequent turning and renovation. The crock roots having the benefit of genial bottom-heat, the house or pit may be kept at 65° to 68° by night, always with air, and 75° to 80° on bright days, and a few degrees higher after closing.

Stock Vines cut back in December, and, if intended for fruiting next year, should be shaken out as soon as they have made 2 inches of growth and be repotted in 7-inch pots for growing on. As these small pots will contain the nucleus of balls which will keep the roots fresh and healthy until the

Grapes are ripe, considerable care should be devoted to the preparation of the compost. Good, sound turf, cut last autumn from an old pasture, a little old lime rubble, a dash of soot and crushed bones, well incorporated a fortnight in advance, thoroughly warmed, and the reverse of wet, will answer admirably. A quick, but short-jointed growth being the aim, the pots may be plunged in a bottom-heat of 75° to 80° to give the roots a start, and when this has been secured they must be kept stocky by close proximity to the glass and careful ventilation. If the compost is in proper condition, one moderate watering in a day or two after they are plunged will settle it about the roots, when future supplies must be regulated by the moist or dry condition of the bed and the use that is made of the syringe. Of two evils, it is always best to err on the safe side, as fresh compost, minus roots, is easily made sour, whilst plants in this state, in a close moist pit, require very little water at the outset. By way of stimulating the roots into speedy action, it is a good plan to allow two buds upon each Vine to start into growth, and when, by the crisp, healthy appearance of the leaves, they show that all is right below, the weakest may be pinched and eventually removed altogether.

Eyes may be propagated in two ways: by insertion in very small pots firmly filled with sandy soil, or by insertion into small cubes of turf, laid Grass side downwards upon a hot-bed. The first is the oldest, but the second, or Galashiels system, is the best, especially where home-grown Vines are wanted for spring planting. Whichever plan is adopted, the following precautions are essential to success: The wood from which the eyes are taken should be ripe and free from insects and mildew; the bottom-heat, 70° to 75°, steady and lasting; the surface of the bed in a snug, well-heated pit, not too far from the glass; and the supply of water at the outset extremely moderate. The trade start and grow their young Vines in a very strong top and bottom heat, but beyond stealing a march on the season they are none the better for this high pressure, neither is it at all necessary. Private growers of this easily-propagated plant also go off with a flourish, but their strong heat failing at the most critical time, the eyes never get beyond the exhaustion of the stored-up sap, when they perish. To steer clear of this dilemma, the bottom-heat, be it high or low, should be constant—certainly until the small pots are full of roots and the tiny canes commence making leaves and joints, when they may be considered safe. This method of growing Vines from eyes has been well exemplified at Heckfield, where that indefatigable gardener, Mr. Wildsmith, made his internal border first, then inserted the eyes where the canes now stand, and cut first prize Grapes from them within twenty months. He places bell-glasses over the eyes, it is true, but the natural fermentation of the compost would not exceed 60° or 65°, the best of all proofs that a temperature which can be maintained is of vital importance.

The Grape room.—Late Grapes so far have kept unusually well, and judging from the fresh and green condition of the stalks, there exists but little doubt that they will present a most respectable front when they come out to shake hands with the new. A dry winter may have been favourable, but the true cause of their good behaviour is plainly traceable to the dry, warm autumn, which converted their juices into saccharine matter before the leaves fell from the Vines. This being the fact, we have positive proof that a tropical summer is the late Grape grower's best friend; and although no amount of fire-heat will compensate for the absence of the sun, the niggardly fuel-provider may learn that the repetition of many past failures can be avoided by starting the Vines early in spring. When late Grapes are cut from the Vines they should be most carefully relieved of all doubtful berries, the wood beyond the bunch should not be shortened, the bottles should be kept constantly full of water, and then, provided actual frost can be kept out of the room, the less dry fire-heat the better. Many people put lumps of charcoal in the water and change the latter frequently; but this trouble and disturbance

is not really necessary, as I find they keep just as well without the charcoal, and one change of water will suffice for the whole season. Grapes cut at Christmas and used before March need not be disturbed; but when these are cleared off, we sometimes, not always, empty the bottles, refill with soft water, and transfer the remainder of the stock to them. Lady Downe's, we are told by Mr. Barron, has been superseded by Gros Colman; and more is the pity, as I have not yet met with anything equal to a well-grown Lady Downe's through the months of March and April. As a first-class successor to the Muscat of Alexandria, the white Grape Mrs. Pearson still stands unrivalled. Black Grapes keep best in a dark room or dry, cool cellar. They should be carefully protected from dust, and on no account should the means of expelling damp or frost be obtained from an open fireplace. A small boiler outside, with pipes passing through answers best, and the less this is used the better. W. C.

GARDEN FLORA.

PLATE 636.

TWO BEGONIAS.*

THE accompanying plate truthfully represents (life size) two of the many fine varieties of tuberous Begonias recently obtained from the careful selection and raising of these plants by the Messrs. Cannell, of Swanley. The most ardent enthusiast and admirer of these easily-grown and most effective plants could not have anticipated that such vast strides were possible to be made in the improvement and perfecting of this section of the Begonia family as have been made since the comparatively recent date of its first introduction. To such a size have the blooms now been brought, that, though the florist's express dictum is "that a flower cannot be too large for the exhibition table, provided it is perfect," there will be found more people who prefer those varieties with blooms of moderate proportions where extra size of bloom is not obtained at the expense of quantity and freedom of blooming. When I visited the nursery at Swanley last autumn to examine the progress of the Begonias, I observed many new double varieties of first-class quality, some having the petals folded with the precision and regularity of the Camellia, and of the exquisitely delicate tints of a Tea Rose. As in every other class of florist's flowers which Mr. Cannell has already taken in hand for improvement, so also in this family the progress and development has reached such a point, that while observing what has been done already we can still hope for something further in the obtaining of new and distinct shades of colour. Some of the large single whites are perfectly pure, others are tinted with rosy carmine, like an Apple blossom, as in the plate, and more are tinted inside with a soft cream colour. So much has already been written on their culture that I need not touch on that point, merely adding that in suitable places, where they are cultivated in the open ground as well as under glass, the enjoyment of their bloom can be prolonged for many months, to the great delight of the amateur of these gorgeous and, at the same time, refined flowers, which exhibit so extensive a range of colour, from the deepest crimson and scarlet to a delicate primrose or white. J. T. Poë.

Copyright of seedling fruits.—The absence of copyright in seedling fruits appears to me to inflict an injustice on those who have given much time and attention to this important branch of hor-

* Drawn for THE GARDEN in Mr. Cannell's Swanley nursery by H. G. Moon, July 15, 1887, and printed by G. Severeys.



TWO BEGONIAS (LIFE SIZE)

iculture. Why should not the originator of a seedling fruit be placed on the same footing with respect to his property as the author of a book, or the composer of a popular song? I am induced to ask you to give me space for the ventilation of my grievance, because I see that in the list of Plums for orchards given by your very experienced contributor, Mr. W. Coleman, I am even denied the barren honour of the title of authorship to those Plums which he states are likely to be valuable additions to the home fruit markets: these are The Czar and The Sultan. Now these two Plums, from the arrangement of their parentage, their fructification, and the responsibility of making them public, are entirely my own; the Rivers' Early Prolific is a seedling raised by my father; the affix of "Rivers" has assured the property in the title, but this is all, and there is a limit to the use of the name. "Early Rivers" and "Late Rivers" have been appropriated, and I cannot use "Medium," "Hasty," or "Slow Rivers." I have, therefore, been compelled to abandon the surname and give names easily pronounced and familiar enough to be recognised in the markets. If I had a right of copyright, to which I contend I am entitled, I should not only now be reaping a handsome income, but I should also be able to employ nearly all the land and labour in my parish for growing trees, as it has been admitted that these early Plums have enabled the English grower to compete successfully with the foreign fruit grower. Parliament is now assembled, and I hope that you will allow this matter to meet the eyes of some member who will be inclined to add, as a rider to the book copyright, that the privilege be extended to seedling fruits.—T. FRANCIS RIVERS, *Sawbridgeworth*.

STOVE AND GREENHOUSE.

MIGNONETTE.

ALTHOUGH not a showy flower, Mignonette has a peculiar charm of its own. It forms a pleasing relief to the more showy flowers, and the lovely fragrance of the blossoms renders it a favourite with all. As a commercial plant for pot culture it receives especial attention, and is grown to great perfection by many of the market growers, who make the culture of Mignonette an important and often a very profitable part of their business. Anyone going into Covent Garden flower market in the springtime cannot fail to distinguish the lovely perfume of Mignonette from that of the numerous other fragrant flowers that are there brought together; and one going in early in the morning might well wonder where and how it would all be disposed of, but it may soon be seen that Mignonette is not reserved for any one class of buyers. From the leading florists down to the barrow-man all invest in this ever-popular flower.

In private establishments Mignonette does not often meet with the attention it deserves—that is, as a pot plant, for, as far as my experience goes, it is rarely seen in good condition, except where grown for profit. I am rather surprised that this should be the case, for where it is well done it is sure to be thoroughly appreciated, and under favourable conditions it continues in bloom for a considerable time.

For pot culture it is very important to secure a good strain of seed. There are several good and somewhat distinct varieties. The variety that finds most favour with market growers is that known as *pyramidalis grandiflora*, a dwarf-growing kind with rather short, but very thick spikes of bloom, the reddish brown anthers giving the spikes of bloom quite a red appearance. Matchet appears to be an improved selection from this. Miles' Spiral is a good variety with long, thick spikes of bloom; the plant

is of dwarf habit and vigorous growth; the anthers are not so conspicuous as in the first-named. Parson's White, which was one of the first great improvements in Mignonette, is a very desirable kind. It would perhaps be difficult to obtain this true under its original name. Although there are several so-called new white varieties, I have seen nothing better than the original form of Parson's White, in which variety the petals are unusually developed and quite white; the stamens are not so numerous, and the anthers are less conspicuous than in most varieties; the spikes of bloom are of great length and very fragrant. Golden Queen is another distinct variety, in which the anthers are yellow and very numerous, giving the flower-spikes quite a yellow shade. I believe all the improved varieties are the result of careful selection, and to keep any strain true it requires care in saving the seed, for if a few plants of an inferior sort happen to be flowering in the same locality the pollen may get transmitted from one to the other, and if this is allowed to go on the result will be a sad mixture. It is on this account that it is somewhat difficult to obtain seed that will be perfectly satisfactory.

CULTURE.—Mignonette is usually sown in the pots that it is intended to flower in; therefore the soil is the first consideration. Any ordinary compost may be used, provided it is fairly rich, free from worms, and sufficiently porous that water can pass through freely. In preparing the compost, it is a good plan to mix a little soot with the manure before adding it to the other soil, and a good sprinkling of old lime rubbish is a valuable addition to the compost. The pots should be filled firmly and not too full, as the seed should have a good covering and sufficient room left for watering. The first spring sowing may be made any time after the middle of February, and successional sowings throughout the season, the latest being in September. This will come into flower early in the year before the first spring-sown batch.

The best position for growing Mignonette in is in pits or frames which have a southern aspect. The pots should be plunged in some light material, and brought up as close to the glass as possible. As soon as large enough to handle the plants may be thinned out, leaving about six plants in a pot; or it is as well to leave a few more and go over them a second time, as sometimes a few will damp off. Ventilation should be given freely from the time the seed begins to germinate, and later on, as the weather gets warmer, the lights may be removed altogether on favourable occasions; but the plants should not be exposed to heavy rains or rough weather. It is very essential that watering should be regularly and carefully attended to; in fact, this is the most important point in connection with the successful culture of Mignonette. Either extreme is equally damaging; indeed an over-dose of water or allowing the pots once to become too dry will often prove fatal. If the plants have had a good watering after the seed is sown, the surface soil will only require a slight sprinkling from time to time until the plants are large enough for thinning out, after which sufficient water should be given to soak through the soil as the pots appear dry. This will not be more than once or twice a week, but as the plants advance they will require more, and by the time the pots are full of roots they will require frequent attention. Manure water may be used as soon as the plants have got a good start, using it weak at first and gradually increasing the strength. By flowering time they will take manure water as strong as most soft-wooded subjects. During the hot weather a

good sprinkling overhead once or twice a day will be beneficial, especially as the plants are coming into bloom, as at this period they will require a considerable quantity of water, and the slightest neglect will result in loss of foliage. Ventilation must also be regularly attended to. Mignonette being so easily excited, it will soon get drawn if kept close, though it be only for a short time. No artificial heat must be given at any time, except just sufficient to keep out frost. And if short, sturdy plants are desired, they should be grown fully exposed to the sun, as the slightest shading will induce them to run up tall and thin. During the summer-time a sharp look-out must be kept for caterpillars, which are sometimes very troublesome, and will soon make sad havoc if not kept in check. With the exception of the above, Mignonette is not much troubled with insect pests. A.

THE FLOWERING OF EUCHARIS AMAZONICA.

THE way to flower this abundantly several times a year is to grow it well from the first. Get the pots full of roots, and then feed liberally with liquid manure. Large specimens containing a dozen or more strong bulbs in a pot are seldom altogether without flowers. Some growers rest their bulbs, and I used to do so years ago, but strong, vigorous bulbs do not seem to require rest in the ordinary sense of the word. I have seen pots that have not left the plunging-bed where bottom-heat is pretty regular except for a short period in the summer when the fire is allowed to go out, and no plants could thrive better than they do. A neighbour who does them well never takes his plant from the bed of Cocoa fibre in which they are plunged unless for repotting, which is very seldom, and I have never seen any plants more luxuriant or that produce finer flowers, or more in number in proportion to the number of plants. It will take several years to get up good specimens, but when once obtained, there should be plenty of flowers if there is a bottom-heat of 80° or so. Strong plants with large, vigorous foliage will require a good deal of nourishment. Just about the time I think the plants ought to be throwing up a large number of spikes I commence watering with liquid manure, which the plants have continuously until they cease flowering; then they are given clear water till we want another large batch of flowers; in the meantime, we are not often without isolated spikes. The soil we use for potting, when we do pot, which is not often, is about equal parts of rough turfy loam, rough pieces of fibry peat, and dry, flaky pieces of horse-droppings, and a little sand and some crushed charcoal. The soil is rammed in fairly firm. If the plants are wanted to produce abundant crops of flowers, they should not be taken into the rooms or draughty corridors, nor yet into the conservatory more than can be avoided, as I always find that those plants not disturbed very much bear the finest flowers. For propagating purposes it is necessary sometimes to break up a large plant, but unless the matter is pressing it is better left untouched. E. H.

Echeveria retusa.—This is a very useful and free-flowering plant, being especially valuable during the winter and spring in the decoration of the conservatory as well as for cutting from, inasmuch as the flowers, owing to the nature and substance of the foot-stalks, keep fresh for several days. It is of good habit, and when well grown will produce several flower-spikes, which again branch out from the axils of their leaves, and thereby prolong considerably the flowering period. The flowers, of a deep orange colour and Hyacinth-like in shape, are borne in trusses on the top of the individual spikes, each truss having from twelve to sixteen blooms. This Echeveria is of very easy culture, and may be propagated freely from offsets taken off with an inch or two of heel, and inserted singly in 3-inch pots filled with an admixture of three parts light loam and one of leaf-soil, with a dash of sharp sand. They will root freely if then placed on the staging

over the hot-water pipes in a vinery or any other convenient place, and damped overhead morning and afternoon with the syringe when damping the house. When the plants have partly filled the cutting pots with roots they should be shifted into their flowering ($4\frac{1}{2}$ -inch) pots and stood on ashes in a cold, shallow frame in a warm aspect, and be kept rather close for a few days until the plants have made fresh growth. After this they should have plenty of air on all favourable occasions, and the sashes tilted up a little at night, and subsequently (about the middle of July) removed altogether, which will not only afford the plants head room, but also cause them to make a good sturdy growth. Upon the approach of frost the plants should be removed to a pit or house where they can have plenty of light and air and a minimum temperature of 40° or 45° , which, with a rise of 10° or 15° during the day, would enable them to commence flowering about the new year, and continue in bloom for three or four months onwards. The plants may be had in flower, if desired, during five or six months by introducing a small batch into the forcing house in October, and at short intervals till Christmas. From the time the plants commence throwing up their flower-spikes they should have liberal supplies of weak liquid manure three or four times a week. We have now several dozen plants from 15 inches to 20 inches high and nearly a foot through.—H. W. W.

BROMELIACEOUS PLANTS.

VRIESIAS.

It has long been a source of regret to me that the taste for these plants has so much declined of late years amongst lovers of plants in England. And this is all the more impressed upon my mind whenever I visit any Continental gardens, especially those in Belgium, where large collections of these plants are to be found, and where they are much prized. I am glad, however, to record the fact that here and there in this country I find places where their cultivation is being taken up and fresh kinds sought after. I feel convinced that before long we shall see this beautiful class of plants receiving that amount of care and attention from English gardeners that they so richly deserve. The fact is, these plants want some one who would devote themselves to their culture, and let their beauties be seen, and then they would have no lack of admirers. Other subjects have their specialists, and why not Bromeliads? I was told a short time back, however, that specialists were a weak-minded body, but I think society in general is much indebted to them.

The cultivation of these plants is by no means difficult, but, on the contrary, they are the easiest exotic plants to manage; true, they require heat and moisture, and very little besides, as the majority of these plants grow in the forks and upon the branches of trees, surrounded oftentimes with Aroids, Orchids, and other plants. They are frequently imported upon blocks of wood with Orchids, and only recently I saw several species so growing in an Orchid house, and these few are likely to lead to the formation of a collection in that place. The majority of the kinds might be grown upon blocks or in small baskets suspended from the roof in the same manner as Orchids, and I have grown many of the smaller kinds successfully in that way, such as Tillandsias, the smaller Pitcairnia, Anolophytums, Vriesias, and Billbergias. Of course, the weight of the larger-growing kinds renders it more convenient to adopt pot culture with them, but I believe they would all thrive well treated as Epiphytes. Whichever system is adopted, the roots should not be overloaded with soil, those upon blocks having a little peat-fibre and Sphagnum Moss fastened about their roots to retain moisture. The block should be large (but not large enough to have an ugly appearance), and the plants will soon cling to it. The large kinds should be supplied with ample drainage, and the soil should be a mixture of peat, leaf-mould, and loam, varying it from light to heavy, according to the vigour of the subject. Those kinds which have a hollow funnel-like centre, caused by the rosulate arrangement of their

leaves, should have water kept in them; many gardeners are, however, very careful to empty this out, but it is a mistake. I do not advocate its being allowed to stagnate, as when watering the plants the water should be made to run over, through, and about the leaves, and in that manner the water in the centre is kept fresh and the portion that trickles down through the leaves will be found in a usual way sufficient for the roots. Treated in this way, these plants will be found to thrive vigorously. They enjoy sun and light, yet it is advisable to shade them during the hottest part of the day. Increase is effected by suckers and by seeds; the latter may be obtained for a certainty if the flowers are fertilised, and in cross-fertilising and the obtaining of hybrids there is an almost untrodden field open to the cultivator. The following are a few of the most showy kinds of Vriesias, which cannot fail to please those who will find them space:—

V. DUVALIANA.—A plant of medium size with recurved, broadly strap-shaped leaves, which are much dilated at the base, light green on the upper side, dull brown beneath; scape erect, scarlet; spike large, composed of numerous distichous bracts, which are bright red at the base, the colour passing into yellowish green, and ultimately bright green at the tips; flowers slightly protruding, greenish yellow, tipped with green. It is best grown in a pot. Rio Janeiro.

V. AMETHYSTINA.—This is a bold-growing plant with long, somewhat narrow, leaves, which are sheathing at the base, deep green on the upper side, rich amethyst beneath—a circumstance which has given rise to the name; scape erect, furnished with numerous small green bracts, which are pressed close to the stem, and bearing on the upper part eight or nine large flowers arranged in a two-ranked fashion, the bract being about half the length of the calyx, light green; calyx golden yellow; the corolla and exerted stamens are also the same colour, but tinged with green towards the apex. The size of this plant necessitates pot culture. Brazil.

V. HIEROGLYPHICA.—This is one of the most beautiful plants yet introduced, but it is not remarkable for brilliancy of flowers or bracts. The spike, although much branched, produces only pale green bracts and rusty yellow flowers; they are valuable, however, as seed-producers to increase the stock. The foliage of this species, however, is so exceedingly beautiful as almost to defy description. The habit of the plant is vasiform; leaves recurved, pale green, transversely streaked with irregularly shaped blotches of darker green; the under-side is similarly marked, but the transverse bands are reddish crimson and chocolate-brown instead of deep green. I have noticed that this plant is somewhat delicate and does not thrive if much water is kept in the funnel-like centre during the winter months. Brazil.

V. WARMINGI.—The leaves of this are somewhat erect, narrow, and strap-shaped, the erect scape bearing a long spike of large imbricated bracts, which are rich canary yellow, tipped with light green; flowers slightly protruding and golden yellow in colour. It is a superb species, lasting a long time in full beauty. Brazil.

V. RETROFLEXA.—This is a smaller-growing plant with short, broad, spreading, and recurved leaves, sheathing at the base and blunt at the apex, but suddenly ending in a point, light green above, glaucous beneath. The scape is pendent, somewhat lax-flowered; bracts large, bright carmine; flowers rich clear yellow, tipped with green. It is a hybrid, having been obtained between *V. scalaris* and a variety of *V. pittacina*.

V. FENESTRALIS.—This is another species the flowers of which, although remarkable for the curious manner in which they are arranged in a two-ranked manner, and at right angles with the spike, are of no other value than seed-producers. The plant is of a bold, rosulate habit, with broad recurved leaves, which are imbricated at the base; the colour is light green above and below, very closely marked with transverse streaks and lines of deep green, profusely dotted with brown at the base, and more sparingly at the tips. It is exceedingly ornamental. Brazil.

V. HELICONIODES.—This is a handsome vase-like plant, the leaves broad at the base and imbricated, being also recurved towards the tips. They are deep green on the upper side, reddish brown beneath, spike stout, erect, thickly clothed with closely appressed, reddish crimson sheaths, bearing on the upper part a spike of large boat-shaped bracts, which are crimson-scarlet, tipped with pale green, and from which the

flowers scarcely protrude. It is a strikingly beautiful kind from New Grenada.

V. RODIGASTIANA.—This is a short-leaved, compact vase-like plant, with the leaves slightly recurved at the tips, and bright green. The spike is erect, branched, and many-flowered; at the base of each branch there is a small crimson bract, each branch bearing four or five large flowers of a canary-yellow colour. It is a very gay and handsome species, one spike sometimes carrying nearly forty flowers. Native of Brazil.

V. SANGUINOLENTA.—I have never seen the flowers of this plant; indeed, I am not aware that it has yet bloomed in this country. The leaves are long, broadly strap-shaped, arching, and deep green in colour, profusely marked and blotched beneath with brownish crimson, which shows through to the upper surface and renders it very showy. Brazil.

V. GUTTATA is a plant which was introduced to this country about the same time as *V. sanguinolenta*, and whilst somewhat resembling that kind, it is quite distinct. In the first place, the leaves are not more than half the length; they are more dilated at the base, and the under side is of a slightly glaucous hue, and the brownish crimson with which it is marked is distributed in separate and distinct spots. I am not aware that it has flowered in this country, but with such beautiful foliage lack of flower is not noticeable. Brazil.

V. INCURVATA.—This is a very distinct plant in habit of growth, and a very showy one when in bloom; the deep green leaves are erect, narrow, recurved at the tips and pointed; the sides incurved, very much dilated at the base and sheathing. The scape is erect, bearing on the upper part a large spike of broad, boat-shaped, closely imbricated bracts, the lower ones being almost gamboge-yellow, the upper ones becoming reddish scarlet; flowers small, yellow, tipped with green. San Paulo, Brazil.

V. SPECIOSA.—This is also known as *V. zebrina*. It has long been in cultivation, and is extremely beautiful, the leaves being broadly strap-shaped, arranged in a rosulate manner, sheathed at the base and recurved towards the ends. They are deep green on both sides, and broadly marked with transverse bands of black. The scape is erect, bearing a spike of broad, imbricated bracts, which are bright scarlet; the flowers are small and white, and, like those of the majority of the species, do not last long, but the bracts retain their brilliant colours for several months. Brazil.

V. TESSELLATA.—With this species I conclude my notes upon this genus, but not because the stock of good kinds is exhausted. This species is a very robust plant, and one that I have not seen in flower. It is vase-like in shape, and has broad, erect leaves, which are imbricated at the base, recurved at the tips, and suddenly pointed; the ground colour is pale glaucous green, streaked lengthwise as well as across with lines of deeper green, and in the chequers thus formed the colour is creamy white.

W. H. G.

SHORT NOTES.—STOVE AND GREENHOUSE.

Acacia lineata.—Among the numerous varieties of *Acacias* none are prettier than *A. lineata*, and flowering as it does in the depth of winter it is doubly valuable. It is one of the best as a pot plant, and it also blooms very freely, and its slender graceful sprays of deep orange-coloured flowers are very pretty when used with small spikes of Solomon's Seal for vases.—E. B. L.

Asparagus decumbens.—This plant appears to have been introduced from the Cape as long ago as 1792, but has never become generally cultivated. The branched stem is herbaceous, twining, quite destitute of prickles, the branches being wavy, and clothed with short bristly glaucous leaves. I recently noted this plant on the roof of a greenhouse in Sir Trevor Lawrence's garden. It is really one of the most beautiful plants imaginable for this purpose, as it grows freely when potted in rich sandy loam, water being given somewhat sparingly.—W. H. G.

Daphne indica.—If "W. H. G." could see my *Daphne indica*, he would probably say that mine are as fine and free-flowering as any existing. They are grown under two distinct conditions; one plant, about 3 feet by 2 feet 6 inches, grows on the ledge of a tank in the greenhouse, and is always damp and has plenty of root room. The other plant, originally a cutting, is growing on a tank over the hot-water pipes, where a certain amount of heat and dryness is always present; they have both nearly finished flowering and are now growing strongly. By the side

of these are some very large plants of *Cucurulo* (I believe *plicata*), and this plant produces leaves 5 feet in length and does well at a very low temperature. I am told by some that it is a difficult plant to establish, coming either from India or Sumatra.—WILLIAM SOPER, 307, Clapham Road, S.W.

WORK IN PLANT HOUSES.

BOUVARDIAS.—Where more young plants of these are required, there should be no delay in getting in the cuttings. Where the old plants intended to produce cuttings have been kept in a brisk growing temperature, as advised at the beginning of the year, they will now afford plenty of suitable young shoots, which should be about 2 inches long. In taking them off they should be severed at the point where they spring from the old wood. Insert them 1 inch or 2 inches apart in pots or pans filled with sand, keep moist, and confine them under propagating glasses or in a striking frame. They should have a temperature of about 70°, and, so treated, they will root in two or three weeks, when give air and afterwards move them singly into small pots filled with sifted loam, to which add some leaf mould, rotten manure, and sand. Keep the plants close for a week or two, after which stand them where they will get plenty of light, and as soon as they have made a little top-growth pinch out the points.

OLD PLANTS OF BOUVARDIA.—Plants that have previously flowered, and that after cutting in have made an inch or two of growth, should now be partially shaken out and repotted. *Bouvardias* like rich soil, and good turfy loam, with rotten manure, leaf-mould, and sand, forms a suitable compost for them. Moderate-sized plants such as can be grown in 8-inch or 9-inch pots are generally the most useful, but where there is an inclination to have large specimens, all that is necessary is to give larger pots, say from 10 inches to 12 inches in diameter, and to stop the shoots several times during the early part of the summer. The larger examples are more effective for conservatory decoration than ordinary small stock. After potting keep the plants in a genial growing temperature.

SOLANUMS.—Those cuttings struck first should now be potted off. Give them soil well enriched with rotten manure and leaf-mould, adding some sand. Push the plants on in moderate warmth. This is necessary to get the berries properly coloured before the end of the growing season. Old plants of *Solanums* that have been cut back should be partially shaken out of the soil as soon as they have made a little new growth. Give them pots an inch larger than those they were grown in last year. It is best not to give these *Solanums* too much root room, as if the pots are large the plants cannot be so well used in rooms and similar places. By the use of manure water during the growing season much may be done to make up for the roots being somewhat restricted. Cut-back plants of both *S. pseudocapsicum* and *S. capsicastrum* may be depended on to colour their berries several weeks earlier than stock raised from cuttings, and on that account it is better to grow a portion of them on for the earliest work.

CALLICARPA PURPUREA.—This pretty berry-bearing plant is not so much grown as it used to be, yet there is little difficulty in cultivating it. It may be grown from either seeds or cuttings; if the latter method is adopted no time should be lost. Plants that have been stood in a warm house during the winter will now be in a condition to furnish suitable cuttings. These should be about 2 inches or 3 inches long. Put six or eight together in 5-inch pots filled with sand. They should have a temperature of about 70°, and be enclosed under propagating glasses or in a striking frame. Keep the sand sufficiently moist to prevent the leaves flagging. As soon as roots are formed admit air gradually. In a few weeks covering may be dispensed with; then put them singly in small pots drained and filled with a mixture of loam, leaf-mould, rotten manure, and sand. The plant is naturally inclined to grow straggling, and to prevent this not only must the points be pinched out when top growth has made a little progress, but the stopping should

be repeated once or twice during the spring and early part of summer.

BEGONIAS, ORNAMENTAL-LEAVED.—Much has been done in recent years in the raising of new varieties that have distinct and finely-coloured leaves. Small plants propagated in the usual way from cuttings made of the leaves last summer should now be potted; 6-inch pots will in most cases be large enough for the first shift, as the plants can be moved again later on. They will thrive in either peat or loam, or a mixture of both; whichever is used, enough sand must be added to keep it porous, as though these *Begonias* are easily grown, their fleshy roots will not bear close adhesive soil. Older plants should have pots according to the size they are to be grown to. Most of the species and their numerous hybrids will do with a somewhat lower temperature than they are often subjected to, but, as a matter of course, when the plants are kept in intermediate warmth they do not get furnished with new leaves so early in the season as when more heat is given them. To have these *Begonias* in a sturdy, robust condition that will admit of their being used in cool houses during the summer they must be stood well up to the glass where they will get plenty of light and air, without which the growth will be weak. As soon as the weather becomes bright a little shade will be required in the middle of the day.

CALADIUMS.—To have these plants in good condition up to the end of summer, a portion of the plants should be started at different times, as if the whole are started early the leaves get shabby before the close of the season. Some of the strongest roots should now be potted; use pots proportionate to the size of the tubers, for it is well to give them all the root room at first that will be required during the season. Either peat or loam will answer for them; mix enough sand with the soil to keep it quite open, as water must be given liberally all through the season. Do not put the tubers too deeply in the soil, as they seldom do well when so treated. As soon as potted they should have a night temperature of about 65°. Directly the young leaves appear, stand the plants well up to the glass in the lightest part of the house, giving a little shade when the sun is bright. Shade is often necessary during the following month in the case of plants that cannot bear full exposure to the sun, for though the days may be cold the atmosphere is frequently as clear as possible, and it often happens that much injury is done thus early in the season.

GLOXINIAS.—Where a sufficient number of old tubers are at hand, it is better to start them at different times, as then a longer succession of flowers is obtained. A portion may now be potted; 6-inch or 7-inch pots will be big enough for tubers that have flowered one season, giving a size larger to finer examples. A mixture of half peat and half loam, with some leaf-mould and sand, is a suitable compost. Drain the pots well, and in potting press the soil moderately firm, leaving the tops of the tubers just level with the surface. See that the soil is not too wet, and immediately the roots are potted put them in heat. I have known a collection of fine tubers nearly all go rotten through being left on the potting bench for two or three days after potting. A temperature of about 60° in the night will answer; in this they will start in a little time. As soon as the growth begins to move stand the plants where their tops will be near the glass, otherwise the shoots will come too long and weak to produce flowers of the requisite substance.

CYTISUS RACEMOSUS.—This *Cytisus* is naturally such a free-grower, that it is necessary to cut the plants in closer after flowering than most things of a like character require. As soon as the earliest forced examples have done blooming the shoots should be cut back to half their length. When they have again begun to grow they may be turned out of the pots, and any loose soil that there may be in the upper part of the balls should be shaken away. Give the plants pots about two sizes larger than those they have been in. Turfy loam, with about one-sixth of rotten manure and some sand, makes a suitable compost for them. Drain well and pot firmly.

ACACIA ARMATA.—This is the best of the *Acacias* for early forcing. By having a sufficient stock a supply of its bright yellow flowers may be had in the latter part of winter and through the spring months. As the earliest bloomed portion go out of flower they should be cut back. The plant is an erect grower, so that to keep the specimens sufficiently furnished at the bottom all the leading shoots should be reduced to within 6 inches of where they were cut back to about this time last year. The weaker shoots are better left untouched, as it is not well to give the plants a formal appearance. If the plants can be kept somewhat warm for a few weeks the new growth will be encouraged. Those that may require it can be repotted. Young stock that has been raised from cuttings within the last two years should now be gone over, and all the strongest shoots shortened a little. If this is not attended to early, the main branches take the lead and starve the lower ones. It is more necessary to avoid this with plants of this character that if well managed can be kept in a thriving condition for a very long time. T. B.

BOOKS.

THE FARMERS' FRIENDS AND FOES.*

The list of books on insects, &c., which are injurious or beneficial to agriculturists is not a lengthy one, and it has recently been added to by a work by Mr. Theodore Wood, which is a small book written in a popular style, ostensibly one would imagine for farmers, for though the author in various places alludes to insects which are more injurious to the horticulturist than to anyone else, he frequently dismisses a group of insects by stating that other species are of more interest to the gardener. But though written for farmers, and containing much that is interesting to them, and that they would do well to read and profit by, yet it is hardly practical enough to be used as a handbook on this subject, like Curtis's "Farm Insects," Miss Ormerod's "Injurious Insects," or the very concise reports by Mr. Whitebread. The present work, however, treats on quadrupeds, birds, frogs, and toads, which the others do not. One theme runs through the whole book, which, stated shortly, is "spare the birds;" and in support of this the author never tires of insisting, that whatever injury a bird may do to crops, the services it renders the farmer far more than compensates for it. Two birds, however, the wood pigeon and the bullfinch, are found guilty without any extenuating circumstances (except that they destroy the seeds of a few weeds) of injuring crops and fruit buds. Few people will agree with Mr. Wood when he says in the introduction "man in his first and lowest condition is to all intents and purposes at peace with his fellow creatures." "There is no animal which he can justly consider as a personal enemy, none which he can look on as a personal friend." There are various insects whose names we need hardly mention, which, by the lowest and most degraded of human beings, must be looked upon as personal enemies, even if personal cleanliness be deemed a greater evil. Again, beasts of prey cannot but be considered as enemies by the veriest savages, and man has to raise himself but very slightly in the social scale before various animals, and at least one kind of insect (the bee) will be regarded as friends. Three great methods by which cases of insect attack to crops may be minimised are mentioned which are well worthy of attention. The first "lies in the thorough and effective preparation of the soil before the seed is sown, as in by far the greater proportion of cases the mischief is wrought while the plants are comparatively small and feeble." Secondly, "all weeds, rubbish, and other 'harbourage' should be jealously excluded from fields under cultivation." Thirdly, and most important of all, "the agriculturist should encourage to the utmost of his power the various creatures which prey upon those injurious to himself." It is on this last point that many gardeners and farmers are very indiscriminating. Everyone is apt to jump at conclu-

* "The Farmers' Friends and Foes." By Theodore Wood. Swan, Sonnenschein, and Co. 1888.

sions, and the persons just mentioned are, unfortunately, not exceptions. The author in the subsequent pages endeavours to show which are our foes and which our friends, and anyone differing from Mr. Wood's conclusions will do well not to put them aside as mere naturalist's nonsense, but really to investigate the matter carefully themselves, always remembering that "there are two sides to every question."

This book is divided into two parts, Farmers' Foes and Farmers' Friends. Rats are, of course, classed in the former category; but hardly any methods for their destruction are mentioned; they are, however, highly recommended as an article of food. Speaking of them the author says: "From much personal experience I can assert that the flesh of the rat is both delicate and well-flavoured, and when prepared in the same manner as that of the rabbit it forms a dish in every way superior." It very probably is prejudice, to a great extent, that prevents rats being used as an article of food. But the prejudice is strong, and not without reason, in spite of the author's theory that it does not matter on what the animals we eat are fed. Mice, like rats are thirsty animals, and, it is said, may be expelled from a stack on a saddle by covering it for a week or two with a tarpaulin, which will prevent the straws being moistened by dew, with which the mice quench their thirst. It is obvious that this plan would only be successful in fine weather, unless the stack was completely covered. Aphides are the first noxious insects mentioned, and the old story is again told of their being carried by ants from the plants on which they are feeding into their nests, in order that they may supply the ants with honeydew. Now an aphid taken from the leaf or stem of a plant cannot possibly get a supply of its proper food in the ants' nest, and without it you might as well expect an aphid to secrete honeydew, as a cow tied up in a stall without any nourishment to give milk. Some aphides feed on the roots of plants, and when an ants' nest is formed near a plant whose roots are infested by aphides, the ants, no doubt, use and take care of them. The Rose-chaffer is included among the foes. But it should hardly be considered as one, as it is never very abundant, and the harm it does to farm crops is confined to the flowers of Turnips left for seed, and must be inappreciable. Nearly two chapters are devoted to the weevils. But the Apions, or Pear weevils, so called from their shape, not from their injuring fruit, are passed over very cursorily; whereas the damage they do to Clover crops is very considerable. An ingenious method is suggested for destroying the corn weevil (*Calandra granaria*), namely, to enclose the grains in an air-tight tank with a few lighted candles, which will burn until all the oxygen in the air is consumed, when the beetles will be suffocated. The Bean weevils (*Bruchidae*) cause much damage to Broad Beans and Peas, and the author, by some careful experiments, has completely disproved the theory held by some that the infested Beans well germinate and grow just as well as entire ones. They do germinate, but the plants do not grow as they ought by any means. In speaking of the white butterflies, and particularly of the larger kind, the author says that "it certainly seems possible that in the course of a few years the large white butterfly may be a positive rarity." Those who saw the large swarms of white butterflies which were so noticeable in many places last summer will hardly endorse this opinion. The ring of eggs of the lackey moth are compared "to the closely-fitting steel bracelets which are now becoming fashionable among ladies." On making inquiries in well-informed quarters, no information can be obtained about those fashionable bracelets, except that the police-station was mentioned as a place where such things might be seen. Many of the moths whose caterpillars are injurious to crops are described, but no remedies are suggested, and it is the same with the saw-flies; in fact, the writer expresses his disbelief in remedies in most cases. The scale insects, which are so injurious to many garden plants, need hardly have been alluded to, as I question if any field crop is attacked by them; but, at any rate, the author should have "got up"

his subject better. For instance, he says: "When the dead body of the female scale insect is lifted from off her eggs they are seen to be enveloped in a kind of whitish cottony substance; hence the name of 'mealy bugs' which is often applied to them." Now this is quite incorrect. When a dead scale insect is lifted from her eggs, they are seen to be naked, and not enveloped in a cottony substance. The name "mealy bug" is given to insects which are members of the same family, but which have no scales; they are more or less clothed with a cotton-like secretion, and their eggs are covered in a similar manner, but the dead body of the mother does not form a protection to the eggs. Some scale insects expel their eggs in a cottony mass, but they are not found under the dead scale. The author has fallen into the common mistake of confounding the gad, or breeze-flies, with the warble fly; whereas they are quite different insects, and annoy cattle in a perfectly distinct manner. The gad, or breeze-flies, belong to the family *Tabanidae*, and attack cattle and horses, piercing their skins and sucking their blood, causing them much pain, and often making them run wildly about. Their grubs live in damp, moist soil. The warble fly belongs to the family *Estridae*, and in itself is quite harmless, as it has no mouth, but it lays its eggs on the backs of cattle, and the young grubs eat their way through the skin of the animal and live underneath, causing a gall-like swelling. Slugs and millipedes, though so injurious to crops, are hardly mentioned. The second part of the book treats of the farmer's friends, and the author here has evidently a more congenial subject. Many agriculturists on reading this part will doubtless exclaim, "Preserve us from our friends," but if they will only go a little further into the matter than they have hitherto done, they will, no doubt, modify their opinion. The case for the moles, sparrows, and other birds is very well and fairly stated, but many of the statistics are naturally very difficult, or, one may say, impossible to verify. This subject is too wide for discussion in a review.

No mention, strangely, is made of bats, which are so useful in destroying night-flying insects; the amount of moths and other insects they consume must be very considerable. Among the beneficial insects are some strange omissions—the ground beetles (*Carabidae*), and the large rove or cocktail beetles, or devil's coachhorses (*Staphylinidae*), which are carnivorous and their grubs as well. Spiders and centipedes also have been forgotten. In the summary, to account for the very few methods for destroying the various foes, the author says: "It is useless to recommend to the farmer a plan of proceeding which will require the outlay of £10 in order to save £5. That is why in the earlier part of this work I have laid so little stress upon the various means of prevention which are strongly recommended even by high authorities." This book is well got up and fairly illustrated (the figure of the June bug (*Rhizotrogus solstitialis*) is a caricature), and contains matter to a great extent taken from the two little books written by Mr. Wood two or three years ago, "Our Insect Friends" and "Our Insect Foes." If, instead of complaining, as is done more than once, of want of space, the author had said what he wanted to say, and condensed some of the "padding," a more useful book would have resulted. As we mentioned before, gardeners and farmers will find much to interest them in this book.

Rainfall of 1887.—The following table shows the amount of rain we had here during the year:—

	Inches.		Inches.
January	2.48	August	2.49
February	0.60	September	2.73
March	1.19	October	2.27
April	0.96	November	1.81
May	1.73	December	1.65
June	1.29		
July	0.79		19.99

—JOHN THOMSON, *Dennis Hall Gardens, Stour-bridge.*

Lethorion.—In reply to "A. R.," I have tried Lethorion in my Orchid house, and found it most efficient—more so, I think, than tobacco paper, but it

makes a very dear smoke, and in my opinion it will not be universally adopted till a considerable reduction is made in the price.—J. D. C., *Woodford, Broughty Ferry.*

ORCHIDS.

W. H. GOWER.

FLOWERING ORCHIDS AT BURFORD LODGE.

A VISIT to this charming place, the residence of Sir Trevor Lawrence at Dorking, will always prove interesting, no matter what the season may be. My previous visit was made about a year ago, and since then there has been a great improvement in the health and general condition of all the plants. This collection differs materially from almost every other that I know of in a private establishment, as Sir Trevor Lawrence takes an interest in the small-flowered kinds, as well as those with large and showy blooms, and consequently there are to be found many exquisite species which one would seek for in vain elsewhere. There are many kinds in flower now, and I will commence my notes with the *Dendrobiums*, of which there are a great many in bloom, including the new hybrid which has been raised in this establishment, and to which Prof. Reichenbach has given the name of *D. chrysodiscus*. It is the result of a cross between *D. Ainsworthi* and *D. Findleyanum*, and *vice versa*, and the offspring have the characters and beauties of both parents; three distinct forms of this hybrid are now flowering, which will require varietal names. The first is a large flower like *D. Ainsworthi* in shape, the sepals and petals being white, tipped with rose; lip similar, stained from the base and half way over with rich golden orange, and blotched at the base with maroon-purple. Another form has similar flowers, saving that the blotch of purple at the base is much smaller, and in the third the blotch is entirely wanting, the lip being plain, warm golden orange; all the forms are delicately scented. Amongst well-known kinds very gay now are *D. primum* and its rare variety *giganteum*, which has a large-hooded lip, which is pale sulphur-yellow, whilst the sepals and petals are white, tipped with pink, in some forms being nearly wholly pink; it is a somewhat robust grower, pendulous in habit, and therefore thrives best in a hanging basket. There were also many fine forms of *D. Wardianum*, including the extremely rare white-flowered form called *candidum*; the old *D. nobile* is also largely grown here, and many beautiful and distinct forms of this fine species are now to be seen. One called *elegans* is remarkable for the size of its flowers, which have very broad and full petals, fully half of which are heavily stained with deep rose; the lip is white in front, and bears a large and well-defined blotch of intense deep velvety crimson at the base. *D. nobile intermedium* is a very delicate and pretty flower, in which the sepals and petals are white; lip white, saving a stain of purple just at the base; the true form is very rare. Then came some good examples of the grand *D. nobile nobilium*, a coloured plate of which appeared in *THE GARDEN* for Sept. 8, 1883. The whole of the petals are rosy purple, which increases in density towards the tips, the lip being blotched in the throat with deep purplish crimson, in front of which is a well-defined white belt; the front portion is tipped with rosy purple. Another grand and rare *Dendrobium* flowering here is *D. Cooksoni*, a form which I have only seen upon one previous occasion. This is similar to a fine *D. nobile*, with the addition of having the lower half of its broad petals covered with the same intense deep

purplish crimson which ornaments the base of the lip. This gives a wonderful depth of colour, and renders the flowers very effective and distinct. *Tollianum* is another very highly-coloured form of noble, having flowers that always persist in standing upside down. Grand examples of the old *D. fimbriatum* were in perfection, the rich golden yellow flowers with deeply fringed lip being highly attractive. Also in bloom were the light-flowered form of *D. tortile*, the rosy purple perpetual-blooming *D. bigibbum*, *D. aggregatum*, and the Barber's variety of *crassinode*, *D. cretaceum*, and the Australian *D. speciosum* and *D. Hilli*.

SLIPPER ORCHIDS (*Cypripedium*) are largely grown here, and the collection consists for the most part of fine specimens of even some of the rarest kinds, the leafage of many of them being remarkably beautiful, and they are living contradictions to the once popular phrase amongst gardeners, "that a plant that possessed beautiful leaves never produced a handsome flower." The most notable amongst the kinds now flowering are grand examples of *C. lævigatum* bearing several of its long-petalled flowers upon each scape. This species, together with *C. Stonei*, requires a somewhat higher temperature than the majority of the kinds. Here also are by far the finest forms of *C. villosum* and *C. Boxalli* I have ever seen. The showy *C. nitens*, recently noted flowering at Shepherd's Bush, is also blooming, together with *Swannianum*, *Dutheri*, fine varieties of *callosum*, *Sallieri*, *Haynaldianum* and *Lowi*, which, however much some may wish to make synonymous, are thoroughly distinct and beautiful. *C. Williamsianum* is a somewhat new hybrid obtained between *C. Harrisianum* and *C. villosum*, combining the markings of both parents in a striking manner. The flowers of *barbatum Warneri* are extremely brilliant, and although the pouched lip is small, the large pure white dorsal sepal, which is broadly marked with an arched belt of fiery crimson, renders it very conspicuous. All these *Cypripediums* are kept scrupulously clean, and their pots stand upon a lattice stage raised some few inches above a bed of shingle which is kept very moist and from which a genial evaporation constantly rises, the plant being exposed to the full light. *Lælias* are represented by a fine raceme of bloom on *L. superbiens*, and it is to be hoped that this species will become better known. It does not appear to require a great amount of heat, as it is grown in a cool intermediate house. The raceme is bearing seven flowers, the habit of the plant and its manner of flowering suggesting a near affinity to *Schomburgkia*, of which there are several fine examples that will shortly be in bloom.

Of the white-flowered *Lælias* there were numerous varieties in bloom, but I have become so utterly confused with their names that I do not know which is which. I saw lately in the collection of Mr. Tautz a truly grand form which I was assured was Mr. Sander's true *Schröderiana*; here I find *Schröderiana* of some is a deeply coloured form of *anceps*. *Williamsi* in some places has a pure white lip; in others the front lobe is more or less coloured, so that one gets utterly bewildered. One of these white forms, however, is superbly beautiful, the best of all being *L. anceps Veitchi*. The flowers are very large, and the sepals and petals broad, all pure white, lip large, white, the side lobes streaked with pale rose or rosy mauve, front lobe tipped with the same colour, crest yellow. *Vestalis* is a pure white flower, saving some rich purple radiating lines inside the side lobes of the lip, but most of the other white

forms are more or less tipped with colour on the front lobe. *Coelogyne cristata* formed quite an exhibition in itself, hundreds of blooms in different varieties being open. Curiously enough, at nearly all the places I visit I hear that the variety called *maxima* is deteriorating in size. Can anyone explain this? Other species of this genus now flowering are *C. flaccida* with a profusion of pendent spikes, *C. conferta*, *sparsa*, and *elata*, whilst a grand example of the lovely *C. barbata* was just past its best.

MASDEVALLIA IGNEA.

THE accompanying illustration shows a well-grown example of this very distinct and handsome species, bearing upwards of sixty flowers. *Masdevallia ignea* was first introduced to this country during the early part of the year 1870 from the mountain regions of New Granada, where it is said to grow upon the ground near



Masdevallia ignea.

the foot of trees, and to be sometimes found growing up the trunk a short distance amongst the Moss thereon.

It is the most showy of any member of the genus yet introduced, and may be easily distinguished from all the other kinds by the peculiar manner in which the upper filiform sepal is bent down between the lateral ones, and also by the intensely deep red nerves which traverse the lower sepals. These characters are peculiar to the species, and remain constant. In the typical plant here figured the leaves are about 6 inches long, narrowed towards the base into a long petiole, the blade being thick and deep green. The scape is erect, slender, longer than the leaves, and bears upon the top a solitary flower, of which the sepals are the most beautiful portions, being of a vivid cinnabar-red, veined with lines of deep red, the reverse side pale orange-red; they are united at the base into a somewhat gibbous tube, in which the very small white petals and lip are hidden.

In the variety *Massangeana* the flowers are larger than those of the typical plant and of a bright orange-vermilion suffused with a tinge of rosy purple. *Aurantiaca* is a form with rich orange-coloured flowers, the veining very deeply coloured and prominent, whilst in the variety *Boddaerti* the flowers are pale yellow, passing into vivid scarlet, the surface being irregularly mottled with yellow and veined with crimson. All the members in this group of *Masdevallias* require to be kept very cool and moist all the year round, and when the growth is being formed the plants must have a copious supply of water to their roots. The atmosphere, also, must be well charged with moisture. They enjoy a deep shade and a temperature of about 60°. If grown under these conditions the leaves will not be disfigured by thrips, which usually attack the plants in hot weather. W. H. G.

***Masdevallia cucullata*.**—This is called the Hooded *Masdevallia*, but a better name would be the

Nigger Orchid, as its flower is as black as the darkest nigger. It is a rare, curious, and, many would add, a beautiful plant. The flowers have pointed, tailed sepals, forming a sort of triangle. The flowers are what may be appropriately called coffee-black, with a yellow centre. It is not so quaint-looking as the black varieties in the *Chimara* section. It is in flower at Kew.—W.

***Saccolabium illustre*.**—This is a fine variety of the popular *S. giganteum*, and these two are amongst the most notable of winter-flowering Orchids, as the flowers are not only of considerable beauty, but deliciously fragrant. The variety has a longer raceme than the type, and individually the flowers are larger, but of finer colouring. The sepals and petals have their edges folded backwards, and they are spotted with a rich purplish-crimson hue on a white ground. The bright violet-crimson lip gives great beauty to the flower. It is in bloom at Mr. Bull's, Chelsea.

***Cattleya speciosissima Ernesti*.**—This is a very lovely *Cattleya*, but the type is generally regarded as shy flowering; this, doubtless, will ere long be overcome when we are more fully acquainted with its requirements. The variety *Ernesti*, however, blooms regularly twice a year, the flowers being finely coloured and upwards of 7 inches across. The petals

are very broad, round and full, and with the sepals are of a clear deep rose, the trumpet-shaped lip being rich purple, prettily crisped at the edge, and stained with pale yellow in the throat. I recently noted a nice example of this variety flowering in The Woodlands collection at Streatham.—W. H. G.

Odontoglossum Humeanum.—This has very much the character of *O. Rossi*, and is reputed to be a natural hybrid between that species and *O. cordatum*. Plants of it were recently in flower at Messrs. Shuttleworth and Carder's nursery, Clapham, and it must be classed amongst the prettiest of this section of *Odontoglossums*. The sepals are spotted thickly with brown, and the petals blotched, the lower half with the same colour, while the other portion is pale lemon, the broad lip showing a slight tinge of pink, the tip of the column being of a deeper shade. It is a free grower and a good companion for *O. Rossi*.

Pilumnus nobilis.—Those who require a flower at once pure in colour and deliciously scented should make a note of *P. nobilis*, which was recently in bloom at Messrs. Shuttleworth and Carder's nursery at Clapham. The scape is erect, proceeds from the base of the pseudo-bulb, and carries about five flowers, the great feature of which is the broad, finely-shaped lip, quite white, except a blotch of bright yellow in the throat; the sepals and petals are very narrow, and also white. It is very similar to *P. fragrans*, but the two are quite distinct, the blooms of *P. nobilis* being considerably larger. It is an Orchid that thrives well in a cool house.

Dendrobium crassinode Barberianum.—The typical form of this species is very beautiful, but Mr. Barber's variety is much superior to it, and varies considerably in different plants. One of the finest that I remember having seen is now flowering in the collection of Mr. Buchan, Wilton House, Southampton, the sepals and petals for more than a third of their length being heavily marked with deep rich magenta, whilst the lip is wholly rich orange, saving a very narrow band of white in front of the magenta-coloured point.—W.

Cypripedium leucorrhodum.—This is a Veitchian hybrid between *C. Roezli* and *C. Schlimi* album; it is now flowering in Mr. Measures' collection at Streatham, and with Sir Trevor Lawrence at Burford Lodge. Beautiful as this variety was when exhibited by the Messrs. Veitch, at both these places it is far superior. The dorsal sepal is snowy white, tinged with delicate flesh colour, the lower sepal being very large and snow white; petals slightly twisted, white, tipped and bordered with flesh colour; lip creamy white, flushed with pink. It appears to be a strong grower, and, judging from its parentage, it should thrive in the temperature of the intermediate house.—H.

Lælia elegans.—The grandest form of this species I have ever seen is now flowering in the collection of Mr. Measures, at Streatham. It is far superior even than that fine variety called *Turneri*, which has hitherto been considered the deepest and richest coloured form, and which is still extremely rare. It appears that some time last season Mr. Measures obtained from Mr. Sander, of St. Albans, two imported masses of *L. elegans* which were labelled by the traveller who collected them: 1, *Lælia elegans* "The King of the Woods;" the second plant, which was the strongest in growth, and still attached to the branch of the tree upon which it had originated, was labelled "The King of all the Woods," and it is this plant that is now flowering upon two of the three shoots which have grown since its importation. Judging from the blooms which have been produced from these growths, which are not so strong as those made in its native country, it is a magnificent variety. In growth it is very robust, and the pair of leaves borne upon the top of the pseudo-bulbs are large, thick, and leathery in texture. Each raceme is bearing six flowers, each of which is upwards of $6\frac{1}{2}$ inches across; the sepals and petals deep rosy purple, the latter being $1\frac{1}{2}$ inches in diameter and spatulate in shape, whilst the sepals are oblong-lanceolate; lip large, three-lobed, the side lobes rolled over the column and pure white, the points being slightly recurved and tipped with deep rosy purple. The middle lobe is fully 2 inches across,

the colour being intense deep crimson-lake, this extending along the throat to the very base. In addition the flowers are strongly perfumed like the *Heliotrope*. Grand as these flowers are, I imagine they will be still finer when the plant becomes thoroughly established and forms strong growths, as it has been doing in its native country. This plant has been grown in an intermediate temperature, and is rooting vigorously round its native block. The other form is also showing flower, but it is rather unfortunate that the superior variety should bloom first.—W. H. G.

Cattleya Trianae Osmani.—This is a splendid form and the original plant came from an importation in the collection of Mr. Dodgson, of Blackburn. At his death the collection was dispersed, and Osmani's variety of *C. Trianae* realised the sum of £225 15s. Since then the plant, I suppose, has been divided and distributed, for I recently noted a beautifully healthy plant in flower in Mr. Measures' collection at Streatham. It bears sometimes as many as five flowers on a scape, each of which is 7 inches across, the sepals and petals being very broad and rich rosy magenta in colour, lip large, $2\frac{1}{2}$ inches across, brilliant velvety magenta-crimson in colour, and narrowly bordered round the margin with rosy magenta; the deep colour extends very far back into the throat, where there is a stain of yellow.—W. H. G.

KITCHEN GARDEN.

KITCHEN GARDEN NOTES.

EARLIEST TOMATOES.—Plants raised in January ought now to be growing strongly. If still in the seed-pot or pan, they ought at once to be potted off, and from first to last no severe check should be given. Our sturdiest and best plants are obtained by potting direct from the seed-pots into 5-inch pots, and before they are root-bound the final shift is given. Only for a few days do the newly-potted seedlings require shading, and directly they are making fresh growth, a sunny shelf in a forcing house is the best place for them. The plants may be fruited in 10-inch pots, but if there is room for larger sizes on the stages, walls, or shelves, 12-inch pots are more suitable. These should only be lightly drained, and if smaller pots than any that have yet been mentioned must be employed, one large crock is sufficient for these, there being more space for roots and soil, and less water accordingly needed. If good turfy loam is available very little manure need be added; but, failing this, the compost may consist of two parts of fresh loam to one of old Mushroom-bed manure or partially-decayed stable manure, a liberal addition of burnt garden refuse or charcoal improving it. Warm the compost before using it, and this is easily done with the aid of heated bricks plunged in the soil. Place some of the roughest over the crocks and pot firmly, filling only to about one-third of the depth of the pot. Later on, or when the first fruits are set, a liberal top-dressing of rich compost may be given. Plants to be fruited in an upright position should be staked early, and those to be trained up wires or strings near the glass should be in position before they become crooked. In either case, the system of training one stem only is the best, all side shoots being kept closely nipped out as they form. Newly potted plants must be carefully watered at first, but when well established plenty of water and liquid manure ought to be given to them.

OLD TOMATO PLANTS.—It is not always advisable to destroy the old plants that have borne crops through the past autumn and winter. Supposing they are not infested with either white-fly or mealy bug, they may be quickly brought into full bearing again. Worn-out plants may be destroyed as well as any in a dirty state and a fresh start made, but any planted out in a confined border, and trained thinly either over the roof of a house or against unshaded back walls ought to have the haulm freely thinned out and all dead or dying foliage removed. Much of the surface soil of the bed or border ought also to be forked away, then well watered if dry, and a

top-dressing of fresh loamy compost given. Plants in large boxes may also be similarly treated, a rim being added if there is not sufficient depth to hold the fresh soil. Thus treated, the plants form a number of short fruitful shoots throughout their extent, and these are soon furnished with clusters of fruits. Overhead syringings benefit these old plants.

CAPSICUMS AND CHILLIES.—The surest way of growing and ripening plenty of these is to devote a warm pit to the plants, putting them out to follow early Potatoes or Beans. Some seasons the fruits also ripen well on south borders, in front of Vine borders, and against sunny front walls of various houses. In any case it is advisable to make an early start, as Capsicums and Chillies are not of very rapid growth. The best are the Long Red, Long Yellow, and Red Cherry Capsicums, and the common Chilli. These are also exceptionally hot, and suitable either for pickles or for converting into cayenne pepper. Capsicums Red Tomato-shaped, Yellow Tomato-shaped, Golden Dawn, and Prince of Wales, being milder in flavour, are usually grown more for ornament than use. The seed may be sown now and soon germinates in gentle heat. The seedlings after being set for a time on a shelf and well exposed to the light and sunshine may be dibbled round the sides of 6-inch pots filled with good loamy soil, three in each being sufficient. They should be kept growing in heat until well established, when a warm greenhouse shelf is the best place for them. They may eventually be planted out in either of the positions recommended for them, or fruited in the same pots, these being plunged in order to save watering. No stopping is necessary, all being of branching habit, and those in full bearing need occasional supplies of liquid manure.

SHALLOTS AND GARLIC.—These ought to be planted early on a sunny spot and in fairly rich, well-worked soil. Select the soundest bulbs and press these firmly into the soil about 6 inches apart in rows 12 inches apart, but not quite burying them. This is allowing rather more room than is usually given them, and in order to economise space, I later on dibble between them rows of Parsley raised in gentle heat. The Shallots and Garlic are ripening off by the time the Parsley has attained a good size, the latter eventually covering the whole of the ground. In point of evenness and quality Parsley thus raised surpasses any that may be obtained by sowing seed where the plants are to grow.

RHUBARB AND SEAKALE.—Lifting the roots and forcing them in Mushroom houses and other warm positions is the simplest method of obtaining early supplies, but, as a rule, much the finest produce results from forcing or protecting the plants where they are permanently established. Strong clumps of Rhubarb should be covered with either old flour or cement tubs, deep square boxes, large draining pipes, or pots especially made for this purpose, and then well covered with hotbed material. I prefer a mixture in equal proportions of leaves and stable manure, and this ought always to have been previously prepared, or otherwise it is apt to become over-heated. If manure only is used care must be taken that it does not become too hot and spoil the Rhubarb. Seakale may be covered with pots made for this purpose. Failing these, a mound of either spent tan, leaf soil, or ashes may be raised over the crowns, a depth of about 3 feet of heating material being necessary for forcing in either case. Rhubarb and Seakale are here planted in double rows, which are enclosed by one hotbed. For the later supplies fresh hotbeds must be made, much of the old material being available for mixing with the fresh. The exhausted crowns ought to be cleared of the bulk of the forcing material, but must be protected for a time from severe frosts with the aid of a little litter. I usually leave two long rows of Seakale to grow naturally, these being first covered with a ridge of rotten tan not less than 9 inches deep, common garden soil being heavily banked over this. During April and early in May very fine well-blanching and succulent tops are cut from these rows. Rhubarb may also be materially forwarded and improved in quality by having a temporary

protection afforded it. Tubs, boxes, or stakes and litter all answer well for this purpose, and should be placed over the crowns at once.

PROPAGATING SEAKALE.—One-year-old seedlings are rarely strong enough for forcing, but plants obtained from root cuttings can be grown to a serviceable size in one season. It is the medium-sized younger roots or those near the size of a man's little finger that should be selected, plenty of these being found when the old crowns are lifted for forcing, and many more may be cut from the latter after they are done with. Cut them into 3-inch lengths, snipping a small piece off the smallest end in order to guard against inserting them the wrong way or thinnest end uppermost. It is too early to place them in the open ground, and the best plan is to dibble them about 3 inches apart in shallow boxes filled with fine loamy soil. These may be set in a cool shed, house, or frame, and protected from severe frosts, and will soon commence both root and top growth, well-rooted plants being ready for transplanting to a deeply-dug, well-manured quarter some time in May. The variety known as Lily White is a decided improvement on the old form, and ought to be increased as rapidly as possible, every short length of root being saved and converted into a plant.

HORSE RADISH CULTURE.—In many gardens the Horse Radish bed is placed in some out-of-the-way spot and left to take its chance, nothing in the shape of cultivation being attempted. As a consequence, good straight roots are very difficult to find. It well repays, however, for a little extra attention, and this it should receive at the present time. Select a fresh quarter outside the garden walls if possible, and thoroughly trench the soil, the top spit with manure added being buried, and at least 12 inches of the poorer sub-soil brought to the surface. Next break up all or the greater portion of the old bed, forking out all the roots and crowns that can be found, no matter how deeply they run, as every little piece is liable to form a crown and become a nuisance. Sort over all that are found, the very best roots being bedded in at the foot of a north wall and drawn from as required for use. Both the crowns and clean young roots are suitable for planting. The former should have 3 inches of root attached, be cleared of any side buds, and then dropped into holes made with a dibber, not less than 12 inches deep, and the same distance apart each way. These will soon strike root into the good soil below and strong top growth will result. The stems formed between the old deeply-buried growth and the surface swell rapidly, and are sometimes fit to cut at the end of the season. If traced and cut near their starting point the same roots will push up fresh growths, which, if duly thinned out, will also grow to a serviceable size in one or two seasons. The long clean roots without crowns may be cut into 12-inch lengths, and should have all side roots or buds removed with the aid of a coarse cloth, this being done to prevent the formation of strong side roots. They ought then to be dibbled in to their full depth, the points only coming into contact with the rich soil below. When top-growth commences thin out the buds, only one crown being allowed to form. Thus treated, the buried stems swell rapidly, fine straight pieces being fit for lifting in less than a year.

W. I. M.

An extraordinary crop of Potatoes.—The rapid advance in modern cultivation was forcibly brought under my notice by an illustration in the advertisement section of your number for Jan. 28 of the crop of a new variety of Potato, which represents the happy grower directing with pride the attention of a neighbour to the produce of his labours. In scale this grower is eight Potatoes high, and, assuming him to be 5 feet 4 inches, the Potatoes would measure 8 inches by 6 inches, and could not be less than 3 inches thick. The crop, according to the illustration, is so abundant that, if spread over the surface, it would form a solid layer of 3 inches (actually much more, but I allow for a little exaggeration). Now an inch of rain is more than 100 tons of water on an acre, and Potatoes are heavier than water; therefore, the crop represented is at

least 300 tons per acre, but this is probably an exceptionally fine crop, and under average cultivation not more than 100 tons per acre could be expected. This is still a great advance on ordinary crops, which vary from 3 tons to 12 tons per acre. According to the last return, there are in Great Britain 559,652 acres of Potatoes under cultivation; consequently, if this variety were grown, more than 55,000,000 tons might be produced. As our population of 40,000,000 would find it difficult to consume as much as a ton per head, the country might be saved the cost of foreign Potatoes, the importation of which has never reached 500,000 tons in a year. It must be admitted that the raiser of this new Potato is entitled to public gratitude.—EDMUND TONKS.

* * * The tendency to exaggerate in advertisements as well as catalogues is a hurtful one to the trade as well as to the public. The business as well as the interest of the trade is to get as near the truth as possible.—Ed.

POTATOES.

ALTHOUGH we have so far had a winter of mixed weather, the temperature changing rapidly and often, yet, so far, cold seems to have predominated, that seed Potatoes, indeed, I may say, all Potatoes generally, are keeping well, the bud eyes remaining dormant. I will not answer for Potatoes in pits, because I know that under any circumstances it is difficult to keep them from sprouting when so stored. I admit that in the case of immense quantities, such as the product of 100 acres, for example, it is difficult to find other methods of storing Potatoes in bulk, but it would be very bad policy indeed not to have selected the seed tubers at the first, and have given them shed or store room of some sort where they could have ample air, and be occasionally turned. A neighbour of mine, who somewhat foolishly invested in the purchase of some thirty tons of late-lifted Magnum Bonums, and pitted them, found, to his annoyance, when the pit was tapped two months later, that the entire mass was soft and pulpy, the heat arising from fermentation having practically rotted the new tubers, of which more than one half of the bulk of the heap was composed. Nothing could have been worse than pitting these Potatoes, brought direct from the ground where lifted, and not even dried before pitting. However, such new or young tubers should not have been pitted at all, as if exposed well first, then stored in a shed, and covered with straw, they would not have heated, and would have remained sound. I fear very many pitted stocks of late-dug-up Potatoes have decayed in the same way, but these were incidents of bad storing, and not so much faults of the season.

Generally the tubers have suffered little from sweating—a common product of great change of temperature, as seen after severe frost when succeeded by rapid thaw. The moisture seen then is probably condensed vapour which the intense cold, combined with coverings, has held bound until liberated by the change of temperature, when it has condensed. Some of that moisture may come from the tubers, but the bulk comes from the atmosphere, no doubt; hence sweating under such conditions as these is not particularly harmful. The sweating induced by heating or fermentation, irrespective of external temperature, is of a very different nature, and quite within the control of those who store the tubers. However, this natural sweating has been rare this season, and so far seems attributable to the fact that we have had no striking changes in the temperature, the cold having been moderate and the warmth less marked than is usually seen during mild winters. Where it is purposed to plant early it is well now to go over the seed stocks and select some of the best and most even tubers, stand them in shallow boxes and place them in a greenhouse where there is just warmth enough to promote gentle growth. The boxes should be as near to the light as possible, and the heat pressure so gentle, that it should take quite a month to secure that development of shoot the plant requires. If tubers so placed be also well exposed to the light and air, they will be sufficiently

hardened to make planting perfectly safe at a very early date. There is this special advantage in thus selecting and starting tubers, that after growth is very even. Still farther, the very earliest may be planted first, and those later or more irregular in breaking can be planted after.

Shoot-breaking in this way presents almost an infallible method of detecting rogues should there be any in the stocks. Even for later planting some starting of the tubers after this fashion is well where it is desired to obtain an even sample of tubers for exhibition. It is a well-known fact that too many shoots to a Potato plant mean also a large number of small tubers. This abundance of small stems on a plant always follows when the tubers have been badly stored and have broken early and weakly. These shoots have, of course, to be removed, and a larger number of shoots then break up from every eye, with the result that tubers are many, but small; also some kinds of Potatoes are naturally very prolific of shoots, and these need thinning before the sets are planted. Therefore, all sets should never have more than two stout shoots, all the rest being removed with the aid of a pointed knife. Some good growers reduce their shoots to one only, and even then on rich soil with all the strength of the tubers thrown into this one shoot, eventually turning out wonderful crops.

There is a too common belief that the excellent cultivation with ample room usually given to Potatoes planted to produce exhibition tubers is needless labour in the case of ordinary garden crops. That is, however, an error, for not only are truly wonderful crops produced under higher cultivation, but the samples are relatively finer, more handsome, and more equitable. If gardeners or others, in aiming at high cultivation for Potatoes as well as other crops, had no regard whatever for exhibitions, but simply strove to secure the best which good cultivation could produce, they will still always have the very finest and handsomest of show samples. The desire to produce the best in any case should be the dominant idea rather than a mere desire to win prizes. No garden crop gives better recompense for good culture than do Potatoes, and it is doubtful whether any good crop affords greater pleasure in harvesting it. But to ensure success, in addition to good well-prepared seed of the best kinds, the soil must also be well pulverised and fairly well manured. In the case of first early sorts, a liberal dressing of manure may be applied with impunity, because the crop will certainly be lifted early. Later crops which have to stand longer in the ground and do not need rapid driving will make stouter and harder stems if the soil be not too highly manured, whilst the tubers will be all the drier when matured. Potato soil, however, can hardly be too deeply or freely worked, and if presenting literally a bed of ashes, but still rich, the resulting crop for any purpose will far more than recoup the cost of labour involved in the preparation of the soil.

A. D.

EARLY RADISHES.

APART from Mustard and Cress, there is no kind of salad that becomes so quickly fit for use as Radishes. By sowing seed of the China Rose variety in September a supply may be kept up all the winter in the open, but in March and April these become so hot and tough that the spring-sown ones are eagerly sought after. It is, however, impossible to grow early Radishes in the open ground. They must have protection and a little heat, and the best place for them is a gentle hotbed and a frame. I have known some growers plant Potatoes in frames about this time and sow the Radishes between the sets. This system answers in a way, but not altogether, as when the Potatoes grow rapidly the foliage shades the Radishes so much as to prevent many of them from developing. I am greatly in favour of growing the Radishes by themselves, and it may be done without much expense. A slight hotbed is necessary, and the material should be packed up firmly to a height of 18 inches or so; then put 6 inches of moderately rich soil inside the frame that is placed on the bed. Make the soil

very firm and level, and sow the seed broadcast on the surface. A covering of 1 inch more of soil should be put on the top of the seed to cover it, and then beat it with the back of the spade. The lights should then be put over the frame, but do not water the soil, as the moisture from the manure will soon make it sufficiently moist. The seed will soon germinate, and on fine days admit a little fresh air to prevent the top growths from becoming too large. Should severe weather follow their sowing give them a little protection, but it is not necessary to treat them as if they were exotics. A two-light frame of the ordinary size will produce many scores of bundles of nice young Radishes, and by sowing the seed at once or during the next few days the produce will be plentiful in March and onwards. CAMBRIAN.

PROPAGATING.

DRACENAS.—The early months of the year bring a glut of propagating work of all kinds, and among those things that need attention at this season are the Dracenas, where it is intended to work up a stock of them. As Dracenas are in many cases employed for the decoration of the dwelling-house during winter, many of them will by spring have lost their bottom leaves, and consist of only a naked stem with a tuft of leaves on the top. Such specimens as these make the best of stock plants, for they can be shaken out of their pots, the top cut off to form a cutting, while the stem and main roots may be divided and laid in till they start into growth. On turning the plants out of the pots and removing as much of the soil as possible with the hand, a very good way is to hold the mass of roots under a tap for a few moments, provided the water is not too cold, or a pail of lukewarm water may be used in which the roots can be washed quite clean without being injured. Attention should first be directed towards the top of the plant, which must be cut off just far enough below the central tuft of leaves to allow 2 inches or 3 inches of stem for insertion in the soil. It should then be placed in a small pot, putting a few crocks for drainage in the bottom. The soil best suited for this purpose is equal parts of peat and sand, with the addition of a little loam. When these tops are put in they should be plunged in a bottom heat of from 80° to 85°, and kept in a close propagating case until rooted. When in the propagating case the lights must be taken off every morning to dry up any superabundant moisture, and an opportunity is then presented of removing any signs of decay should they be visible, and also of watering the cuttings if necessary. In the crown of the plants excess of moisture must be guarded against, as this is apt to cause the young and tender leaves to decay. After the tops of the plants are disposed of there still remain the stem and thick fleshy roots, or "toes" as they are frequently called. These may be cut up into lengths of 3 inches or 4 inches, and laid horizontally on a bed of Cocoa-nut refuse, and covered with about an inch of the same material. They will not need any water till growth takes place, the first intimation of which is the young delicate leaves, which are freely pushed up from the various joints of the buried stem. It is as well to allow them to make three or four leaves before disturbing them, when on taking the stems out of the material in which they have lain it will be found that most of the young shoots have formed a few roots at their base. All that is needed then is to pot them, and in the case of those that are not rooted treat them as cuttings until they strike. If the stems are of any particular variety, they may be laid in again after the crop of shoots has been taken, but the second batch will be by no means equal to the first; indeed, in many cases the return scarcely makes up for the trouble. Some people lay the stems in pots or pans, and where there are a great number of varieties, this is perhaps the better way, for there is then not so much risk of mistake as when they are laid in the fibre together. When this method is followed, each sort may be assigned a separate pot or pan. For laying them in after this

manner I prefer sandy peat to Cocoa-nut refuse. There is a class of Dracenas represented in our gardens by such sorts as *congesta*, *gracilis*, and *Goldiana*, which will not push up shoots from the stem if buried, and consequently other methods for their propagation have to be resorted to. They cannot be increased as rapidly as the others, and the most successful mode of procedure is to take off the top of a plant and insert it as a cutting in the same way as recommended above, then allow the decapitated stem to remain undisturbed in the pot. After a time one or more shoots will be pushed out and when sufficiently advanced they may be utilised as cuttings. If more than one shoot is produced from the old stem, those nearest the top will, as a rule, make much more rapid progress than those lower down. In this manner a few stock plants will yield a considerable number of cuttings if they are put in whenever sufficiently advanced. In the case of large specimens or any very particular variety with which it is advisable to run no risk, a very good plan is, some time before removing the head to make two or three incisions in the stem just below the crown of foliage and tie some Moss around it, or a small pot may be divided in such a way that the pieces when put together will encircle the stem, and being secured in their place with a piece of wire, will form a receptacle for the rooting medium. A mixture of Sphagnum and peat is as good as anything for the purpose, but whatever is employed it must be kept in an equal state of moisture in order to encourage the formation of roots. A nearly ally of the Dracenas, *Cordylina australis*, is, especially when confined in rather small pots, liable to raise itself for some distance out of the pot by means of stout, fan-like appendages from the base of the plant, and if these are cut off and placed under conditions favourable to growth, they soon form neat little plants. In the same manner most of the Yuccas can also be increased.

CANNAS.—Directions are often given to file the seeds of Cannas, or of any other plants that are very hard, in order to assist germination, but it is by no means necessary, as the same end may be attained without any danger if they are soaked in water a little time before sowing. A very good plan is to put the seeds in some receptacle that will hold water, and stand it on the pipes or in some spot where the water will be maintained at a temperature of from 75° to 80°. If allowed to remain there about twenty-four hours the seed may be taken out and sown at once, when it will very soon germinate if the pots are placed in a hot-bed or in a warm structure, provided care is taken that they are not allowed to become dry after being sown. This last is especially necessary in the case of all seeds that have been soaked in water before sowing. Of course Cannas can also be increased to a considerable extent by means of division, and this is best carried out now before they start into growth. The soil must be shaken from the roots, when they can be cut up into as many pieces as there are eyes and potted singly. If plunged in a gentle bottom heat the plants soon grow away strongly. Sometimes the root is almost destitute of visible buds, and in that case if plunged in bottom heat and just covered with Cocoa-nut refuse it will soon push up from the joints. Now that dwarf-growing Cannas seem likely to become popular, more attention will, no doubt, be directed towards their propagation.

DAHLIAS.—Where these are propagated in quantity, the tubers that have been dormant during the winter should be gone over (removing at the same time any signs of decay) and placed under conditions favourable to growth. They may be either potted in some good light soil or laid on a stage and just covered with Cocoa fibre or decayed leaves. Where there are several of a sort this last method gives least trouble, but where the stock plants are limited to single specimens it is better to pot them, as then there is no danger of mistakes happening. In a temperature of 55° to 70° they soon start into growth, and when the young shoots are long enough they may be taken off as cuttings and treated as most soft-wooded subjects are. Where it is desired to increase the stock only to a limited extent it will be often possible with a sharp knife to divide some

of the masses of roots, taking care, however, to leave a sound tuber and a good eye on each portion.

TUBEROUS BEGONIAS.—The present is a good time to sow seeds of these popular plants, as if sown now and attended to carefully afterwards they will make good flowering plants this year. For the reception of the seeds, pots or pans should be prepared by draining them well and filling them to within half an inch of the surface with light open soil. The surface of the soil having been made level, it must be watered with a fine rose, and while still moist the seed should be sown thereon. Care should be taken not to sow the seed too thickly, and no covering whatever will be needed if a pane of glass is laid over the surface of the pot. In a temperature of about 70° the young plants will soon make their appearance, and when sufficiently advanced to be handled without danger they must be pricked off. Directly they are thoroughly above ground the young plants should be well exposed to the light, and every means taken to encourage as sturdy a growth as possible. T.

TREES AND SHRUBS.

PYRUS SORBUS VARS. MALIFORMIS AND PYRIFORMIS.

OF the several varieties of the Service tree to be found in England, *Pyrus Aucuparia* (the Mountain Ash) would seem to be the only one that has been extensively planted. The two named above, the Apple and Pear-shaped-fruited true Service trees, in common with others, are considered indigenous to this country, and are very numerous in France and the south of Europe, but they are seldom met with in England, at any rate in the form of large specimens. They both, however, grow to a considerable size, have handsome, shapely heads, and may therefore be safely included in any list where rare deciduous trees are required. I am not aware that any conclusion has been arrived at as to their longevity in this country, but they are credited with attaining in France an age of 1000 years. If this be so, they are certainly, like Pears, among the trees one would plant "for his heirs." Both varieties make considerably larger trees than the Mountain Ash. Our plant of the Pear-shaped variety is close on 70 feet high, with a girth of 7 feet at 4 feet from the ground; it has formed a handsome, shapely head on two sides, but on the south and east fronts other trees have unfortunately been allowed to get too close, and have consequently forced it in the opposite direction and destroyed its symmetry. The one or two specimens of *Pyrus maliformis* with which I am acquainted are not so high as this plant of *pyriformis*, and, indeed, appear inclined, after they get between 30 feet and 40 feet high, to become furnished at the stem and head rather than increase in height. The leaves are longer than those of the Mountain Ash, and the leaflets (thirteen in number) are broader and more thickly set on the stalk. The flowers, which are produced in May, are white, and might be an attractive feature on small trees; they are, however, hardly noticeable when the plant attains large dimensions. The fruit of the Pear-shaped variety is produced in clusters of six or seven, and is about the size of an ordinary Cob-nut; it is of a dull brown colour when decayed, and, although not acceptable to most palates, is to my thinking preferable to the Medlar, being sharper and of a more piquant flavour. Neither of the varieties are likely to be so extensively planted in England as to be of any service as timber trees. The wood, however, seems to be highly appreciated on the Continent, where, according to London, it is much prized by wheelwrights for their better class work, and the same authority also says that it has a compact grain and takes a high polish. Our plant of *P. Sorbus pyriformis*, growing in a low sheltered spot not far above the level of a neighbouring lake, has about the best position that could be found for it as regards soil, the sandy loam being somewhat closer and of considerably greater depth than in other parts of the pleasure ground. There is no doubt that both varieties are perfectly hardy in this country. I should, however, advise any who

contemplate giving them a trial to select a warm sheltered spot for planting. They will associate well with the Beech in variety, Planes, Lombardy Poplars and Maples. E. BURRELL.
Claremont.

WINTER TINTS OF CONIFERÆ.

MANY Conifers exhibit a great change during the winter months, the foliage at that season becoming more or less suffused with bronzy red or brown, and in a few cases this wintry tint is very pronounced. A few of the most conspicuous bronzy-coloured Coniferæ just now would include *Biota elegantissima*, which is perhaps the richest tinted of any. This is a fastigate variety of the Chinese *Arbor-vitæ*, which does not attain the dimensions of the type, and it also differs therefrom in the foliage being of a rich golden hue, which changes during winter to a sort of bronzy orange, suffused with red. The golden *Arbor-vitæ* (*Biota orientalis aurea*), a dwarf, globular bush which is so frequently planted, becomes brownish during winter, but is altogether wanting in the rich hue of the preceding. About the variety *meldensis* there has been from time to time considerable difference of opinion. It is a somewhat upright-growing form, but one that, from the weak character of its branches, usually presents an ungainly appearance. The foliage is just now of a reddish brown hue. The leaves of this variety are longer than those of any of the other forms, and the plant bears a resemblance to a Juniper, and was at first supposed to be a hybrid between the Red Cedar and the Chinese *Arbor-vitæ*, but it seems now pretty conclusively settled that it is a form of the Chinese *Arbor-vitæ*. *Cryptomeria elegans* occupies a prominent place among those Conifers that change their hue in winter. This forms a rather dense-growing, handsome specimen, the foliage of which is bright green during the summer, but is now of a bronzy crimson hue, tinged, when viewed from certain standpoints, with purple. This *Cryptomeria* is a very distinct and handsome Conifer, well suited for an isolated specimen, though it is generally more effective when under a dozen feet high than it is when that height is exceeded, as it is often liable to get top-heavy when it grows large. There is a variety of this (*nana*) which, in all particulars except size, is a counterpart of the type. This is suitable for small gardens, or indeed any limited spaces, such as the larger arrangements of rockwork or in similar spots. The other species of *Cryptomeria*, viz., *japonica*, does not assume this bronzy tint during winter. The American *Arbor-vitæ* and its different forms become brownish, but this tint is dull, except in the case of a couple of varieties, viz., *lutea* and *Vervæneana*. The first of these is, except in colour, a counterpart of the type, the young growth being golden, and in winter becoming bronzed, while at all seasons the lighter tint of the young growth contrasts strongly with the deeper hue of the more mature foliage. The variety *Vervæneana* is a denser-habited plant than the last, the branchlets being also more slender. In the summer the entire plant is of a golden yellow hue, which changes during winter to a warm brownish orange. Some of the *Retinosporas* have their winter tints very marked, and of them the golden forms of *R. pisifera* and *R. plumosa* become tinged with a deeper hue. The low, dense-growing *R. ericoides*, which is so well suited for small gardens, changes to a brownish purple, and in this stage forms a remarkably distinct shrub. This is about the easiest, if not the very easiest, of all Conifers to strike from cuttings. The larger-growing *R. dubia* is somewhat of the same colour, but not so bright as *R. ericoides*. Some specimens of the Red Cedar (*Juniperus virginiana*) become during the winter quite a reddish hue, while others change little, if at all. The principal change that takes place in the Pines is, that the golden form of the Scotch Fir assumes its brightest tints during the winter. H. P.

The Holly-leaved Mahonia (*M. Aquifolium*) is at the present time one of the most charming of evergreen shrubs, its foliage being so beautifully tinted with various shades of coppery red, deepening to claret-purple, and in some cases brightening

to a glowing scarlet. I notice that it colours most brilliantly on poor soils, and in the neighbourhood of Farnham last week, where the soil is almost a pure sand, I saw some undergrowth of it that looked in the distance like masses of scarlet Pelargoniums. This shrub should be made much of in the garden, believing as I do, that it has few, if any, rivals among Evergreens. For mixing with flowers, especially yellow or white, its foliage is invaluable throughout the year, and in Daffodil time it is especially in demand. As one can buy this Mahonia for a few shillings a hundred, and it will grow almost anywhere, it should be found in every garden large or small.—W.

Picea Pineapo on the chalk.—I quite agree with "G.'s" remarks in THE GARDEN, Feb. 4 (p. 105), as to the suitability of this for growing on the chalk. Here (Dorset) on the thinnest of flinty, chalk soils it flourishes exceedingly, as, indeed, do most of the evergreen trees I have tried, notable exceptions being the *Cryptomerias*, *Araucaria*, *Wellingtonia*, *Silver Fir*, and *P. nobilis*. *Thuja gigantea*, the *Cypresses*, the *Corsican*, *Austrian*, *Nordmann*, and *Douglas Firs* especially grow wonderfully well and fast here, pre-eminently the last, which, for quickness of growth and beauty, is, I think, unsurpassed. I do not, however, believe they will prove so long-lived as they would be in deeper and richer ground.—RODES.

Thunberg's Barberry, of which the writer in the *American Florist* speaks so highly, is certainly a shrub deserving of more attention than it gets in this country. The bright scarlet berries do not keep on so late here as they apparently do in America, but perhaps this is owing to the wood being more thoroughly ripened there. It would no doubt be very useful, as the writer hints, if grown in pots for Christmas decoration, but it is doubtful if this or any other deciduous Barberry could be grown successfully in a pot, seeing how large and spreading the roots are. It is one of the neatest in growth of all the deciduous Barberries, grows vigorously in the poorest soils, and there is no question about its thorough hardiness. At Kew it is named *B. chinensis*, *B. Thunbergi* being the synonym, thus appearing to be a Chinese as well as a Japanese shrub.—W. G.

—This *Berberis* (which was alluded to in "American Notes" in THE GARDEN, February 4, p. 96) is stated to be a first-rate shrub, but, as far as I have seen, it does not berry freely in this country. It is a free-growing, much-branched species, which forms a dense bush, with the branches arching over in such a manner as to render the plant devoid of any formality. The leaves are small and roundish, and when partially expanded, form little tufts of the most delicate green all along the branches. Before the leaves are fully expanded the flowers make their appearance, and hang from the under sides of the twigs. In colour they are of a sulphur-yellow inside, and a sort of brownish crimson on the exterior. The autumn tint of the foliage which is so conspicuous in America is also in this country very bright. The berries are rather small, oblong in shape, and of a bright sealing-wax-like hue. It is seldom seen much more than a yard high, and yet it is one of those plants that may be depended upon to grow freely without encroaching on its neighbours. It is, indeed, of easy propagation, for if a plant be growing in the ground rather deeply, it is often possible to split it up into several portions, after the manner of many herbaceous subjects. Besides the specific name of *Thunbergi* it is often met with under that of *B. sinensis*.—H. P.

SHORT NOTES.—TREES AND SHRUBS.

Garrya elliptica.—This is without doubt one of our best shrubs for a wall, the foliage being always bright and fresh. Our tree on a south wall is now in full flower; the expanded flowers were quite uninjured by the 16° of frost on the night of February 1.—E. BURRIS, Streatham Hill.

The Nepaul Barberry is, I am glad to hear, hardy in North Wales, and that 12 feet high specimen at Tan-y-bwlch must be worth going from London to see when in bloom. It is not surprising that it is thoroughly hardy in Guernsey, as Mr. Peters says, and I believe it would be found perfectly

hardy in many sheltered places on the south coast. Many would be glad to have such a noble Evergreen in their gardens did they know such a one existed. As a wall shrub it can be recommended for any part of the country.—W. G.

Pittosporum Tobira.—A large plant of this, which has been wintered in a cool greenhouse, is now flowering freely, and though the blooms can scarcely be called showy, yet their fragrance is a very pleasing feature. This *Pittosporum* forms an ornamental evergreen shrub, with deep green leaves of a rather leathery texture, and the white blossoms, which are about an inch in diameter, are arranged in clusters at the points of the shoots. In the case of a good healthy specimen, a supply of bloom is maintained for a considerable period. This *Pittosporum* is a native of Japan, and is hardy in the more favoured spots along the south and west of England, where it makes a first-rate seaside plant. There are several other members of this genus which very much resemble each other, and nearly the whole of them are natives of Australia or New Zealand. They can all be easily propagated and grown, as if planted in ordinary garden soil they grow away freely. Many of the *Pittosporums*, if planted against a wall, will survive most winters around London.—H. P.

PLANTS AT REST.

It is doubtful if any plant (bulbs and tubers excepted) ever passes into a state of absolute rest. Active growth ceases, of course, for a time, but, as may easily be observed at this period of the year, even many open-air plants are starting into growth. I recently observed a number of *Columbines* which, at the close of the autumn, showed no signs of growth, but which have now formed a little crown of tender green foliage. *Carnations* that were layered in the summer and then taken off at the end of October are now pushing out tiny leaves from the axils of the old foliage, and *Wallflowers* that in November had plenty of room now touch each other. In the cool greenhouse the same signs of almost imperceptible, but steady, progress are manifested in a more pronounced degree. In the case of soft-wooded things which are coming into bloom, progress is, of course, very apparent; but hard-wooded plants, such as *Epacris*, *Boronia*, *Cytisuses*, hard-wooded *Heaths*, seem for a time to stand still in quite a cool temperature. They do not, however, but are slowly preparing for the work they have to do later on. There is a steady flow of sap into the buds that through the dark winter days are surely gaining in substance. A lesson taught by these facts is, that the roots of both hardy and tender plants should retain their functions in an unimpaired condition through the winter. In the case of hardy flowers that are put out in the autumn, the soil ought to be well sweetened, and, if needful, provision be made for carrying off superfluous moisture. It is an easy matter to overdo draining, and light soils generally do not need it, but in those of a cold, tenacious character there can be no doubt that many of the less vigorous herbaceous plants dwindle away through stagnant moisture bringing the roots into a torpid condition. By keeping up the flow of sap into the foliage the plants are better enabled to withstand the vicissitudes of our winters. Let anyone take up a plant that has been standing in soil where the water passes away freely and compare the condition of its roots with one that has been in undrained ground. The one even at this time of year when plant life is seemingly at rest will show white active fibres, whilst the roots of the other look black and inert.

The condition of the roots in winter wonderfully affects the growth of the plant in summer. At the same time a great amount of injury can be inflicted by depriving the roots of moisture. I have known hardy plants in frames to remain dry for a week in midwinter under the impression that being at rest it was immaterial whether they were watered for a few days or not. Nothing will more reduce the growing powers of plants of this description than continued drought at the roots at this time of year. Not only is much of the freshness and vitality of the plant itself lost, but the roots themselves have

their functions permanently impaired, so that when the time comes for them to start into growth they are deprived of the power of doing so. In this way a portion of the growing time is lost. I once received a forcible lesson in this matter. A number of pot Strawberries that promised well for a crop were stood on the front stage of a lean-to house. It happened that some repairs which occasioned the temporary removal of the ventilators were being done. The weather was drying and the plants were not looked to so frequently as should have been the case, the consequence being that they were very disappointing when they came into bloom. The contrast between them and others that were in frames and kept moist was most striking. As regards hard-wooded greenhouse plants, there is doubtless much injury inflicted at times by watering too sparingly. Keeping plants on the "dry side" does not mean that they are to stand for days together in a dry condition. J. C. B.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

FEBRUARY 14.

CONTRARY to what one might have expected, considering the weather and other circumstances, the meeting on Tuesday last was a pleasant surprise, and a reminder of the many interesting gatherings that have often, until recently, taken place in the conservatory at South Kensington. There was a varied show, comprising February hardy flowers, Orchids of many kinds, and fruit, which we must say, for the season of the year, made an exceptionally brilliant display, the excellent Blenheim Pippin figuring in all the collections, and represented by handsome highly-coloured samples. The Royal Horticultural Society has certainly started the year well, as regards the meetings, as that held in January was by no means poor. As will be seen from the subjoined list, novelties were numerous.

First-class certificates were granted as under:—

IRIS HISTRIO.—This beautiful Iris has been noted on several occasions in THE GARDEN, and was well worth a certificate, as, though devoid of the perfume of the netted Iris (*I. reticulata*), its flowers are of fine colour, the inner segments deep purple, and the outer ones richly blotched and flaked with purple on a white ground, relieved with a central band of yellow. It is a native of Lebanon, where it is found growing under the renowned Cedars, and though belonging to the same group as *I. reticulata*, it is distinct from that species, having broader and more lightly-coloured segments. It is the second of this group of February Iris to appear, and a cold frame is essential to preserve the purity of the delicate flowers, though it is quite hardy. From Messrs. Paul and Son, Cheshunt.

LYCASTE SKINNERI IMPERATOR.—The popular *Lycaste Skinneri* varies considerably in the depth of colouring displayed in the flowers; but this is one of the finest forms we have seen, and a bold contrast to the pure white variety. It is a strikingly massive flower, larger than that of the type, and characterised by two brilliantly coloured purple crimson petals, the same hue suffusing the well-shaped lip, in which we have here a trace of white near the front; the sepals are broad, white, with a purplish tint, and form a fine background to the bloom. From Messrs. F. Sander and Co., St. Albans.

ODONTOGLOSSUM CRISPUM PARDALINUM.—Amongst the spotted varieties of *O. crispum* this may be regarded as one of the best, as, although the flowers rather lack the excellent form and shape to be found in first-class varieties, they are exquisitely coloured with deep brownish crimson blotches on a white ground, the yellow crest adding to their beauty. The plant shown bore a strong raceme of eleven blooms, and it would require but very few flowering specimens to make the Orchid house gay. From Sir Trevor Lawrence, Burford Lodge, Dorking.

DENDROBIUM CHRYSODISCUS.—New Dendrobies are appearing, and an acquisition of undoubted

merit is this hybrid between *D. Ainsworthi* and *D. Findleyanum*, the flowers showing the beauty of both these parents. In size the bloom is similar to that of an average *D. Ainsworthi*, and delightfully, though quietly coloured; the sepals and petals narrow, delicately tinted with rose-purple at the tips, the other portion white, or nearly so, and intensifying the blotch of rich crimson-brown, surrounded with a golden yellow ring at the base of the lip; the expanded portion is white, the extreme point magenta. It seems to be very free-flowering and a good grower. From Sir Trevor Lawrence.

DENDROBIUM COOKSONI.—This distinct Dendrobe was shown by Sir Trevor Lawrence and Mr. H. M. Pollett, Fernside, Bickley. It is a form of the old *D. nobile*, and a likeness is apparent in shape, size, and general appearance of the flowers to those of that species, but the base of the broad petals is richly blotched with deep purplish crimson, this fine colouring appearing on the upper half of the lip, the expanded portion white, with the tip magenta. The sepals are rose-magenta at the apex, and delicately suffused with a similar tint. If it proves as free as the old *nobile* it will be welcome, but, as shown, it is certainly not so telling.

PTERIS CRETICA NOBILIS.—The great feature of this Fern is its bold, not to say stately, habit, the crested, light-coloured fronds standing up so well, as to render even a comparatively small specimen exceedingly ornamental. It will, we feel sure, prove useful to the market grower, as it is the kind of Fern, by reason of its vigorous constitution, that suits the amateur. From Mr. H. B. May, Upper Edmonton.

ARDISIA MAMILLATA.—This addition to a large genus, found in India, America, and the islands of the Indian Ocean, hails from Hong-Kong. It is well named *mamillata*, as the deep green leaves are covered with stiff hairs, which are somewhat unpleasant to the touch. A small plant was shown, and from this one can gather that a large specimen would have a bright appearance, as below the crown of leaves proceed stems bearing at the apex small clusters of deep red Holly-like berries, that are extremely rich against the dark-coloured foliage. It requires stove treatment. From Messrs. Veitch and Sons, Chelsea.

RHODODENDRONS RUBY AND IMOGENE.—These are two varieties of the new race of greenhouse Rhododendrons, of which a note appeared in THE GARDEN, p. 86, the object, as there stated, being to correct the straggling habit of the Javanese group. The variety Ruby—appropriately named, as its flowers are of a very rich crimson colour, though somewhat small—is the result of a cross between *R. jasminiflorum carminatum* and *R. multicolor Curtisii*. In the variety Imogene, a hybrid between *R. Teysmanni* and *R. Taylori*, we have a departure in colour, this being of a beautiful clear buff, with the stamens of a pinky tint; the flower is bold, well shaped, and of good substance. Exhibited by Messrs. Veitch.

CHINESE PRIMULA, BRAID'S SEEDLING.—A single variety, the truss well borne above the leaves. The flowers are individually of average size, good form, and rich colour, this being magenta with a ring of brownish hue in the centre, set off by a yellow eye. From Messrs. H. Cannell, Swanley.

TREE CARNATION-PHYLLIS.—A variety of a pretty and bright colour, of which we want more, as the hues are not inharmoniously mixed, but decided and pure. The ground colour is white, with the edges flaked with bright carmine, and the flower, though not so full and even as many would like, is sweetly scented. Exhibited by Mr. Charles Turner, Slough.

Orchids were one of the features of interest, and there were many rare kinds besides those certificated. The group from Sir Trevor Lawrence contained many choice gems, such as *Dendrobium amethystoglossum*, a chaste flower, pure glistening white, save the magenta lip. It is as fresh and beautiful a Dendrobe as one can see. The orange-vermilion-coloured *Lælia harpophylla* was shown; also a fine form of the extremely variable *Cattleya Percivaliana*. This was remarkably rich, the sepals

and petals warm rose-purple; the lip brilliantly coloured with gold, overlaid with brown markings in the throat; the front portion velvety purple, the crinkled margin fading to a lighter shade. Such free-blooming and vividly-coloured forms are invaluable. A fine healthy specimen of *Masdevallia Fraseri* with a very showy deep crimson flower was exhibited. Also represented were *Odontoglossum maculatum*, *Masdevallia gargantea*, a curiously-pouched kind, the flower large, yellow and brown; the majus variety of *Odontoglossum Oerstedii*, *Lælia anceps vestalis*, a grand form, pure white, except pencillings of purple in the throat of the lip; *Pleurothallis Roezli*, a curious flower of a deep brownish colour, the nodding raceme carrying several blooms; and *Odontoglossum crispum punctatissimum*, a beautifully spotted form, a strong raceme having several flowers of medium size, freckled with brown spots on a flesh-coloured ground; the crest yellow. It is not particularly showy, as the spottings are rather confused, unlike those of the variety certificated.

Baron Schroeder also had an interesting group, comprising amongst other things a fine raceme of *Odontoglossum Stevensi*, one of the finest spotted forms of *O. crispum*, bearing sixty flowers, each of good size and thickly spotted and blotched with light cinnamon-brown on a white ground, the crest orange. Cut flowers of the several forms of *Cælogyne cristata*, including the beautiful *Lemoniana*, and *Lælia anceps* were also shown, and an *Odontoglossum* named *crispum Xanthotes*, distinguished by its massive flowers, more like those of some of the finest and most robust forms of the type; the sepals and petals are of excellent shape and curious colour, there being a trace of yellow on the ivory-white ground, with here and there a blotch of deep orange. Mr. C. M. Major, Cromwell House, Croydon, sent a spike of *Dendrobium Hilli*, a similarspecies to *D. speciosum*; the racemes are long, not crowded with flowers, and so have a graceful appearance; the narrow sepals and petals are creamy white, and give the flower a half-expanded expression. Messrs. F. Sander and Co., of St. Albans, exhibited *Odontoglossum maculatum* in two varieties, and plants of the noble *Lycaste Skinneri alba*, the flowers large and in excellent character. From Mr. G. W. Cummins, gardener to Mr. A. H. Smee, The Grange, Wallington, came *Odontoglossum Oerstedii majus*, the lovely *Sophranitis violacea*, *Dendrochilum* (now called *Platyclinis*) *glumaceum*, having a necklace-like raceme of small greenish white, delicately fragrant flowers; *Angraecum hyaloides*, a curiosity, the mass of snow-white flowers clustering round the base of the plant—it is a diminutive gem; and *Ophrys lutea*, a showy Orchid, the lip large, deep yellow, the centre rich brown, almost black, and the sepals and petals green.

Messrs. Veitch and Sons, of Chelsea, showed a small collection, consisting of *Odontoglossum triumphans*, *Dendrobium splendidiissimum*, a cross between *D. aureum* and *nobile*; the sepals and petals white, tipped with magenta, the lip blotched with deep crimson at the base, the other portion white; *D. euosmum* and *D. euosmum leucopterum*, the last a cross between *D. endocharis* and *nobile*, the sepals and petals snow-white; both these were described in THE GARDEN (p. 102). The same firm also exhibited seedling Rhododendrons of the new group, and a curious, but scarcely beautiful, plant allied to the Frillillary named *Korolkowia discolor*, a native of Turkestan; the foliage recurved, broad, and glaucous, the flower nodding, about 1 inch across, and greenish in colour.

From the Royal Gardens, Kew, was sent a small group. A flower of *Brownea grandiceps* was shown, and by reason of the huge size of the umbel and its brilliant rose colour, it might at a glance be taken for an exceptionally fine truss of Rhododendron. It is a native of South America, and as seen at such places as the Palm house at Kew, it must be a noble adornment. *Corydalis Ledebouriana* is a hardy plant, dwarf, glaucous, and with the stems tipped with two or three brownish flowers; the leaves are the best part. *Lilium Thompsonianum*, an Afghan Lily, narrow, glaucous leaves, and small, bell-shaped, very pale lilac flowers, with buff-coloured

stamens; *Tryphia secunda*, a botanical curiosity, *Cecogyne lentiginosa* and *Bletia verecunda*, showy, and of a telling magenta shade, were also included.

CHINESE PRIMULAS were again conspicuous. Mr. J. James, Woodside, Farnham Royal, was awarded a silver medal for a collection, the plants robust, well bloomed, and each flower of excellent form, the colours ranging from the bluish tint to pure white. The same exhibitor also had specimens of his exceptionally fine strain of *Cinerarias*, and a deep crimson-coloured *Cyclamen*. Mr. Cannell, of Swanley, had several plants of White Perfection Chinese Primula, the colour very pure and attractive. There were also cut blooms of the improved *Cineraria cruenta*, which has larger flowers than those of the type, and of a far richer magenta shade. Besides the Tree Carnation certificated, Mr. Turner showed a variety named Novelty, which, as far as colour goes, it certainly is; but this is of a burnt slaty hue, utterly distasteful. Mr. Ross, gardener to Sir G. Macleay, Pendell Court, Bletchingley, had a beautiful branch of *Acacia verticillata*, wreathed with the catkin-like clusters of pale yellow flowers. *Brunfelsia* (*Franciscea*) *calycina*, pale lilac-lavender, and *Dombeya* (*Astrapea*) *Wallichii* were also shown by the same exhibitor. The last-mentioned has broad deep green leaves and a dense drooping umbel of light scarlet flowers. It reaches a height of 30 feet, and a specimen in full bloom must be a picture of gorgeous colouring.

HARDY FLOWERS, as the spring advances, become more plentiful, and on the present occasion they were chiefly represented by Daffodils and a few alpine gems, as *Saxifraga Burseriana*. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, showed early Daffodils, the majority of the trumpet section, such as *Golden Spur* (very fine in colour), *pallidus*, *precocis*, the Tenby Daffodil, princeps, yellow trumpet, creamy white segments, and *N. cyclamineus*, besides *Bletia hyacinthina*, an almost hardy Orchid, the flowers rich magenta. We have seen this dower in the open rockery at Kew. A silver medal was awarded. Messrs. Paul and Son, of Broxbourne, had a choice group, including varieties of *Cyclamen Atkinsi*, *Iris fimbriata* (recently noted in THE GARDEN), and *Megasea Stracheyi*, which forces well, the flowers individually large with a trace of pink, the stigmas red; it is one of the best of this section of *Saxifragas*. Other good things were *Crocus Imperati*, *Irises Krelagei* and *Histrio*, *Saxifraga hypnoides* variegata, a pretty mossy *Saxifrage* with variegated leaves; *Syringa hyacinthiflora*, double, pale lilac, very sweet; and *Lilium candidum aureo-marginatum*, the foliage boldly and strikingly variegated with orange-yellow and green. Messrs. Barr and Son, of Covent Garden, had a bronze medal for a group of hardy flowers, consisting of *Chionodoxas*, *Narcissus minor*, a neat, pretty dwarf Daffodil; *N. moschatos* of Haworth, ivory-white, small; *Crocus Imperati*, *C. Sieberi*, deep bluish lilac, the base yellow; and Hoop-peticoat Daffodils. Flowers of the Christmas Rose were sent by Mr. C. S. Calter, Bunbury; and the inflorescence of *Eulalia japonica* came from Mr. G. F. Wilson, Weybridge. This is exceedingly graceful and feathery, and of value, we should think, for decorations, though far less beautiful than the plumes of the Pampas Grass.

FRUIT, as previously noted, was quite a feature. Messrs. G. Bunyard, Maidstone, staging a collection of 110 dishes of Apples, the whole in excellent preservation considering the season, and noticeable for high colour. Such excellent varieties as Cox's Orange Pippin and Blenheim Orange were shown, and other kinds conspicuous were the brilliantly-coloured Gascoigne's Seedling, Lord Derby, Warner's King, Wellington, and Hornmead's Pearmain, a good keeper and handsome fruit. A silver medal was awarded, and also to Messrs. T. Rivers and Sons for their display of Apples and home-grown Oranges and Lemons, these, by reason of their striking colours, making a great show. One of the most telling of the Oranges was the St. Michael's.

Messrs. J. Cheal and Sons had a good collection of seventy-eight dishes of Apples, for which a bronze medal was accorded; the Blenheims excellent for colour, as also were Besspool and Hanwell Souring, in the collection of Mr. S. Ford, The Gardens,

Leonardslee, Horsham, there were many fresh and finely developed fruits, and the same exhibitor showed three bunches of Lady Downe's Grape in good condition. In the assortment put up by Mr. C. Ross, Welford Park, Newbury, Sturmer Pippin and Cornish Aromatic were excellent. Mr. G. W. Cummins also contributed Apples. In each case the award of a bronze medal was made.

Amongst miscellaneous exhibits were Onions Danesfield and Tennis Ball, a silver-skinned variety from Mr. Dean, Ealing; and Lady Downe's and Mrs. Pince Grapes from Mr. Burnett, The Gardens, Deepdene. There were several seedling Apples and splendid fruits of Calville Blanche from Mr. P. Blair, Trentham, also samples of Wrench's variegated Kale from the Chiswick garden of the Royal Horticultural Society.

Annual Meeting.

The annual meeting of the Royal Horticultural Society was held on Tuesday afternoon last in the East Crush Room of the Albert Hall, and as it was anticipated a definite programme as to the future workings of the society would be put forth, there was a large attendance of Fellows. Sir Trevor Lawrence, who presided, said in the course of his remarks that in his opinion the society occupied at the present moment a more hopeful position than it did a year ago, and they were no longer trammelled with a connection at South Kensington. They must not forget, however, that in going away they left a great deal behind them. The society had spent on their grounds in round numbers £80,000, for which they would not receive any compensation.

The annual report reviewed the past year's work of the society, and referred to the efforts that have been made to obtain new premises. As our readers are aware, a special committee has been formed to consult with the council and to aid them in carrying out the necessary steps. This committee has now prepared a report, which was adopted, and from which we gather that the first floor of No. 111, Victoria Street, between the Victoria and St. James's Park Stations, is well suited for the London headquarters and offices of the society and for the housing of the Lindley library. These premises are offered at a rental of £120 per annum. As regards the arrangements for shows and meetings, the Drill Hall of the London Scottish Rifle Volunteers has been obtained, this being situated in St. James's Street, Victoria Street, near St. James's Park Station. The rental is £100 per annum for the use of the hall for twenty meetings during the year, commencing March 25 next. Several members of the council placed their resignation in the hands of the Fellows, so that a radical change might be made if thought proper; but on the motion of the Rev. W. Wilks, seconded by Mr. H. J. Veitch, they were re-elected, with Sir Trevor Lawrence as president.

It was resolved that the special committee should be continued, and a vote of thanks was given to Mr. Haughton (the late treasurer), Captain Bax (the late assistant secretary), and to Colonel Trevor Clarke and Major Mason for the services they have rendered to the society.

NATIONAL CHRYSANTHEMUM SOCIETY.

AN important meeting of the general committee of this society was held on Monday evening last. In the absence of the president, the chair was taken by Mr. R. Ballantine. Mr. Holmes read the report of the sub-committee appointed to consider the advisability of holding a provincial exhibition in November next. From the report it appears that the committee were decidedly of opinion that such an exhibition should be held, and letters were written to several of the Chrysanthemum societies in the north of England on the subject to ascertain their views. In each case replies were received expressing approval of the project, and Sheffield was the town selected in which to hold the first of the series of provincial shows intended to take place. The date fixed is November 16 and 17, the local society guaranteeing a prize fund of £100 and the National Chrysanthemum Society offering medals and cash to the value of not less than one-third that amount. The local

society will bear all expense and undertake general arrangements, except those on the show day, an equal number of judges to be appointed by each society. One-third of net profits will be received by the National Chrysanthemum Society, and all its members will be allowed to compete and visit free of charge.

The report of the sub-committee appointed to draw up the scheme of revision of the official catalogue was read and approved. Mr. Lewis Castle, Mr. George Gordon, and Mr. Harman Payne were nominated to carry out the details of the work with a sub-committee of thirty amateurs and gardeners of known ability in Chrysanthemum culture.

The new floral committee was then elected, consisting of Messrs. Cannell, Gibson, Addison, Beavan, Gordon, Wright, Owen, R. Dean, Kendal, Mardlin, Gilbey, Castle, Swift, Boyce, and Stevens.

The shows at the Aquarium were fixed to take place as follows: Early flowering varieties, Sept. 12; grand November show, Nov. 7 and 8; late flowering varieties, Jan. 9 and 10, 1889.

The dates arranged for the meetings of the floral committee are Sept. 12, Oct. 10 and 24, Nov. 7 and 21, Dec. 5, 1888, and Jan. 9, 1889. The Scottish Horticultural Association having applied for a donation towards a challenge vase, it was not felt to be within the province of the National Chrysanthemum Society to contribute towards it, as its duty to the affiliated societies and the provincial exhibition would require great efforts. A proposal that a fruit show should be held in conjunction with the late flower exhibition was deferred for another year. A resolution was passed that a silver-gilt medal be instituted, and that affiliated societies should only be entitled to ten medals in all unless by special sanction of the general committee. The new schedule was referred to a special committee to prepare.

We have to announce, with regret, the death of Mr. J. H. WALSH ("Stonehenge"), editor of the *Field*, which occurred on Sunday evening last. Mr. Walsh, who was a Fellow of the Royal College of Surgeons, was born in 1810 and educated at a private school. He practised as a medical man in Wiltshire until 1852. He settled in London and devoted himself to literature as a profession in 1855. He published works on "Domestic Economy" and "Domestic Medicine," and in 1858 the "Dog in Health and Disease." Some years later he wrote the "Dogs of the British Islands," which passed through several editions, and in 1882 he produced the first volume of the "Modern Sportsman's Gun and Rifle," the second following in 1884. He was perhaps best known as the author of "British Rural Sports," of which no fewer than fifteen editions have been issued. A man of much knowledge of country life, he was peculiarly fitted for the post he held in the firm direction of the greatest journal devoted to rural affairs—the *Field*, of which he was the able editor for over thirty years.

THE death of Mr. JOHN SMITH, at one time curator of the Royal Gardens, Kew, occurred last Sunday. Among the many works by which he will be remembered, one of the most important was "Historia Filicum." Notwithstanding that he was afflicted with almost total blindness, he has during the past few years written several works with the aid of an amanuensis. He had attained the ripe age of ninety years.

Names of plants.—*Juvenis*.—1, *Masdevallia Houtteana*; 2, *M. xanthina*; 3, *Dendrobium longicornu*.—*J. M.*—*Cattleya Trianae*, very good form, but not worthy of a varietal name.—*J. McLeod*.—*Neottopteris australasica*, quite distinct from *Nidus*.—*F. M.*—1, *Ansellia africana*; 2, *Lycaste lanipes*.—*J. H. C.*—*Dendrobium aureum*.—*J. R. Chaplin*.—A form of *Odontoglossum triumphans*; it is certainly not *O. Alexandrae*.—*T. W.*—An excellent variety of *Cymbidium eburneum*; it is scarcely spotted enough to merit special distinction; the other is *Cypripedium insignis* Maulei.

Names of fruit.—*Lieut. Col. Alexander*.—1, Yorkshire Greening; 2, Rymer; 3, not recognised, much bruised; 4, Northern Greening; 5, Fearn's Pippin, probably.

WOODS & FORESTS.

THE UMBRELLA PINE.

(*SCIADOPITYS VERTICILLATA*.)

WHAT a contrast there is between a large, well-furnished plant of the Umbrella Pine and an equally magnificent specimen of the Hemlock Spruce (*Abies canadensis*), the symmetrical and somewhat stiff habit of the one being so totally different from the easy outline and gracefully drooping foliage of the other. This was never more forcibly brought home to my mind than shortly since, when in a rather secluded Irish demesne the finest example—barring, perhaps, that of Messrs. Veitch, which I saw at the Edinburgh Forestry Exhibition—of this rare, interesting, and withal beautiful tree that I have ever seen, was pointed out by the owner with no small amount of pride and satisfaction at being the fortunate possessor of so unique a specimen of this rare and little-known Japanese Conifer. The tree to which I refer was one of great beauty, with bright, healthy well-developed foliage, and this down to within a few inches of the ground; while the stem was tall and straight, save a short distance at the top, the result of an accident which occurred fully fifteen years ago, and from which it had happily recovered so far as general health is concerned, but marred by the slightly bent and knotty leading shoots. It is growing in decomposed vegetable matter overlying a peaty soil, and alongside some of as fine specimens of the Hemlock Spruce and *Cephalotaxus* as are to be found in this country.

On all sides this pinetum, of only the choicest Conifers, is sheltered by high-growing Laurels, Larches of giant proportions, and far-spreading Horse Chestnuts, which I have nowhere seen equalled in size. The coniferous trees, including the *Sciadopitys*, were planted in a recess formed close to the main drive by cutting back a large number of the Laurels and other trees, and then thoroughly preparing the ground, which extended to several acres and gave ample room for the few choice coniferous and other subjects with which it was planted. This system of grouping the choicer coniferous trees has been generally adopted over the estate, and it is a plan well worthy of commendation, not only for the welfare of semi-hardy and unproved trees, but for the pleasant surprise it gives the visitor when strolling through a dense woodland of suddenly coming upon a tract of cleared ground richly planted with the choicer Coniferæ. In such a place as I have just described grows the Umbrella Pine, and its healthy appearance and large size clearly point out that it is quite at home.

At the time of planting, I was informed by the forester that a large pit was dug out, and the roughish boggy soil which occurred at less than a couple of feet from the surface was mixed with about an equal quantity of rich loam from an adjoining field, and allowed to lie freely exposed to the atmosphere for several months before the trees were planted. After planting, which took place in early spring, each tree was surrounded by a neat rabbit-proof fence of 3 feet in height, and of sufficient distance from the tree to preclude the possibility of the outer branches coming in contact with it for several years at least. Thus was planted fully twenty years ago (the exact date I am unfortunately unable to state, owing to the label which was attached when the tree was planted having been removed) what is now, or at least was when I saw it, an unusually rich-foliaged and handsome specimen of the Umbrella Pine.

Planters, generally speaking, have been somewhat tardy in procuring specimens of this tree, and that for two reasons: its supposed inability to withstand a severe English winter, and the high price at which a fair-sized plant can be obtained. Fortunately, the first supposition has, after a fair and unprejudiced trial, been found to be without foundation, as some of the finest plants I know of this particular Conifer are growing in the Northern Scottish counties, and these, in point of health, appearance, and rapidity of growth, are little behind those in the warmer parts of the south of

England. As to the price at which a plant of sufficient size for planting permanently can be procured, I am by no means surprised, as the *Sciadopitys* is, perhaps, our rarest Conifer, and its past history remains a secret, only one habitat, and that very limited in extent, having been recorded.

In North Wales, at Hafodunos, the beautifully situated estate of Mr. Sandbach, is the healthiest and best furnished English specimen that I have seen, and which at the time of my visit in November last had several both male and female cones growing upon it, but this, it appears, was nothing unusual, for the worthy owner told me that it had borne these for several years in succession. Now, when we consider that in this instance the tree was thus growing most luxuriantly at between 800 feet and 900 feet altitude amongst the Welsh hills, its hardihood in this country need not be questioned. A very fine specimen in the grounds at Penny Hill, Bagshot, was, when measured in 1884, 8 feet in height, with a branch spread of fully 6 feet; while at Balaamor, in the Isle of Man, there is another fine young tree growing in light sandy peat. At Castle Kennedy, as well as various other places in Scotland, robust, though slow-growing specimens may be seen, all of which clearly point out that the *Sciadopitys* is well suited for planting in perhaps any portion of the British Isles.

That it is well worthy of a place in every collection of trees need hardly be mentioned, not at least to those who have seen a fair-sized plant in rude health, for the deep, glossy green leaves of the best substance, and spread out like the rays of an umbrella, as well as decidedly pleasing contour of the whole plant render the *Sciadopitys* one of the most distinct and peculiar Conifers that can be grown in this country. In the specimens now before me the leaves are thick and leathery, fully 2 inches long, and with a golden marked furrow on the under sides, while the cone, about $1\frac{1}{2}$ inches long, is composed of large scales, and resembles very markedly that of the Swiss Stone Pine (*Pinus Cembra*). It may perhaps be well to state that both the foliage and cone here described were produced in this country, and are probably much smaller than those grown in the tree's native home.

In this country the growth of the Umbrella Pine is usually slow, but this is, to a great extent, counterbalanced by the strong, though short shoots, annually formed, and which become well ripened off before winter sets in, thus precluding the possibility of the tree suffering from untimely frosts or cold, cutting, easterly winds. When planting the Umbrella Pine in its permanent position, thorough preparation of the ground must be attended to, and the soil it would seem to do best in may be described as a rich, sandy peat of considerable depth, and neither too dry nor moist, the latter preferable. If I remember rightly, the soil at the Coombe Wood Nursery is peat of a sandy texture, as is also that in which the Isle of Man and Irish specimens are growing, so that it may not be wrong to recommend this particular class as being best suited for the healthy development of the Umbrella Pine in this country.

A. D. WEBSTER.

Planting for shelter.—Are not too many of even our best agricultural districts far too much denuded of woods and plantations both from a picturesque and a profitable point of view? I fancy that when corn-growing was a very profitable business, woods and hedgerows were grubbed up, and every tree that shaded a bit of corn land was destroyed, the result being that in many districts you could walk several miles through agricultural districts and not find wood enough to make a load of fagots. Now, the question is: Is not such a lack of wood a loss instead of a benefit? In the first place, hedgerows, trees, and plantations break the monotony of a flat and otherwise uninteresting district; they soften the wind, modify and raise the temperature of the district, warmth being a very important factor to the well-being of all kinds of stock; while, on the other hand, grain crops are injured by an unbroken frosty wind which sweeps over a district denuded of trees and plantations.

The annual fall of the leaf, too, is a source of enrichment to the earth. These plantations might consist of evergreen, coniferous, deciduous or fruit-bearing trees, according to the wishes and requirements of the district or planter. This matter was brought forcibly to my mind on February 1, when I walked for about seven miles through a treeless, farming district, with a frosty north-east wind blowing in my face, and not a plantation or hedgerow to afford any shelter. On the last half-mile of my journey, and still meeting the wind, were some mixed plantations, and I felt very thankful to the planter for the shelter from the icy wind which they afforded. I have no doubt but that such wind-breaks would be taken advantage of by a flock of sheep or herd of cattle, and benefit both the stock and their owners.—R. M. Y.

The Spruce and Pine in Norway.—The manner in which the Spruce and Pine forests of Norway are being exterminated is becoming so serious, that the government is called upon to put a stop, by legislation, to the deforestation of the country. At present there is no law to prevent the purchaser of a forest from felling everything, even down to the tiniest saplings. It is urged by forest officials that trees under a certain diameter should not be permitted to be cut, and that the branches of the trees should not be left in the forest (as is now nearly always done), because they stifle the growth of the young trees. Apart from the wanton exhaustion of this commercial wealth, it is maintained that wholesale felling has the effect of changing the climate in the forest localities.—*Nature*.

***Pinus contorta*.**—This, one of the most distinct and beautiful of the medium-sized Pines, is particularly suitable for planting in limited areas. The foliage is short, of a bright green colour, and arranged thickly on the branches. It belongs to a section of the genus, having its leaves in pairs, which includes nearly the whole of the European as well as some American and Japanese kinds. The specific name is derived from the peculiarly contorted branches, which twist in such a manner that the diameter of their spread is less than that of most other kinds. When from 15 feet to 20 feet high, this tree forms a dense pyramidal specimen of a very beautiful shade of green. This tree is a native of the western part of North America, and appears to be perfectly hardy in England. Even in a small state it bears cones freely, these being about the size of those of the Scotch Fir.—W. T.

Trees and shrubs for wet ground.—I know of nothing more profitable to grow, or that will succeed better in wet land than the Alder. When once the plants become established, it is astonishing how quickly after being cut down they start again and yield fine poles, that is, if protected from the attacks of game, such as hares and rabbits, which are fond of nibbling the young shoots as they start into growth. Next to Alders in point of profit and suitability for wet lands stands the Ash, the wood of which always meets with a quick and ready sale. Elm, too, does well where it can get plenty of moisture at the roots, and it is only when so treated that it keeps healthy for any length of time, or reaches a good size; when sound and large, Elm trees are valuable. By planting the Ash and the Elm at wide intervals, the Alder will be found to do well between them, and come in as a sort of undergrowth, an arrangement by which there would not be many years to wait before the ground would yield some return. Evergreen Oaks interspersed here and there, and some of the Coniferæ, such as the Austrian Pine, *Pinus Laricio*, and *Abies Douglasi*, would also have a good effect, but if the land be very wet, it may be necessary to plant these on raised mounds.—D.

Rabbits destroying trees.—In the gardens here, Laburnums if not protected would be very much damaged every year by hares and rabbits. In the extensive plantations, open to the surrounding country, we have every winter to protect a great number of trees and shrubs, and our plan is to tie dry Rushes round the lower portion of the stem, so that no part of the bark can be seen. In the spring the covering of Rushes has to be removed. If the above precautions were not taken, many of the better deciduous trees and shrubs could not be planted.—*LOUIS KROPATSCHE, Laxenburg.*

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

TOO MANY VARIETIES OF PEACHES.

WHEN the highly interesting Apple and Pear question has been settled to the editor's satisfaction, I am earnestly hoping he will take in hand the Peach and Nectarine. In this case the most difficult work would consist in the correction of names, as it is more than probable there is no family of fruit trees the varieties of which are so little known as Peaches and Nectarines. The next point, the separation of the inferior or second rate from the good varieties, will be less difficult than it would have been twenty or thirty years ago. When orchard houses were in their infancy, the sorts grown on open walls could be counted on the fingers, and half a dozen varieties formed the stock in nine-tenths of the forcing houses throughout the kingdom. At that time, owing to the uncertainty of our climate, the old method of hard pruning and the neglect of the roots, Peach growers thought themselves fairly fortunate if they obtained a full crop of fruit every third year. At the present time the man who lifts and relays the roots biennially, who trains on the extension principle, and never allows insects to check his first growths, is as certain of a full crop every season as he is of Apples and bush fruits, and more so than he is of choice Pears. The orchard house has become a monster institution, while Peaches of every kind, from the early Clingstone down to the latest Admirable, are now ripened on open walls. An undertaking of this kind will take up a great deal of time, but lacking a living or working Royal Horticultural Society, the labour must fall upon private enterprise. In order to facilitate and simplify this, every head gardener could teach his young beginners to examine for themselves the trees under their charge, and if, by the foliage and flowers, they do not find out the correct names, in nine cases out of ten they will be able to detect false nomenclature. A lecture extending over half an hour in an orchard house, or in front of a well-furnished Peach wall, when the trees are in flower in March, would show that they are divided into two classes by their flowers, which may be large and handsome, or small and insignificant. A repetition at any time after the foliage is fully developed would divide them into three classes by their leaves, viz. :—

1. Those serrated on the edge without glands.
2. Those crenated with round glands.
3. Those crenated with kidney-shaped glands.

Still later in the season Peaches and Nectarines may, of course, be again divided into two classes—the first and best being melting or freestone, the second and most inferior, adhesive or clingstone.

Assuming that a dozen trees under distinct names have been bought in from a nurseryman who is dependent upon private gardeners for his supply of buds, and the amateur wishes to prove to his own satisfaction that the nomenclature is correct, he divides a page of his fruit tree book into four columns; in the first he enters the numbers, in the second the size of the flowers when they open, in the third the

formation of the leaves, in the fourth the assumed name, thus :—

	Flowers.	Leaves.	Name.
No. 1	small	glandless	Royal George.
" 2	small	round glands	Royal George.
" 3	large	round glands	A Bec.

Numbers 1 and 3 at the end of the first fruiting season he finds correct; but No. 2, supposed to be a duplicate of the first, is wrong, as it has round glands; whereas the true Georges have no glands at all. "What is it?" is the next question. Having round glands, it may be a Mignonne. So far good; but when he looks into the second column, the note says: "flowers small," and this never-failing guide shows that one of the Galandes must have been substituted, as all the Mignonnes have large flowers. By making note of flowers, leaves, and fruit, anyone having a good work on Peaches to refer to may generally name a variety—certainly he can detect the nurseryman's mistakes; but until this question is well handled and Peach growers begin to go into this matter for themselves, the trade will obtain stock under false names, and our nomenclature will remain in a state of confusion. W. C.

STANDARD PEARS FOR BRITAIN.

HAVING made Mr. George Bunyard responsible for the sixth standard Pear, he declares for Emile d'Heyst, and until we have found a better substitute, there it must stay. The fact that it does well in Scotland is greatly in its favour. We do not make a point of sequence. The list now stands thus :—

1. JARGONELLE.
2. MARIE LOUISE.
3. DOYENNE DU COMICE.
4. WINTER NELIS.
5. JOSEPHINE DE MALINES.
6. EMILE D'HEYST.

We dissent wholly from our friends who say that a large number of varieties is necessary. This is the root of the evil. We have now a great number of kinds, and no good fruit in market or private garden—no fruit after the fulness of autumn. Even our markets are supplied in autumn from France. We hold, that with a dozen Pears understood and well grown, we may look forward to well-supplied markets and a good store of Pears in the private garden.

But the gardener must know his Pears by heart and grow each as it should be. What is not worth knowing is not worth growing. Moving about, a stranger among a museum of trees, and sending a fruit now and then to be named is not the true way. The delicious Winter Nelis, for example, should not be seen only as a single tree. A fruit of such refined and constant quality should be grown on different exposures, so as to secure a succession or make more sure of a crop. The fact that some of our fruit-growing readers have stated in THE GARDEN that the fruit from standard trees has often a better flavour than that from wall trees ought to influence us. Better such a Pear well treated than a dozen ripening at the same season in the present haphazard way. The nurserymen and gardeners of England would do well to grub up and burn nine out of ten of the Pears they now have. We have been waiting ten years for

fruit of Beurré Rance that is worth eating. Pears that are only good in a good year are best rooted out. The good year never comes to some. What is No. 7 to be? Our list is not among the laws that change not. We shall at any time exclude a variety, but only in favour of a better kind. W. R.

STOVE AND GREENHOUSE.

T. BAINES.

SCREW PINES.

PANDANADS, or Screw Pines, are so named from the screw-like arrangement of the leaves round the stems. Some of the species attain the dimensions of small trees more or less branched, and they all come from hot countries, the greater portion being indigenous to the islands of the Indian Archipelago. Though, as already said, some of the species grow to a large size, there are several that are not too large for cultivation in an ordinary plant stove, even when big enough to show their true character. Several of the smaller-growing species have been much used lately in a small state for table decoration and for standing about living rooms, where they do very well during the summer months, when the heat is sufficient to keep them in good condition.

Early in spring is a good time to propagate Pandanads. After the plants have attained a moderate size they usually produce suckers freely at the base and up the stems. The suckers furnish material for propagation, and they strike readily when slipped off or severed with a knife so as to secure the firm woody portion at the base. Remove the lower leaves and put the suckers singly in pots large enough to hold them. Drain the pots well and fill them with a mixture of half loam and sand, giving no more water than is necessary to keep the soil slightly moist until roots are formed, as previous to this if much water is used it will cause decay. If the suckers can have a bottom heat of 80° or 85° they will more quickly become established. In the case of the variegated kinds, *P. javanicus variegatus* and *P. Veitchii*, it is necessary to be careful in selecting for propagation suckers that have a sufficient amount of white in their leaves, as if the green-leaved suckers that are often produced are struck, they generally remain deficient in colour when the plants get larger. It is better not to confine the suckers in any way whilst they are striking. When fairly rooted put them close to the glass. It is necessary to keep these Pandanads in all their stages where they will receive an abundance of light, as without this the leaves get drawn and weak.

As the days lengthen give more heat; 70° in the night, with 10° or 15° more by day, will not be too much. When the roots begin to move freely, give more water, and towards midsummer the plants should have larger pots, varying the size according to the character of the species. Little shade is required by the green-leaved kinds further than may be found necessary to keep the leaves from getting scorched. The variegated sorts need shading when the weather is bright, as if fully exposed to the sun the leaves get discoloured. Keep the atmosphere of the house moderately moist, and syringe overhead freely once a day, being careful that the water gets to the under sides of the leaves as well as the upper surface, or the plants are likely to become affected with red spider. As much air as suits the majority of warm stove subjects will suffice for all the species of *Pandanus* during summer. In au-

turn it may be given more freely, and shading should be discontinued. A night temperature of 60° or 65° is about the right heat to maintain in winter, during which time the soil must be kept drier, especially if the temperature is anything below the lowest point above-named. Though all the species are free rooters and in no way delicate, still the soil must not be too wet in the resting season. Early in spring give larger pots, varying the size according to the purposes for which the plants are required. For table or room decoration, 6-inch or 7-inch pots are large enough, as much may be done to assist the plants by giving manure water during the summer. If medium or large-sized specimens are wanted, the plants may have pots 2 inches or 3 inches larger than those they have hitherto occupied. By autumn those that are required for use in a small state will be large enough, but they should not be moved out of heat until the ensuing spring after the weather has got warm, and, as in all cases with stove plants that are subjected to a lower temperature than is good for them, they should be kept away from open windows or anywhere where they will be exposed to a draught. Less water should also be given to them. The plants that are to be grown on to specimen size should have additional pot room as the roots seem to need it. From the time the suckers receive their first shift up to the plants attaining full size, the soil should consist of good mellow loam, with as much sand mixed with it as will keep it sweet and porous. The pots must likewise be well drained, for though these *Pandanads* are free growers, their roots are of a fleshy nature, such as will not bear any stagnant moisture about them. Amongst the smaller-growing species that are best adapted for table decoration, the following may be named:—

P. GRAMINIFOLIUS.—A slender-leaved, elegant-habited kind with dark green, arched leaves.

P. VANDERMEERSCHI.—One of the best of the green-leaved species. In a young state it is particularly handsome.

P. JAVANICUS VARIEGATUS and *P. VEITCHI* are both beautiful variegated sorts, the greater portion of the leaf-surface being creamy white.

P. ELEGANTISSIMUS, *P. REFLEXUS*, and *P. UTILIS* are the best of the larger growers adapted for pot culture.

Sarracenias.—We have just shaken out all our *Sarracenias*, re-potted them in fresh soil, and removed them into warmer and moister quarters. After some years' experience in the cultivation of a collection of the best *Sarracenias*, I am convinced that early potting, a thorough overhauling, and almost stove treatment during the growing season result in a crop of good, well-coloured pitchers. As some cultivators fail with *Sarracenias*, possibly the details of our treatment may be of some help. The plants are grown in pans about half as deep as they are wide, and these are a quarter filled with drainage. For soil, lumps of peat about the size of hens' eggs, some Sphagnum, and pieces of charcoal, with a sprinkling of coarse sand, are mixed together. The plants are shaken free from all old soil, and the base of the rhizome, which is usually dead, is cut away. If the rhizome has branched into several strong leads, it should be divided; if into weak leads, some of them should be cut away. All old, worn-out leaves and pitchers may be removed, but at least one leaf should be left on the end of each lead. In potting, the rhizomes are just buried beneath the surface of the soil, and the roots are spread out as near the surface as possible; tufts of Moss are placed alternately with the lumps of peat on the surface, partly to give a neat appearance, and partly because the Moss holds the water longer than soil would, and this is good for the new roots. The plants are then placed in a house where the temperature at night does not fall below 60°,

and rises under the influence of sunlight to 80°, or even higher. The soil is watered daily, but no saucers are used to hold water about the bottom of the pans. If too many flower-buds appear, they are reduced, a big display of flowers being produced at the expense of the pitchers. When growth is completed more air is given, but no shading is ever used. Under this treatment we have grown good specimen plants of *S. Drummondii*, *S. flava*, *S. variegata*, *S. ornata*, *S. purpurea*, *S. psittacina*, *S. Stevensii*, *S. Patersonii*, and *S. Moorei*. *Darlingtonia californica* thrives when grown with and treated the same as the *Sarracenias*.—W. W.

CINERARIAS.

THE improvement in the flowers of *Cinerarias* has been very marked during the last twenty-five years, as they are now much larger, the petals broader, and the form more symmetrical. While there has been this improvement in form, it is somewhat remarkable that there has not been any new colours of a definite character added. This is the more noteworthy because in nearly every other florist flower great advances have been made in this direction. With respect to the increase in the size of the flowers, I do not find it to be any gain. What is gained in size is lost in symmetry, and added to this is a loose and ungainly plant that no amount of good cultivation seems to improve. I am alluding to the Continental strains of this flower which are sent to this country as superior to any other strain. For three years in succession I grew a strain obtained in this way, and although plenty of the plants produced flowers 3½ inches and more across, the petals were so loosely arranged that it was difficult to find a well-shaped flower, and besides this there was a great want of variety in colour.

All points considered, what is known as the Covent Garden strain is the most useful to grow for conservatory decoration. The plants are of good habit and they throw up large heads of perfectly formed flowers. The variety of colours is also great, and a large and well-proportioned head of flowers can be obtained from a rather small plant. The average English strain produces much larger flowers than the Covent Garden, but in the hands of a good many cultivators the plants are made through rich feeding to produce such large leaves that the effect of a nice head of flowers is spoilt owing to the larger proportion of foliage. There is another part of the management of the present time which tells against the possibility of securing shapely plants. I allude to the too general practice of getting the plants in flower early in the season, which necessitates the stock being brought on in a closer and warmer temperature than is good for them. The middle of March to the middle of April is the season when the plants should be at their best. In former times the bulk of the plants did not go out of flower until it was quite safe to turn them out of doors in some sheltered corner to ripen their seed, but the practice of modern cultivators has altered a good deal in regard to the time the plants are had in bloom, and this has a tendency to lower the merits of the flowers. Next to this, as I have incidentally remarked, rich feeding is decidedly injurious, especially during the early stages of growth. Stimulants of any kind, until the plants have been put into the pots in which they are to flower, should not be given. As a matter of fact, these pots ought to be full of roots and the flower-stem rising before any liquid is given. As regards soil, there is nothing better for them than three parts good mellow loam, one part leaf-soil, and a good sprinkle of coarse sand. In a compost like this the plants will produce good heads of flowers if they are not subjected to more heat than is good for them. The cold pit is the proper place for *Cinerarias*, while frost can be kept from them by the use of mats, as they like to be near the glass and on a bed of coal ashes. As they are very tender they should be taken to a heated structure when there is danger of severe frost, but not otherwise.

It is hardly necessary to grow named varieties now that such excellent strains are to be had,

as if the seed is obtained from a good source, varieties equal to the named ones may be had. In raising a stock of plants from seed there is a tendency at the present time to sow too early when large plants with good heads of flowers are required. If a few are required to flower early, the seed may be sown about the middle of May, but plants that are required to bloom at their proper season should be obtained from seed sown a month later. J. C. C.

Calliandra Tweedei might be called the Brazilian Bottle-brush tree, as it so much resembles the *Callistemons*, or Australian Bottle-brush. It is now one of the chief objects of interest in the Palm house at Kew, where there is a fine bush of it in flower. Its leaves are like those of *Mimosa* or *Acacia*, and are extremely elegant. The showiest parts of the flowers are the crimson stamens, borne in globular tassels. The tender green of the ferny foliage and the crimson flowers make it a very beautiful shrub. Though as a rule only grown in botanic gardens, it deserves the attention of gardeners at large. It requires a stove, and is usually seen in flower when about 2 feet high.—W. G.

Hechtea argentea.—Very little is seen of any of the *Hechteas*, and this one, though the best of about six species that comprise the genus, is known perhaps least of all. It is a Bromeliaceous plant, as can be seen at a glance, and bears the greatest likeness to *H. Ghiesbreghtii*, but is quite distinct. The leaves are extremely ornamental, not to say beautiful, as they are densely encrusted with silvery scales that give them a curious frosted look, such as we obtain in few other plants. I have never seen the flowers, but they are described in Nicholson's "Dictionary of Gardening" as white, small, in globose clusters. It possibly blooms at very long intervals, but perhaps some of the readers of THE GARDEN could give me information upon this point. It is very certain that such a distinct *Hechtea* should be seen in other places besides Kew Gardens and botanical collections; unfortunately, however, the Bromeliaceous family is in disfavour. It succeeds well in a warm, dry atmosphere, such as succulents delight in, but a greenhouse would most likely suit it, and there is often a little variety wanted here.—X.

Gesnera macrantha.—This *Gesnera* forms a very conspicuous feature in the stove at the present time, by reason of its bright-coloured flowers. It forms rather a stout stem, clothed with bright green leaves, and terminated by a cluster of tubular-shaped blossoms about 3 inches in length, and of a rich vermilion colour. The leaves, stems, and blossoms are thickly covered with hairs. It is a plant very easily cultivated, as some time after flowering the stems die down and the tubers remain dormant till the autumn, when they again start into growth, and, as a rule, flower when from 8 inches to 1 foot high. As the principal growth is made during the winter months, the plants need a light position at that season. *G. cinnabarina* is another beautiful species that may be had in bloom from the end of autumn till the early spring. This is a larger-growing kind than *G. macrantha*, and is, from a foliage point of view, more attractive. It also starts earlier into growth, as the tubers begin to grow before midsummer, when they must be potted, and under favourable conditions will form fine specimens by autumn. One or two things to bear in mind are: The foliage must be protected from the direct rays of the sun; thorough drainage is absolutely necessary; and the plants must not suffer from want of water at the roots, but none must be spilt on the leaves. By starting these and many others of the beautiful garden varieties of *Gesnera* at different times, their flowering season may be spread over a much longer period than would be the case if they were all subjected to exactly the same treatment.—H. P.

Brownea grandiceps.—This, one of the noblest of tropical flowering trees, is at the present time the chief feature in the great Palm house at Kew, where a fine specimen some 20 feet high is in flower. It is to be regretted that the large size to which these beautiful *Brownias* attain before they produce

flowers precludes them from all except the largest conservatories, though even in a small state they are, on account of their handsome pinnate foliage, extremely ornamental, and being evergreen they answer the same purpose as Palms and the usual fine-foliaged stove plants. *B. grandiceps* is the finest of all the cultivated Browneas. It bears its flowers in a huge globular head like a *Rhododendron*. The blossoms are very showy, being of a peculiar shade of orange-red, or, as some would describe it, a salmon-pink, while the numerous gold-tipped protruding stamens add to the beauty of the cluster. The leaves are 2 feet and upwards in length, and consist of from ten to twelve pairs of leaflets. The new leaves are usually produced in a dense mass of several together, and these are extremely beautiful, being, when first unfolded, of a delicate tinge of bronzy green; in fact, the new leaves are as remarkable as the flower clusters. All the Browneas are South American, and this particular one comes from Caraccas, where it is said to be quite a forest tree 60 feet or more high. *B. coccinea* and *Ariza* (called also *principes*) are also represented by large specimens at Kew, the last named, like *grandiceps*, having very handsome foliage.—G.

The white Indian Azalea.—Your beautiful engraving in *THE GARDEN* February 18 (p. 139), of the above in Mr. Dickins' wood at Coolhurst, Sussex, reminds me of some similar specimens I saw a few years ago in the Earl of Wicklow's garden, at Shelton Abbey, where they luxuriate amongst other shrubs on the outlying portions of the lawn and pleasure grounds. Seeing that this Azalea is so lovely as a hardy shrub in England and Ireland when well planted in suitable and sheltered places, it seems a wonder that it should have been comparatively neglected as an open-air shrub, while so much has been made of the *Rhododendron*. I suppose the gorgeous beauty of the Azaleas in pots at our spring exhibitions has rather drawn our thoughts away from their beauties as hardy subjects. At any rate here is an opening for a new departure if some of our trade growers of Azaleas would raise hardy varieties suitable for the open air. So far as beauty goes, nothing can exceed the snowdrift-like loveliness of the old white *A. indica*, but we might obtain hardier varieties of the white just as large, single, and semi-double white forms have already been secured. Shelton Abbey is, as you know, in County Wicklow, rather low-lying, but very sheltered. The Sweet Bays (*Laurus nobilis*) there are very noble, finer than any I have seen elsewhere, and there are other fine trees and shrubs, but nothing in the way of flowering shrubs surpassed the white Indian Azaleas.—F. W. BURRIDGE.

SHORT NOTES.—STOVE AND GREENHOUSE.

Spot on Pelargoniums.—In *THE GARDEN* of Feb. 11 (p. 117) "R. D." speaks of spot on his Pelargoniums, and says: "The practice of placing plants in the open after they are cut down also encourages spot." This is not my experience. I used to have spot every year, but was told by a judge at a flower show not to use leaf-mould with Pelargoniums, as it gave them spot. I never used it since, and consequently never had any more spot.—T. W. BROWNING.

Freesias should be grown by every gardener who requires pure white fragrant flowers in winter and early spring. They have a chasteness and beauty that rival even those of the popular Paper-white Narciss. In the Epsom Nursery seedlings of *F. refracta alba* are blooming, the individual flowers being, on the average, larger than those of the type and more massive. Plants raised from seed bloom in two years, and from first to last give very little trouble as regards culture; only a small degree of fire-heat is necessary.

Tuberous Begonias.—All those who wish to have a display of these plants during the coming season should be up and doing. On a recent visit to Mr. Laing's nursery they were busy pricking out seedlings, which are transferred from the seed pans as soon as they can be seen, small pointed sticks being used for the purpose. The great secret with these plants seems to be to keep them continually moving. Something like 100,000 have already been thus transplanted, and the quantity yet in the seed-pans appears to be innumerable. I also observed that quantities of tubers

of the best kinds had already been potted, and were making nice sturdy plants, from amongst which some striking novelties are expected.—W. H. G.

Thunbergia Harrisii.—This cannot be too highly recommended as a stove climber, its foliage being rich deep green, and its large flowers bright purplish blue on the limb, with a pale yellowish white throat. This is a colour by no means common. I do not remember to have seen this plant brought out as an exhibition subject, but, judging from the large flowers produced on plants in 3-inch pots which I recently noted in Mr. Laing's nursery at Forest Hill, it is likely to be as useful and showy as the *Allamandas*. A coloured plate of it was given in *THE GARDEN*, September 25, 1886, under the name of *T. laurifolia*.—W. H. G.

Fuchsia splendens.—This *Fuchsia* is widely removed from the ordinary garden varieties, yet it is very pretty, and may be had in bloom during the winter and early spring months. It is a free-growing kind with heart-shaped leaves and peculiar flowers, the tube of which is bright crimson tipped with green. To have this variety in bloom at this time of the year it must have the temperature of an intermediate house. Some of the species of *Fuchsia* merit more extended cultivation, for while we are greatly overdone with so-called garden varieties, many of which differ from each other only in name, there are some at least equally as beautiful and quite as distinct that have almost dropped out of cultivation. In proof of which I may mention *F. fulgens* and *corymbiflora*, two large bold-growing species; *F. microphylla* and *thymæfolia*, which in leaf and flower are quite miniature kinds; *F. gracilis*, *serratifolia*, and *pendulæflora*. To these must be added the neat little *F. triphylla*, the blooms of which are freely borne and of a distinct orange-scarlet hue.—H. P.

Impatiens Hawkeri.—I have seen this beautiful Balsam in many gardens during the past season, but I have never seen such fine specimens as those I recently noticed in one of the cool stoves at Burford Lodge, Dorking. The plants are several feet across, and each is upon a single stem, which, however, appears to have been stopped when only a few inches high, causing it to break. The lateral growths have also been repeatedly stopped, so that at the present time the plants are some 2 feet or 3 feet high, symmetrical without training, well furnished with rich deep green foliage and a mass of large, flat, dazzling flowers, which are of a rich deep carmine suffused with a tinge of violet or blue; the eye small and white. In spite of what is sometimes said, this plant is equally as free-flowering as its near ally, *I. Sultani*; whilst its flowers are more than double the size of those of that kind, thicker in texture, and very much richer in colour. This is, I believe, one of Mr. Bull's introductions from the South Sea Islands, and is undoubtedly the finest winter-flowering soft-wooded plant we have in cultivation.—W. H. G.

Three good winter-flowering Begonias.—In the stove at Burford Lodge, Dorking, I recently noticed two species that are largely used, and are just now extremely gay. They are *B. nitida* and *B. Roezli*. The first-named is an erect-growing plant with smooth, bright shining green leaves and dense panicles of pure white flowers, that are borne upon long stems, so that they are available for cutting. Although *Begonia* flowers do not last long in a cut state, the quantities of bloom the plants produce enable many gatherings to be made. This plant is an old inhabitant of our gardens, and used to be widely cultivated some few years ago. *B. Roezli* appears to be free-flowering, bearing its reddish scarlet blooms on dense panicles. These plants are easily and quickly grown, and should receive the attention of those having a stove or intermediate house, as there are dozens of handsome kinds which produce their flowers during the winter months. Some few years ago I had a house entirely devoted to these winter-flowering species, and during the winter it was extremely beautiful. Another kind, which was recently blooming in Mr. Laing's nursery at Forest Hill, is well worthy of more extended cultivation. It is named *Begonia semperflorens gigantea rosea*, and although not a giant in growth,

its bright rosy red flowers are considerably larger than those of the typical *sempperflorens*.—W. H. G.

WORK IN PLANT HOUSES.

WINTER-BLOOMING PLANTS.—It is necessary to get the cuttings struck of late autumn and winter-flowering plants early enough to allow of the growth becoming well matured before the summer is too far advanced to admit of the wood attaining the requisite firmness, for the amount of bloom that will be forthcoming depends more on this than upon the mere size of the plants. Cuttings of such things as *Aphelandras*, *Eranthemum pulchellum*, *Plumbago rosea*, *Sericographis Ghiesbreghtii*, *Thyracanthus rutilans*, and others of a like character will now be plentiful on plants that, after blooming, were kept in heat. The plants named all root freely, and do not suffer from a little disturbance. This being the case, the method of putting a number of cuttings together will answer as well as giving each cutting a separate pot. Choose stout, sturdy shoots in preference to those that are long-jointed, for though plants struck from the latter will ultimately gain strength if carefully treated, still strong cuttings require less nursing and give better results. In striking plants that are more or less soft-wooded the cuttings should not be kept closer than is necessary to prevent the leaves flagging, for if the atmosphere is too damp and hot they become drawn before they are sufficiently rooted. A temperature of 70° is sufficient.

EUPHORBIA JACQUINLEFLORA.—To ensure success in the propagation of this plant it is requisite to see that the cuttings are in proper condition. When the shoots are long and severed in the ordinary way a large number will damp off; whereas if they are taken off with a heel there will be few failures. I find the necessity for repeatedly pointing this out from the complaints that are so often made about this *Euphorbia* being difficult to strike.

SCUTELLARIA MOCCINIANA.—This plant blooms so freely and continuously that it should be grown in quantity. Its bright flowers are equally effective in a cut state as they are on the plant, and not the least of its merits is that it will bloom in either a large or a small size. All that it requires in order to maintain it constantly in flower is heat enough to keep the growth moving, as bloom is produced at almost every point of the young wood. Plants that are struck early, and have additional pot-room given them as required through the summer, with attention in stopping the shoots rather than encouraging early blooming, will amply repay the care given them.

ACHIMENES.—Where *Achimenes* are wanted in flower as long as possible, the tubers should be started at different times, for though something may be done to retard the blooming of a portion of the stock by stopping the shoots during the early stages of growth, this does not answer so well as when the plants are started in about three sets at intervals of three weeks or a month. The first roots should be put in now, and supposing them to have been wintered in dry soil in a temperature sufficient to keep them in a healthy state, they should be put in 1 inch or 2 inches apart in ordinary large-sized seed-pans, drained and filled with finely-sifted loam, to which has been added some leaf mould and enough sand to make the whole light and open. This condition is necessary, as when the small plants come to be potted off the tubers are liable to break in removal if the material they are started in is at all inclined to be heavy. Cover the tubers with an inch of the soil, and see that the compost is not too wet or they will be likely to perish. Stand them in a temperature of 65° by night; as soon as the young shoots break through the soil more water may be given, and the pans should be put near the glass where there is plenty of light so as to keep the growth short and strong. When the first leaves of *Achimenes* that are formed are thin and wanting in substance they usually turn yellow and die off before the flowering is over, in which condition the plants have a poor appearance.

GLORIOSAS.—Bulbs of these handsome climbers that have been at rest through the winter should

now be started. If small, such as raised from seed sown last spring, several may be grown together. In the case of old bulbs that have attained something like their full size, one in a pot will be enough. It is better to start them in 5-inch or 6-inch pots, and after some growth has been made move them into those they are intended to bloom in. A mixture of about two-thirds turfy loam to one of peat with some sand answers for them. In potting do not bury the bulbs too deeply. A temperature from 55° to 60° will be better to start the roots in than subjecting them to more heat. When the shoots appear above the surface let them have plenty of light and keep the soil moderately moist, and as soon as the latter is fairly filled with roots, move into 12-inch or 15-inch pots, putting sticks or fixing wire trellises to train the shoots round.

TEMPERATURE.—It is now time to give more heat to all kinds of stove plants, including the intermediate section. *Ixoras*, *Dipladenias*, and others that like a high temperature, and that have been kept for the last three months at near 70° in the night, should now have 5° more, with a corresponding rise in the daytime. The intermediate kinds that have been kept considerably cooler should have a proportionate increase.

TUBEROUS BEGONIAS.—Tubers that have been at rest through the winter may now be potted and placed in a temperature of 45° or 50°. This will generally be better than subjecting them to more heat, which causes the shoots to get more or less drawn. Small or medium-sized roots, such as were raised from seed last year, may have pots about 2 inches larger than those they occupied last summer. Large-sized tubers may be at first put in pots only a little larger than will hold them, moving them into larger ones later on. If the plants are to be grown in loam it should be of good quality, with plenty of vegetable matter in it; some sifted leaf-mould, and rotten manure, with enough sand to keep the whole porous, must be added. Where peat is used no leaf-mould will be necessary. Drain the pots well, and do not put the tubers in too deeply; they are best with their tops just showing above the surface. Another portion of roots may be potted in the course of two or three weeks, and placed in ordinary greenhouse warmth. In all cases, as soon as the growth begins to move, stand the plants where they will get plenty of light, or the stems will become drawn up before the end of the season.

SEEDLING TUBEROUS BEGONIAS.—As soon as the plants raised from seed sown soon after the turn of the year are fairly above the soil, they should be pricked off in shallow boxes, drained, and filled with material similar to that in which the seed was sown. They should be put in an inch apart. There are no plants with which I am acquainted that require moving from the seed-pan in so small a state as this section of Begonias. The first roots they make strike straight down, and if the seedlings remain undisturbed for any length of time the roots get injured in pricking off the young plants. It is equally necessary to give all the light possible.

SINGLE CHINESE PRIMULAS.—Seed may be sown now; the plants raised thus early will come in useful during the latter part of autumn, and, moreover, will have time to gain size and strength, such as is impossible with stock that is raised late. Drain a seed-pan, and fill it with a compost consisting of good loam passed through a fine sieve, some leaf-mould also sifted, and sand enough to make the whole quite light. Press the surface smooth and give it a gentle watering. Allow a day for the water to pass off, and then scatter the seeds thinly over the surface, press them gently, but do not cover them further than by putting a piece of thin white paper over the top of the pan. In most cases this will keep enough moisture in the soil to enable the seed to vegetate, and in this way there will be no necessity for watering before the plants appear.

SEMI-DOUBLE CHINESE PRIMULAS.—Some of the leading seed growers have now so far worked up this section of Primulas, that they may be relied on to come true to their character from seed. The advantage attached to these semi-double varieties is,

that whilst being more easily grown than the double sorts, the flowers are quite as enduring.

DOUBLE CHINESE PRIMULAS.—These may be propagated at any time when the plants are large enough to divide, but it is well to get enough stock established before the hot weather comes on, as the crowns do not like to be kept too close, and when the propagation is deferred until it is necessary to give much air, it is difficult to prevent the leaves flagging whilst roots are being formed. The crowns or suckers are best put singly in small pots. The soil should contain a good portion of sand. When used it should be moderately moist, but not wet, and no more water should be given than can be avoided until roots are present. Before putting in the suckers, allow them to remain for an hour or two on the potting bench, so that the bases may have time to dry up. Shade must be given whenever the sun shines on them.

SAVING SEED OF CHINESE PRIMULAS.—The only means of improving the strain or of keeping a good strain up to the mark is by selecting the plants from year to year that produce the best flowers, saving seed from these alone. It is best to save seed from plants that flower late in spring and that are not then exhausted with having bloomed during winter. Any seedlings that appear with exceptionally fine flowers, or that show some superiority in habit, should have all the blooms pinched out now. If the plants are well supplied with manure water and placed where they will get plenty of light, they will give a full crop of flowers later on that will produce seed plentifully. T. B.

PROPAGATING.

CLEMATIS INDIVISA.—This Clematis may either be increased by cuttings or by grafting on the roots of the common Traveller's Joy. The best cuttings are furnished by the young growing shoots taken just as they have lost their very succulent character, and having been cut off at a joint, dibbled into pots of sandy soil. In selecting the cuttings, the more vigorous shoots should not be chosen, but rather the weaker short-jointed ones, such, for instance, as those often pushed out from the main stem or principal branches of an established plant, especially if the top has received any check. A length of about 3 inches or 4 inches is a very suitable one for the cuttings, which should have the bottom leaves removed before being dibbled in. The cuttings must then be kept close either by being put in a propagating case or covered by a bell-glass. If the atmosphere of the case is very much overcharged with moisture, the cuttings are better covered with a bell-glass, as the foliage is liable to be attacked by mildew, which is difficult to eradicate. For this reason they must not be kept in too warm a temperature. When grafting is the plan adopted, a shoot, such as is recommended for a cutting, should be chosen, but if that is not obtainable, a single joint may be taken. In either case the root chosen should be at least as thick as the shoot that is to be grafted on it, and, if possible, should have a few fibres attached to it. All that is necessary then is to fashion the scion in the form of a wedge, and having split the stock to the extent required, insert the scion in its place, and tie securely with soft grafting cotton, very good substitutes for which are the coarser kinds of darning cotton. When this is done, the grafted plant must be potted in a small pot, and at such a depth that the point of union is completely covered. By this means no grafting wax is rendered necessary, as the air is excluded by the soil that surrounds the mutilated portion. Grafted plants, as a rule, make more rapid progress during their earlier stages than do those raised from cuttings, and as they push forth roots of their own after a time, they have all the advantages of plants that are not grafted. Where it is desired to propagate but a very few, all the different appliances can mostly be dispensed with, for if the plant is trained to the roof of a greenhouse, it will be generally possible to detach a few shoots and layer them in pots on the stage of the structure in which they are growing. The pot pre-

pared for a layer may be drained and partially filled with soil, then the shoot, tongued after the manner of a Carnation, may be brought into its place and secured by means of a peg or two. The remaining soil may then be put in, covering the part from whence the roots will be produced. Attention should be paid to having the buried portion of the shoot situated at a joint.

ASPARAGUS.—Some of the stove and greenhouse kinds of this are extremely popular, so that in many cases it is necessary to increase them as rapidly as possible. Of the different varieties, *A. tenuissimus* and *plumosus* can be readily propagated by means of cuttings, which if taken now and formed of the young feathery shoots (not the stout brittle ones just as they come up from the base) strike quickly if plunged in a little bottom-heat in the stove. A very good plan is to fill some 2½-inch pots with light soil, consisting of loam, peat, or leaf-mould and sand in equal proportions. Four cuttings may then be dibbled around the edge of each pot, and when rooted it will not be necessary to disturb them, but merely to shift them into a larger size, in which they quickly form effective little plants. The cuttings strike quickly if they are kept in a close case till rooted. Another variety which is in great demand will not lend itself to this mode of increase, but must either be propagated by seeds, which are sometimes obtainable, or by division of the roots. I refer to the variety known as *plumosus nanus*, though in reality when once established it increases in height at a more rapid rate than that which is regarded as the typical *A. plumosus*. In dividing a plant it is necessary to remove all the soil from the roots to find out the origin of the shoots, as they seldom come up straight from the crown. If this precaution is not taken, some of the shoots without their attendant roots are apt to be cut away. By far the better way to remove the soil is to wash it from the roots either by holding the ball of earth under a tap, or soaking it in a tub or pail of water. With a sharp knife division can be readily effected, when the plants must be repotted into whatever sized pots may be necessary. If kept rather close for a fortnight or so the young plants quickly recover from their check. The pretty, but seldom seen *A. decumbens* may also be increased by division. Where seeds of any are obtainable, they may be cleaned from the pulp that surrounds them and sown at once. As a rule, most of them can be depended upon to grow.

CROTONS.—Where it is desired to make the most of the growing season, the tops of any Crotons that have grown too leggy may be taken off and put in as cuttings. A very good plan is to insert them in single pots, as when struck they can then be shifted on without disturbing the roots. A compost consisting of equal parts of peat, loam, and sand will suit the cuttings perfectly. If the cuttings are plunged in a gentle bottom-heat they soon root, when they must as quickly as possible be inured to the ordinary atmosphere of the stove, as if kept close for any length of time after they are rooted, the growing points are apt to become drawn. The cuttings should be sponged before they are inserted, as should any thrips be present they will increase rapidly in the confined atmosphere and disfigure the leaves. As the merit of a Croton consists in the foliage being retained close to the pot, no more leaves should be removed than absolutely necessary, and when plunged in the case care should be taken that they are not overcrowded, as if arranged too thickly a good many leaves are liable to drop. No time should be lost in putting them in after they are removed from the parent plant, as if allowed to flag many of the leaves will turn yellow and decay. T.

Austrian Hellebores.—I got 500 nice young, healthy clumps of Austrian *Helleborus niger* from Stienpock; but Walter Ware, of Bath, declares that they are no good, as they will not grow with him at Bath. Even seedlings (native seed), he says, fail after the second year. If he got his imported stuff in autumn it might make all the difference, as now is the time to plant or divide these flowers.—F. W. BURBIDGE.

CLEMATIS MISS BATEMAN.

THE beauty of this, one of the prettiest of hardy climbers, is well shown in the engraving we give, which is from a photograph of a plant on the porch of a cottage in the grounds of Mr. W. H. Tillett at Sprowston, near Norwich. It is one of the spring-flowering varieties, blooming at the end of May and in June. Its flowers are large and of a good white, with stamens of a reddish plum colour, the contrast being very pleasing. There is a pale green bar down the centre of each petal, but it is almost invisible, and in no way detracts from the charm of the flowers. For such a situation as that in which it is shown in our engraving, it is one of the most attractive of plants.



Clematis Miss Bateman over porch. Engraved for THE GARDEN.

FLOWER GARDEN.

CHARACTERS OF CHRISTMAS ROSES.

IN distinguishing the different varieties of *Helleborus niger*, we must, I imagine, begin with the leaves, seeing that they are present all the year round, and so at all times determinable. Of the leaves, it is easy to distinguish three main groups, and to these groups, as I at present believe, all the widely different forms and phases of *H. niger* as a species may be referred with an exactness more or less definite. These groups are:—

1.—*H. NIGER* type, having short-stalked leaves with five to nine lobes, each lobe or leaflet being

These three groups are quite broadly defined and instantly recognisable by any ordinary observer who may see the plants side by side at any time in the year.

We next come to the floral characters, which are also well marked in their way; but I would caution anyone against attempting to name varieties of Christmas Roses from cut specimens only, even when leaves accompany the blooms. This season, for example, I have had many boxes of flowers from all parts of England and Ireland, and in several cases the flowers were tied up with leaves, which I at once saw did not belong to them. Flowers of *H. altifolius* with leaves of *H. niger* came to hand in two or three cases, and on my writing to ask particulars, I was told that the owners did not like to cut the leaves of the large-flowered kind, as they thought the smaller leaves would do as well. Anyone, however, who has once seen plants of the above three typical leaf groups will never be at a loss in recognising them.

The flowers of all the varieties of Christmas Roses may be very conveniently and naturally arranged into three sections under the above leaf groups. Thus there are (1) deep-cupped flowers, (2) shallow, saucer-shaped flowers, and (3) starry or narrow-sepal flowers. We will take them seriatim.

Sub-division 1.—Flowers having very broadly imbricated sepals, rounded at their points, and when at their best forming deep, shapely cup-like flowers.

Sub-division 2.—Flowers like the last, having broadly imbricated sepals rounded at their points, and when at their best bearing shallow or saucer-like flowers.

Sub-division 3.—Flowers having sepals narrow at the base and pointed at their apices, not imbricate, and when at their best bearing open stellate or star-shaped blooms.

Of course, I know that all kinds of plant classification are arbitrary, and that rules that are very nice and satisfactory on paper break down utterly in the garden. To some extent this will be so in the case of Christmas Roses now that cross-bred (see p. 121) varieties are being raised in quantity. Still, generally speaking, the above plan of grouping Christmas Roses will be found simple and useful by those who have rich and full collections of these flowers.

Now we come to the minor characters of the flowers, such as size and colour, both to some extent variable under cultural conditions apart altogether from hybridisation. In a word, any botanical observations made in Italy, Austria, or Germany, where these plants are wild and have existed under the same or similar conditions for ages, will have to be modified or varied to an enormous extent under cultivation. So, on the other hand, mere garden observers are apt to be led away from the natural facts when they argue only from the cultural point of view. We must look at the plants from both sides of the question—that is, from the natural or botanical side, and from the artificial or gardener's side as well. Now, at p. 120, Mr. Archer-Hind wishes me to reconsider the question of "pink stigmas" as a character (1) of *H. altifolius* (= *maximus*); (2) of varieties reared from seeds of *H. altifolius*, or from seeds of other varieties fertilised by its pollen. Since I last wrote I have seen some hundreds of Austrian varieties, and they vary enormously in size and in habit, and the stigmata especially so, viz., from pure white through pale green to flesh, rose, pink, while some are as deeply coloured as are those of *H. altifolius* at its best, that is, nearly blood-coloured. But this is not all, for this year we have had St. Brigid's pure white, pale-stemmed variety with

Destroying wireworms.—Will any reader of THE GARDEN advise as to the destruction of wireworms, which are very troublesome among our forced Strawberries, &c.? I have stacked some turf which has been exposed to the weather since last October in a single layer, and on breaking it up for potting I find that wireworms are present.—H. L.

Leaves as a protection.—The value of leaves as a protection is well shown on the Winter Aconites here. Large masses of these are growing under a clump of Beech trees, the leaves of which have been allowed to remain where they fell, with the result that the Aconites protected with 2 inches or 3 inches of them have grown to quite treble the height of those that are without this protection; the stems are also stout and strong and do not look drawn. This extra top-dressing must have a beneficial effect on the roots. Under the same trees are a few plants of *Cyclamen hederifolium* which have made fine growth, promising well for a good show of bloom next autumn.—JOHN C. TALLACK, *Livermere Park*.

obovate or rhomboidal in form, broad in proportion to its length, and of a medium green colour; the margins more or less coarsely serrated; the leaves and flower-stalks more or less dotted with red.

2.—*H. NIGER* "ST. BRIGID" type, having long-stalked leaves of seven to nine lobes, each lobe or leaflet being oblong-lanceolate in form, not so flat as in *H. niger*, and very long in proportion to their breadth. The margins are but slightly serrate, and the whole leaf is of an apple-green tint, much paler than in *H. niger*. Leaf-stalks pale apple-green, not dotted with red.

3.—*H. NIGER* *ALTIFOLIUS* type, having very large long-stalked leaves of seven to nine, or even eleven lobes. Leaflets generally rhomboidal in outline and roughly saw-edged, broad in proportion to their length. The whole leaf is of a very dark sap-green colour, and the leaf and flower-stalks are alike very heavily dotted or stained with red.

"pink stigmas," and *H. altifolius* with pale green stigmas without a trace of red colouring whatever. The facts of the case seem to show that the distribution of red colouring in the flowers of Christmas Roses is chemical, and not dependent on botanical affinities or on geographical distribution, as Mr. Archer-Hind is anxious to infer. When we find such a flux of red colouring diffusing itself through the stems, leaves, and flowers as it generally does in *H. altifolius*, we naturally look out for and expect to find pink stigmata in the flower, but, as I have said, such is not invariably the case, and Mr. Archer-Hind's argument is so far quite insufficient to satisfy me in this matter. Red colouring in Christmas Roses, no matter where seen, is an indefinite quantity, and it will be found a shifting index in these flowers, just as it is in seedling Primroses and in *Odontoglossum Alexandræ*, the flowers and leaves of which vary in rosy tinting from year to year. We all remember the arguments employed some years ago about the deep rosy flowers of *H. altifolius*, as figured in *THE GARDEN*, and which was generally acknowledged at the time to be a faithful picture of a phase this plant assumes on some soils and in some seasons. Therein lies the gist of this matter, viz., Nature's chemistry varies from year to year. As an experiment bearing on this question, let anyone interested grow two plants of the same variety of Christmas Rose, the one in peat and leaf-mould, and the other in chalky loam or in a limestone soil. The result is astonishing, and nine people out of ten would imagine that plants so grown were two distinct varieties.

As to the best time and manner of re-planting Christmas Roses, I am, for my own soil and climate, perfectly satisfied that now is the time, and the best manner is to wash out the old clumps under a hose-pipe, and to break off the separate crowns with their own young roots, and to re-plant them at once in a sheltered position, and in a bed trenched 3 feet or 4 feet deep. Larger clumps, if carefully moved, may succeed, but such masses are crowded and must be well fed with liquid manure. These clumps are especially liable to suffer from drought after removal. In preparing the beds or borders, I work in a large dressing of manure with the lower spit and a half of the bed, and then throw back the surface soil. Beds or borders so dug and manured do not dry up during the hot summer months, yet in addition the plants are mulched with Cocoa-nut fibre or rotten manure, and watered heavily during the season of leaf-growth with weak manure water to which soot is added. Slugs are banished by dressings of wood ashes, the potash in which disagrees with them. Christmas Roses grow like Cabbages if well treated and moved just as they go out of flower. They will not endure dry, cutting winds, and during dry weather must be well attended to with water.

F. W. BURBIDGE.

Self Carnations.—Mr. Douglas surprises me when he states that the best self border Carnations come from flakes, bizarres, or Picotees. That may be the experience of one who raises chiefly from these forms, but it is not generally correct. My batch of capital self kinds of last year came solely from Susan Askey, white, and a good scarlet from Warwick. These two, only naturally intercrossed, gave only a few flakes or bizarres, relatively the majority being selfs, inclusive of pure and fine whites to violet, purples, and deep crimsons, and I think some few, second to no named variety mentioned by Mr. Douglas. I notice that he has omitted crimson hues in his selection, which is surprising, as there are so effective and beautiful. I layered deep crimson, reddish crimson, purple, plum-

coloured, violet-purple, deep and light scarlet, rose, salmon, and fine-fringed varieties as well as smooth-edged whites, so that there are fully a dozen or so of good selfs all hardy and robust and from seed of self flowers. I have no doubt but that there is much beauty in a house of Carnations and Picotees in pots, but the plants show no variation in habit, and being all tied up erect with rather leggy stems, seem to need the help of some Ferns or other foliage plants as foils. But beautiful as they may be under glass, at least they are very beautiful also out of doors, and if properly tied or supported suffer but little from heavy rains. I found my bed of several hundreds of seedlings last summer to be very attractive.—A. D.

TRANSPLANTING CHRISTMAS ROSES.

In reply to "Hortus," in *THE GARDEN*, February 11 (p. 120), I may say that I do not advocate transplanting Christmas Roses annually, or even biennially. My note was written to combat the idea that they are exceptionally impatient of removal, and to show that no one need fear the result of a properly managed attempt to increase their stock by division.

REMOVAL OF SOIL.—I think the soil immediately round an old-established plant must be impoverished, even if the bed itself is not completely exhausted, and it is far better removed, especially if division is the object of lifting, as one can then see where to use the knife. The contact of fresh and suitable soil with the plant itself also induces the formation of new roots, which would never have started in the old ball—this, at least, is my theory. I attach no further value to washing and soaking, as a means of clearing off the old soil, than the ease with which this operation can be performed without injury to the roots.

TIME OF REMOVAL.—As to this, I should not lift Christmas Roses until the flowers have begun to get discoloured, and even then only in mild weather. The end of January or beginning of February is none too early for *H. n. altifolius* or *maximus*, and I would prefer to err on the side of earliness rather than wait till leaf growth has commenced. These plants, being devoid of quick-growing fibrous roots, would naturally be impatient of such a check as late removal would be likely to give them, while they are so thoroughly hardy, that, once planted, no frost will injure them.

THE QUESTION "SETTLED."—Although "Hortus" may consider this question of injury by removal settled, I am firmly convinced to the contrary, for no one will be content to go on with a small stock of plants who can see his way clear to increase it without risk. Since I wrote my note I have received a communication from a gentleman who probably knows as much about Christmas Roses as anyone in the country, and he thoroughly agrees with what I wrote. Of course no one would expect the same quantity of flowers from a small plant after a year's growth as the parent plant may have produced just before the division took place; but a few blooms of good quality may reasonably be expected, and in the following year a thoroughly good display of flowers. This cannot be called long for a gardener to wait. I quite agree with "Hortus," that the whole stock should not be lifted in any one year. Such a course would, to say the least of it, be somewhat careless, for the unexpected often happens, and I should never move a plant while it was doing well, unless I wished to increase the stock. But the question is: Who does not wish to increase his stock of Christmas Roses now-a-days?—JOHN C. TALLACK, *Livermere Park*.

—"Hortus" advises well in relation to these hardy plants at the close of his remarks at page 121. I have found from considerable experience that the plants are impatient both of transplanting and division; indeed, it seems doubtful whether the plants having once been lifted do not depend for future establishment after re-planting upon new roots chiefly sent down from the base of the crowns. I have just put out a large number of plants, which were lifted into a greenhouse in De-

cember. After being in the house and in a bed of good soil for two months, I find, on getting them out and dividing the crowns, that numerous new roots have been made, but that the old roots seem to have made no move in the way of attachment to the soil. Could the plants have remained where thus temporarily placed, no doubt, with a plentiful supply of water, they would have done admirably until the great heat of summer proved too much for them under glass. The next best thing, of course, was to get them out and re-plant in good, holding soil as quickly as possible, and the mild, open weather has been of great assistance. Still, the real difficulty for only partially established plants is found in the almost assured heat and drought of the summer, and from which the plants seldom recover until after a second year's growth. Thus it is important to have an ample stock, to enable one half to be lifted and divided in alternate years. Probably in Lancashire and further north the average summer temperature is much less trying than in the south.—A. D.

THE MIMULUS.

I HAPPENED to be in a very large garden the other day where an immense number of bedding plants had to be grown, and it was very difficult indeed to find room for them during the spring months. Noticing a large number of what seemed to be pots full of nothing but dry soil, I was informed that they were Mimuluses, brought in to start into growth. Here was valuable space being taken up in a greenhouse with a perfectly hardy plant, besides the time taken up in potting them. Mimuluses require no potting and no glass protection. Of course there may be Mimuluses that are not quite hardy, but the garden varieties are. Does anyone know the parentage of the garden Mimuluses?

I have looked through numerous books published during the last century, and have found many coloured illustrations, but none of them give the species from which the spotted garden varieties have been produced. There is a good illustration in the *Botanical Magazine* (tab. 1501) of *Mimulus luteus* by Sydenham Edwards. The flowers are yellow, with crimson spots in the throat. The editor states—

That although it flowers the same year that it is sown, we should judge from its habit that its duration is more than annual.

It was found in California and at Nootka by a Mr. Archibald Menzies, although it had been previously described by a certain Father Feuillée, who found it in Chili. It was also found by a Russian botanist, Dr. Langsdorff, and described by him under the name of *M. Langsdorffii*.

Coming down to the early volumes of the *Horticultural Cabinet* and *The Florist*, we find the *Mimulus* frequently figured, some of them merely improved forms of *M. luteus*. In the year 1835, David Douglas sent from California a deep rich red species named *M. cardinalis*. We find one figured with a yellow throat and a deep rich margin, evidently a cross between *M. luteus* and *M. cardinalis*. In the volume of *The Florist* for 1850 *Mimulus Prince of Wales* is figured. The flowers are represented as deep yellow with this red margin, but it is broken up into spots and blotches. It is described as "rich yellow margined with crimson-maroon, and having a handsome blotch of the same colour on each petal; throat spotted." At this time the *Mimulus* was a popular flower, as one may easily ascertain by the numerous allusions to it in the gardening press. I can remember the time when almost every garden had a bed of Mimuluses, and none were without plants of them. "A. D." gives some cultural directions at p. 121. I have no doubt that autumn-sown seeds will produce early-flowering plants, but they do best planted out in the open ground in a moist place; in fact, they are semi-aquatic, and if grown in pots should be potted in rich soil and have plenty of water. They can easily be propagated by division if it is thought necessary to grow any particularly good forms that may have been obtained from seeds. If seeds of a good strain are obtained, it is certainly very interesting to

watch the development of the flowers, and the plants will under good cultivation soon cover the surface of the ground where they are planted. They like partial shade, and in some districts probably slight protection in winter.

J. DOUGLAS.

GALANTHUS ELWESI MAJOR.

IN THE GARDEN, April 30, 1887 (p. 393), the Rev. W. Wilks described a Snowdrop from Asia Minor under the specific name of *Galanthus globosus*. In subsequent numbers of THE GARDEN both Mr. Elwes and myself objected to that new specific name being given for the following among other good reasons:—

Firstly, the *G. globosus* of Mr. Wilks had previously been figured and described at t. 6166 of the *Botanical Magazine* under the name of its discoverer, Mr. H. J. Elwes.

Secondly, this particular globose-flowered form or variety had previously been figured and described by myself in THE GARDEN in 1884 (Vol. XXV., p. 371) as *G. Elwesi* major.

Thirdly, the name *globosus* is generally applicable to all the larger phases of Mr. Elwes' Snowdrop from Smyrna—a fact corroborated by Mr. Peter Barr, who used to describe the plant in bud in his trade lists as resembling the flower-buds of the old *Fuchsia globosa*, so that Mr. Wilks's name had not even the merit of originality to recommend it to the notice of those who love and grow these pearly blossoms of the opening year. Had Mr. Wilks pointed out the fact that his Snowdrop was not only nearly related, but actually only a form or phase of *G. Elwesi*, nothing more would have been heard of the matter; but to honour a mere form with a specific title is really too much, and can only lead to confusion in the nomenclature of garden plants. I send herewith flowers of *G. Elwesi* major picked out of a batch of collected roots received from Smyrna direct a few years ago, and I submit that they are what Mr. Wilks describes under the name of *G. globosus*. But in case Mr. Wilks still upholds his views in face of this direct proof to the contrary, then I submit that he ought to refer the question to Sir Joseph Hooker, who originally named, figured, and described *Galanthus Elwesi* in the *Botanical Magazine*, or to the much-respected authority on our garden Snowdrops, Mr. James Allen, of Shepton-Mallet. As you will observe from the specimens sent herewith, the glaucous leaves of this variety of *G. Elwesi* are so broad and substantial, that they suggest the leaves of a *Dafnoidil* rather than of a Snowdrop. As to the scapes of Mr. Wilks' specimens bearing twin flowers, I need scarcely remark that such accidental vagaries are common to all the varieties as grown in our gardens, but that they do not retain that distinction.

F. W. BURBIDGE.

* * * The blooms referred to above were sent to Mr. Wilks, who sends us the following communication:—

My Snowdrops are lying under 4 inches of snow, so I cannot actually compare. On those you have sent me I remark that two of them appear to me to differ from the other five, and if the characteristic green arch on the segments of the tube is fixed, as I suspect it to be, in contradistinction to the square blotches of the others, it deserves at least a varietal designation. The sepals are much withered, but they appear to be longer and less broad than in my flowers, and to present a decidedly more drop shape, less globe shape. In *Elwesi* major is the majority fixed, or is it only the result of large, well-cultivated bulbs of *Elwesi* simple? In other words, would not *E. major* badly grown revert to *Elwesi*?—W. WILKS, *Shirley Vicarage, Croydon*.

P.S.—Since writing to you this morning I have received a note from Mr. Burbidge requesting me to withdraw the name *globosus* from my *Galanthus*. I have not the faintest objection. I only use the name for distinction in my own garden, and if I can from any source obtain *G. Elwesi* major I will grow it beside my *globosus*, and if they are identical I do not mind at all calling my flower (dubbed *globosus* by me in 1882) *G. E. major*, which name Mr. Burbidge gave his flower in 1884. Still, I cannot think it a good name, as typical *Elwesi* often grows even bigger than my so-called *globosus*, which therefore hardly merits the term major. The peculiarity of the flower I call *globosus* is its constant globular form and broad green arch on the segments, and its very great tendency to twin blooms without fasciation. If such variations from the type are constant and fixed, it appears to me that the plant deserves a varietal distinctive name; the specific distinctions between several of the *Galanthus* seem very slight. Pray do not let it appear that I am desirous of imposing on other people a name I invented simply for my own garden use and distinction, albeit that name dates back to 1881 or 1882. I am quite willing to call it major if I can get a bulb of true major and find it identical.

Evergreen Clematis (*C. cirrhosa*).—Though the Clematis is such a popular flower, many lists might be searched for in vain without finding a mention of this, yet, according to London, it was introduced in 1596. It is one of the few species of Clematis that are evergreen in character, and besides this it flowers early in the year. Throughout the dull days of winter the clusters of deep green leaves form an attractive feature, and just now the flowers that are produced from every joint enhance its beauty. They cannot be called showy, being less than an inch in diameter and of a greenish white tint, but the exterior of the bloom is clothed with silky down. It is not a vigorous growing species, and for that reason need not have a large amount of space allotted to it. From the time of year at which it blooms it is evident that a slight protection will be of advantage; indeed, such an amount of shelter as that afforded by a south wall will suit it perfectly, as the early blooms are thereby to a great extent protected from frost.—T.

Carnations from cuttings.—Many who wish to grow and increase their stock of Carnations seem to be of the opinion that they are difficult to increase by cuttings, but this is quite a mistake, as in looking over our stock I find that more than 90 per cent. that were inserted at different times during the autumn are now well rooted. They are ready to go out, but I shall not remove them from where temporary protection can be applied until the March winds are passed. The majority of our plants are under hand-lights or in cold frames, and they are treated similar to yellow *Calceolarias*, and strike as readily. The hand-lights are placed on a hard foundation of coal ashes, and finely sifted soil to the depth of about 3 inches is put in, and on this some coarse silver sand. The cuttings are then dibbled in rows, well watered, and kept close for about three weeks, after which they are freely ventilated on all favourable occasions. If, however, sharp frost prevails they are covered with litter, and as soon as the days begin to lengthen they will begin to root and grow at the tops. If put out in April in good soil the plants will produce some fine flowers and make splendid clumps for next season. Not only may the common border kinds be successfully treated in this way, but even the best varieties, as I put in a good lot of *Souvenir de la Malmaison* cuttings quite late in the autumn and they are now nearly all rooted and fit for potting up. I may remark that the best plants of these I have ever seen were grown in pans about 6 inches deep and were wintered in a cold orchard house; they do not like coddling in warm houses.—J. G. H.

Saxifraga Stracheyi.—In a cool greenhouse some clumps of this are nicely in bloom, and not only are they very distinct from their companions, but possess the advantage of flowering well at this season when just protected from the frost; whereas many hardy subjects that naturally flower

later require far more forcing to bring them into bloom thus early. This *Saxifraga* belongs to the Megasea, or large-leaved section, but it is not so vigorous as some of them, and it blooms while the leaves are as yet only partially expanded. The individual blooms are rather large, and in colour are white with a red centre. It is a native of Northern India, and though perfectly hardy may be made a note of as a variety well worthy of cultivation. When bloomed under glass early in the year the flowers are purer in colour than when exposed to the spring frosts and heavy rains, which greatly mar the beauty of the plant.—T.

FLOWER SEEDS FOR EARLY SOWING.

SWEET PEAS are useful annuals, as the flowers are valuable when cut, and the plants make excellent divisional lines or screens for shutting out during the summer months any objectionable object. When required for this purpose much depends upon the character of the soil and how it is prepared whether the plants make a satisfactory screen or not. If they are required to grow from 5 feet to 6 feet high the ground must be either manured and trenched up 2 feet deep, or there should be a trench prepared as for Celery, with a layer of manure in the bottom. If the seeds are sown upon ground prepared in this way there will be no difficulty in forming a screen that will last from early summer until the autumn if the seed-pods are picked off as fast as they appear; but if a crop of seeds is allowed to ripen, there will be few flowers at the end of the summer. A row of Sweet Peas makes a capital divisional line in small gardens to separate the vegetable part from the other, and when thoroughly well grown in this way there is no other annual flower more suitable.

GAILLARDIAS.—These are so indifferent as to the soil they are grown in that they are just the plants to raise in quantity by those who have large spaces to cover. They are more suitable for the mixed border than for planting in separate beds. For furnishing cut flowers they are most valuable, as they continue to bloom very late in the summer. Now is a good time to sow the seed if a little warmth to bring on the plants can be given. Keep them in a growing temperature until the seedlings have filled 3-inch pots with roots.

COLEUS.—Unless any particular kind is wanted or large plants are required to grow on into specimens, there is no necessity to keep over plants in the winter to form stock for another year. They are easily raised from seed, and so many beautiful kinds can be secured when the seed is obtained from a good source, that it is a decided gain in time and space to depend upon seedlings for ordinary summer decoration. Seedling plants are also more vigorous than those raised from cuttings and of as good a habit. If large plants are wanted the seed should be sown at the beginning of February, but in such cases they require a good heat to keep them growing. For the general run of cultivators early in March will be soon enough to sow the seed. I have raised good stocks of plants from seed sown at that time, and have found them quite large enough for the conservatory and for household decoration. Prepare a pan of fine sandy soil and sow the seed thinly, just covering it with a little fine earth. Bottom-heat is very desirable, and there is none better than that furnished by a Cucumber or Melon bed, in which the plants should remain until they are 2 inches high, and then they may be removed to a warm house before being put into single pots. The after-management I need not describe further than to say the plants will require a moderate degree of warmth, and to be shifted into larger pots as they require more root room.

GLOXINIAS.—Now is a good time to sow the seed, and if the plants are grown on all the summer in a close warm house, they will attain a useful size and produce a good many flowers by the end of the summer. There are few more attractive subjects on the front bench of a stove-house during September and October, and no plants are more valued or more suitable at that season of the year for vases in the dwelling-house. The seedlings are

so small at first that there is danger of their being washed away unless very carefully watered; and they also damp off if the house is not judiciously ventilated and the soil kept moist and no more. Those who have hotbeds at work may sow at once; but it is better to wait a week or two longer if there is no bottom heat available, as the best success attends those who can start them at first in a brisk temperature. Sow the seed carefully in a pan of sandy soil, and to prevent water being required too soon keep the pan in darkness until the seedlings appear, and as soon as these are large enough prick them off into small pots, keep them away from the sun, and avoid giving them too large pots. The largest plants when in flower should not be in pots more than 4½ inches in diameter.

TUBEROUS-ROOTED BEGONIAS.—The sooner seeds of these Begonias are sown the larger the plants will be. But unless there are 70° of heat at command it is better to wait a month longer, for in a lower temperature, especially if the soil is a little too moist, the seed is liable to perish. The young plants may be treated the same as advised for the Gloxinias until they have filled the small pots full of roots, and then I like to plant them out in a bed of soil in a cold frame. Treated in this way the plants make larger tubers, and if they are wanted for any purpose they bear lifting so well, even when in full bloom, that they may be put into pots or used to fill up vacant spaces in any part of the garden.

HOLLYHOCKS.—Seed sown at once in a temperature of about 60° will produce plants that will flower fairly well by the end of summer, but it must not be supposed that they will be equal to those raised from seed or cuttings last autumn. The seed may be sown in a pan if desired and the plants afterwards put into pots, but the most speedy way of getting strong plants is to fill a number of small pots full of sandy soil and to put a single seed in each. From these pots the plants can be shifted on into larger ones as they fill them with roots. But it is better to confine the potting to one shift, and that from the one in which they are raised to others from 4 inches to 5 inches in diameter. To encourage a quick growth the plants must be kept growing in a heated structure until the middle of April, after which, a position in the greenhouse or cool Peach house will suit them. After being hardened off, they may be put out where they are to flower about the middle of May. The ground must be dug up two spits deep and liberally enriched with manure, and the plants must be well supplied with water in dry weather all the summer. It sometimes happens that seedling Hollyhocks do better than older plants, as they are not so liable to get diseased.

INDIAN SHOT (Cannas).—Although Cannas are perhaps, strictly speaking, foliage plants, they also flower freely towards the end of the summer. The seed of Cannas is so hard, that it is desirable to soak it in water for twenty-four hours before sowing, and when sown, place the pot on a strong bottom-heat until the plants are large enough to pot off. To secure specimens that will make a good effect early next summer, they must have plenty of heat, plenty of pot room, and a rich soil, and should not be planted out in the open until the middle of June.

J. C. C.

Germination of seeds.—When ransacking some drawers of a cabinet last spring, I came across a quantity of portions of packets of seeds obtained at various times from thirty to thirty-five years ago. Curious to see if any vitality was left after such a long incarceration, and having a hot-water tank bed at work, after soaking the seeds forty-eight hours in tepid water, I sowed them, and the result was as follows: Of *Mimosa pudica* all the seeds grew, and seemed to have lost none of their vigour, but came up rather irregularly. This seed was, I am positive, over thirty-five years old. It was amongst the first lot of seeds I ever bought, and I have not grown it since. *Malva miniata* (a broad-leaved shrubby species, not the trailing plant that goes generally by the name) also vegetated abundantly, and grew

away as if harvested only last year. *Malva capensis* the same. *Hibiscus Humboldtii*.—Of this two seedlings only appeared. One soon died; the other was weakly at first, but by the help of liquid manure quickly made a start, flowered and seeded. *Lycopersicum texanum*.—Two or three came up, but were too feeble to make progress, and soon perished. The following, amongst many others, failed entirely: *Hibiscus populneus*, *H. Lampas*, *H. Sabdariffa*, *H. Harrisoni*, *H. Jerroldianus*; a number of *Cucurbits*, annual and perennial; *Ipomœa paniculata*, *I. striata*, *I. albivenia*, *I. grandiflora*; *Datura ferox*, *D. carthaginensis*, *D. fastuosa*, *D. ceratocaula*, *D. quercifolia*, and *D. Wrightii*. I was led to expect that some of the *Daturas* might survive from having known *D. Stramonium* to come up on freshly turned soil that had not previously been moved within living memory.—*J. M., Charmouth, Dorset.*

CHRYSANTHEMUMS.

E. MOLYNEUX.

SEASONABLE NOTES.

ONE cause of the Chrysanthemum being so popular is its fitness for cultivation in various ways. Even the cottager can grow Chrysanthemums satisfactorily out of doors, provided a favourable position can be obtained. The amateur cultivator is also taking a greater interest in the Chrysanthemum, and the market grower of cut blooms also grows this plant largely. The Chrysanthemum at the present time is most generally grown for the production of large blooms. In my opinion this system is the best if the plants are grown with one, two, or three stems, reducing the number of flowers on a plant according to the requirements in each case. When the plants are grown in the bush style, the flowers of some sorts are so much paler than those borne by plants grown under more generous treatment, and for the decoration of rooms in a cut state, large blooms are to be recommended in most instances. For late flowering, or where a large number of blooms is needed, and there is not room to grow many plants, the bush method is to be recommended. To obtain the plants the points of the leading shoots must be pinched out to promote a lateral growth. Now is the time to decide by which method and for what purpose the plants are to be cultivated. For the production of large blooms for either exhibition or home use, I will suppose the bulk of the varieties are by this time rooted, the plants 3 inches to 6 inches high, and many of the earliest-struck ones have had their first shift into 3-inch pots. These should now be occupying a position on a shelf close to the glass in a cool house, or placed singly in a cold frame on a dry bottom of coal ashes where the superfluous water will quickly run away from the plants so as to prevent as much as possible the attacks of mildew. There are three methods practised by growers to secure large blooms. Some growers top the plants when 4 inches high, and this is done by pinching out the point of the shoot, so as to induce the production of other growths, which are reduced to two in number. The strongest are, of course, retained, and these are tied to a stake and allowed to extend until the first natural break takes place, and from this natural break two other shoots are carried up, making in all four blooms to each plant. The reason for topping the plants is that some consider it ensures a dwarfer habit, but this does not always result, as I have seen plants grow quite as tall when treated in this manner as when cultivated under what may be termed more natural methods. Others top the plants when 8 inches high, selecting three branches produced from this topping and training them

to separate stakes, so that each has its equal share of light and air. All axillary growths are removed as fast as they appear. I have never yet seen plants of this class bear blooms of first-class quality; they are generally large, but lack depth and solidity. Flowers which have not the two last-mentioned qualities never take a very high place at the exhibition, owing, I think, to the wood not becoming thoroughly ripened, the result of pinching the growths. The incurred section is most influenced by the bush system of culture. In the most popular method the plants are not topped at all, but are allowed free growth until the first natural break, which sometimes occurs about the middle of May or early in June, according to the variety and the time the cuttings were struck. No definite rule can be laid down as to when the first natural break will take place. The variety *Val d'Andorre* will not grow more than 1 foot or 2 feet high before the natural break takes place, which is caused by the formation of a flower-bud in the point of the stem of the plant; while other varieties, notably *Mme. C. Audiguier* and *Belle Paule*, grow to a height of 4 feet before they break. When such break does take place the bloom bud formed must be rubbed out, selecting three of the strongest shoots, removing all others below this point, and all subsequent growths as fast as they appear. Secure the selected growths by tying them to a stake as they grow, and if any side shoots are formed these must be removed at once, retaining only the three shoots selected at the first break. At the point of each branch flower-buds will form in due time, commencing early in August and continuing throughout September. This is the method by which many others beside myself have adopted, and have produced the best results. Occasionally we hear of other systems stated to be improvements, but after a trial many growers have returned to this more natural method of cultivation.

What is puzzling to many beginners in the cultivation of the Chrysanthemum is the number of plants they ought to grow to secure sufficient blooms in the various classes at the different exhibitions they intend to compete at. It seems to me that there is no better time for naming this subject than now, when the different methods of growth are under consideration. If an exhibitor wishes to stage forty-eight distinct blooms, twenty-four of which may be incurved and the remainder Japanese—this being the regulation in vogue at most of the leading exhibitions—he should grow at least thirty-six varieties in each section, as all are not to be depended upon to produce what is required. In some seasons one sort is quite useless; whereas the next year quite the reverse may occur. Accidents may happen to the plants at any time during the year, such as wind breaking the shoots or insects destroying the buds at a critical period. The varieties should consist of the very best, growing a number of plants of each rather than be burdened with worthless kinds merely for variety alone. It will be necessary to have 300 plants to effect the object in view, or 150 in each section. To some persons this may seem a large number, but by having so many success is more likely to be attained, and what is worth doing at all is worth doing well. A good margin is also left to allow of competition in other smaller classes or for home use. For a twenty-four class, supposing them to be half incurved and the remainder Japanese, twenty-four varieties in each section are not too many to grow, and the total number of plants should not be less than 150. This is a favourite class with many societies, and generally results in a keen competition. When confined to a

smaller class of, say, twelve distinct, either Japanese or incurved, the selection of varieties should be more exclusive than in the larger classes. In this class at the leading shows it is not unusual to see from fifteen to seventeen competitors. Twenty-four names should be chosen and about seventy plants grown, giving the preference to the best varieties only, as set forth in my list in *THE GARDEN*, Dec. 3, 1887 (p. 505).

CHRYSANTHEMUM CULTURE.

IN *THE GARDEN*, Feb. 4 (p. 88), "Inquirer" asks my reason for preferring clean-cut cuttings to rooted suckers. In the first place, I think all will agree that the latter have a very great tendency through the summer months to reproduce suckers

apparently receiving any check. "Inquirer" thinks that from the last week in March to the first or second week in June is rather a long time for the plants to remain in 6-inch pots. My reason for not giving the plants their final potting till June is that I do not care to place them in their flowering pots till quite necessary, owing to the length of time the plants have to remain in them, and also because the large amount of watering and feeding they require after this potting tends to render the soil sour and to interfere with the drainage, however carefully it may have been attended to. And again, the summer quarters for the Chrysanthemums must be an open, airy position, and in some localities it will not be safe to place them there too early, as cold winds and frosts are very injurious to them in this state. I have never found Chrysanthemums, not even the incurved varieties, suffer by

early or crown buds produce the largest flowers, but unfortunately the majority of these cannot be kept in a fresh state till the middle of November.

EDWIN BECKETT.

The Gardens, Aldenham Park, Elstree.

Chrysanthemum Pelican.—This variety has again asserted its right to be classed amongst the best kinds for producing late flowers. On the 4th of the present month I cut the last blooms of this variety. They were quite full in the centre, pure white in colour and about 5 inches in diameter, the outer florets spreading out horizontally, while the centre of each flower was neatly filled with florets. The flowers in question were the production of terminal buds obtained by removing the centre, or what is known as the crown buds formed in the



Cut flowers boldly used.

which must be removed if blooms of good quality are to be expected. In the removal of these suckers, no doubt many of the principal roots will be destroyed. Secondly, clean-cut cuttings about 4 inches long when once struck make much freer growth and retain their foliage better.

STRIKING THE CUTTINGS.—I have struck the cuttings both singly and four in a pot, and after careful observation I do not hesitate to say that the latter method is the most economical. Space for propagation in the middle of winter is a consideration to a great many cultivators, and by striking four in a pot one is able to strike more, and to select at potting-off time only those that are strong and promise to make good plants, while the slight check the plants will receive at this potting if carefully performed will not seriously injure them. My plants were potted during the last week in January, and now, Feb. 9, they are growing well without

confining the roots in small pots if the plants are kept well supplied with water. "Inquirer" thinks the time mentioned by me for "taking the buds" does not coincide with that of other growers. If he carefully reads *THE GARDEN*, he will note that I stated that "taking the buds" was a source of great anxiety even to the most experienced cultivator, as sorts differ so much as to the time it takes them to expand. I have generally found that, for those required to bloom about the middle of November, from the last week in August till the second week in September is the best time to "take the buds," unless the season be very late and unfavourable, like the last. An earlier date for most varieties would certainly, in my opinion, be too soon. There are a few sorts that require a little more time, such as the two mentioned by "Inquirer," viz., *Boule d'Or* and *Meg Merrilies*, also *Golden Dragon*, *Mr. R. Brocklebank*, and a very few others. Everyone is aware that the

points of the main branches during the end of August, or it might be during the early part of September. When the crown bud was removed, the lateral growths springing from the nodes below the bud so formed were thinned to four on each stem; these in time formed other buds—terminals—producing the blooms in question.—E. M.

CUT FLOWERS BOLDLY USED.

SUCH great flowers as *Tree Pæonies* seem to demand vigorous and very simple treatment. The engraving shows a few of the massive blooms of the old pink *Moutan* with its own leaves, and a natural wreath or two of *Clematis montana*, very simply placed in a large glass tazza—a great bowl of pink and white flower beauty 2½ feet across!

KITCHEN GARDEN.

TOO LENGTHY SEED LISTS.

"W. I." in *THE GARDEN*, Feb. 11 (p. 130), has done well in calling attention to the present bewildering state of the vegetable seed lists, which are yearly becoming as great a nuisance as they are an absurdity, and the illustrations in many of them are simply ridiculous. A weeding-out process is, indeed, necessary. "W. I." asks, Who is to begin?

I think the best way of answering this question is to inquire, Who is most to blame for the existing state of things? Surely it is not the seedsman, for one would naturally suppose that this much-abused person would only be too glad to be relieved from the necessity of growing, harvesting, cleaning, and labelling such a host of varieties as now figure in his lists. In the list of one firm this year I counted 100 sorts of Peas; in that of another about 40 varieties of Lettuce and 20 of Radishes. These numbers cannot fail to strike one as altogether unnecessary; but if a demand did not exist, seedsmen would cease to keep in stock kinds which were seldom or never asked for.

Exhibitions have done much to encourage the multiplication of varieties, especially those for which size is claimed as an improvement; and from the importance given to the point that exhibitors will find them great acquisitions, one would be led to infer that the chief end of vegetable growing was for the exhibition instead of the dinner table. I readily admit the difficulty—unless special provision were made for it in the schedules—of exhibiting vegetables of the proper size and in the best condition for cooking. Take French and runner Beans, for instance; the size at which these are best gathered is when the pods are 3 inches or 4 inches long; they should be cooked whole or simply cut in two, when the delicate flavour will be preserved; but to cook the long, flat pods which are honoured with the prizes at most shows, they would require to be cut into shreds, and in the process of cooking and straining all the flavour would be lost. Peas are preferred by the cook much smaller than are seen at exhibitions. In the case of Onions, instead of giving the prizes to solid round bulbs, they are usually awarded to flat, ugly things possessing neither quality nor keeping properties. No; size is not of first importance, neither is it desirable in good vegetables; but so long as it is acknowledged and honoured by the judges at exhibitions, so long will exhibitors produce it, and seedsmen in turn will cater for their wants.

Gardeners and amateurs are, in a great measure, to blame for the maze of names we now have to wade through before the kinds wanted are discovered. If, instead of ordering every reputed novelty, they would rest contented with those which are known to be good until the new ones were proved to be superior, seedsmen would be more careful of what was added to their lists.

I do not counsel giving up trying new vegetables altogether, as it is by this means we now and then obtain really sterling kinds, but what I advise is, adherence to kinds which are universally acknowledged to be good until we make sure of something better to replace them. When a variety has been tried and found wanting, discard it altogether. I have tried several of the large varieties of the Scarlet Runner Bean, but, in my opinion, none are so good as the old Scarlet, while amongst Broad Beans, Beck's Green Gem is not surpassed by any of the monster podding sorts for flavour. When

it is taken into account that three rows of Beck's Gem can be grown on the same space of ground as one of the monster sorts would occupy, the difference of produce is very little.

Of all the varieties of Onions which have been introduced of late years, few, if any, reach the standard of excellence of James's Keeping, and yet every year several kinds are added to the lists. This would not happen if less reliance were placed upon the extravagant descriptions given by those who introduce them. It is this indiscriminate ordering of these all so-called new varieties which so contributes to swell the already overburdened seed lists.—A. BARKER, *Hindlip*.

—That can hardly be, even though "W. I. M." may say so, as we have never yet found, except during extraordinarily productive seasons, that vegetables have been too plentiful. The dictum, however, is intended rather to apply to number of varieties than to quantity of bulk; but why too many sorts of vegetables only? May not the same objection be urged against everything else in gardening? Is any raiser or seedsman to be prevented from placing before the public some really meritorious variety simply because there are so many others already in the field? The variety will soon find its own place; and whilst there may be a perplexing abundance for "W. I. M.," there are at least 150,000 persons who garden in this country, and on the whole the variety is not found too large for them. As evidence, let lists of the twelve best Peas or Potatoes be invited from different parts of the country, and it will be found that of twenty lists of each some 100 varieties would probably be mentioned. That fact shows that each variety has its admirers, and is in some district or other found to be the best. No one is compelled to grow more than one, two, or three sorts of any one vegetable, according to his requirements, whilst an intelligent gardener will always exercise some judgment in testing some new things for himself from time to time. It is easy to denounce inflated seed lists, but not a sort is catalogued but someone asks for it, and it is no business of seedsmen to dictate to their customers what they shall purchase. They can only recommend what they think to be the best, and they do. The expansion of varieties of things in every direction is the inevitable product of the popularity of gardening with us, and we should be thankful rather than otherwise that such is the case.—A. D.

Fortyfold Pea.—For general purposes there is no Pea which is superior to this variety. It may be sown to succeed the earliest varieties, and thus keep up a succession throughout the summer months and until the latest varieties come into use. Its qualities are so numerous, that had I only to grow one variety, Fortyfold would be the sort. I take out a trench 1 foot deep, place a layer of manure at the bottom, and sow the seed thinly 4 inches deep. This Pea grows to a height of from 5 feet to 6 feet, and is of a sturdy habit of growth.—E. MOLYNEUX.

Transplanting Onions.—The mild weather that has lately prevailed has induced many to push this work on earlier than usual. There can be no doubt as to the advisability of getting it done early, for if the plants make but little top growth for some time to come, they are nevertheless becoming established at the root, and when warm weather sets in they make rapid progress. There are few crops that pay better for good, rich soil than autumn-sown Onions, as when they grow quickly and to a large size, they are milder in flavour and realise better prices. A good coating of the best manure is therefore worked into the soil, and the young plants are dibbled in about 1 foot apart each way. A good-sized hole is made, and the soil closed firmly around the plant with the dibber. As soon as growth commences, the soil is stirred up and a dressing of soot applied. The best varieties for autumn sowing are Giant Rocca and the Globe and Flat Tripoli, and for drawing green and tying in bunches for market early in spring the White Spanish is a great favourite, as it is mild in flavour and grows quickly. The seed is sown thickly in

drills somewhat earlier than in the case of those intended for transplanting, and as soon as large enough the plants are pulled and tied in bunches for market. During the present mild weather weeds must be carefully cleared off.—J. G., *Hants*.

THE TIME TO SOW SEEDS.

AFTER the seeds have been ordered and received, a very important question is, when should they be sown? It is possible to be either too early or too late in getting them into the ground; in a word, more judgment is required in the matter than is often exercised. More err in sowing too early than the other extreme, this being especially the case when the weather in January and February is of an open character. Where the locality is naturally warm and the soil light and free-working, it may be advisable to sow early, but only in very few cases does any gain accrue from it. There being but little rainfall, no snow worth mentioning, and no long spell of frost, the ground in the majority of gardens will have been in excellent condition for seed sowing several times during the month of January. This no doubt has been taken advantage of, and Peas, Broad Beans, Spinach, Carrots, Radishes, and a few other seeds sown. Should the month of February prove mild and the rainfall light, the seeds may germinate evenly, and a good start be made. The chances are, however, that much rain will fall (at any rate it is to be hoped it will), for as yet the springs are unusually low, and in this case much of the seed will rot in the ground, the remainder not growing away freely. Nor does seed germinate readily during cold, dry weather, making no more progress than it would in the seed bag, where it had far better remain for some time longer. Even if seed sown very early does germinate properly, it is not often that the plants make much progress till the month of April is reached, and frequently the plants resulting from seed sown a month later will give better results.

As a rule, the second week in February is quite soon enough to sow the round-seeded early Peas, such as Ringleader, Sangster's No. 1, Earliest of All, Dickson's First and Best, and Veitch's Selected Early, and William I. may safely be sown at the same time. American Wonder and Chelsea Gem being wrinkled-seeded are more liable to decay in the ground, especially if the seed is either badly ripened or old. When the first sowings are showing well through the ground, or say early in March, the time has arrived for sowing the wrinkled-seeded Telephone, Telegraph, Alpha, Advancer, or any favourite early or second early variety. I would not, however, attempt to fix an exact date for sowing these or any other seeds, as, rather than sow them when the ground is not in a fit condition, I much prefer to wait another week or two, or till it is. Much also depends upon the locality, or whether naturally early or late. Broad Beans may be sown at the same time as Peas, the Early Longpod section being the first, and later on the more delicate broad-podded section may follow. With us seeds of these are liable to perish in the ground if sown too early. Not before the third week in April should any seed of dwarf, kidney, or French Beans be sown, and warm borders only are suitable for these early sowings. Runner Beans are still more delicate, and ought not to be sown before the first week in May, or otherwise many seeds will refuse to germinate, and even if a good plant is secured, either frosts or insect pests may quickly spoil whole rows.

When Beet is sown early, or long before May, the young plants are liable to be injured

by frosts; birds also prey on them, and those that escape are almost certain to form large coarse roots. Beet, to be really good, ought, when fully grown, to be nearer the size of Carrots than Mangold, and, as a rule, it is only by sowing late in April or the first week in May that coarse growth can be avoided. The first time we tried Pragnell's Exhibition Beet we erred in sowing too soon, but since late sowing has been practised, a crop of clean handsome roots of excellent quality has resulted. Crimson Ball, a decided improvement on the old Egyptian or Turnip-rooted, if sown during the first week in April, will give an early supply of highly-coloured and tender Turnip-like roots, but even these, if left long in the ground, grow to a great size. The main crop Carrots, again, are frequently sown too early, and, as a consequence, the bulk of the roots are apt to become very coarse. Late in February or early in March seed of the Horn varieties may be sown on a warm light border, and, all going on well, should result in a very useful lot of roots being raised. If the seed is sown before the time just given it seldom sprouts till warm showery weather is experienced. Radish seed not being of much value, a sowing may be made on a warm border at the same time as early Carrots, but the later fortnightly sowings usually give the best returns. Salsafy and Scorzonera, if sown much before the end of April, are liable either to run to seed or to grow much too coarse, and I fail to see the force of growing such huge Parsnips as are often seen. Very often our seed of the latter is not sown till the end of March, and the roots are always quite large enough. The orthodox time for sowing is early in February, or as soon as the ground can be had in good working condition. To sow Turnips on a sunny border early in March, under the impression that this is the surest way of securing plenty of good early roots, is very often only a waste of seed and labour. If sown about the third week in March on a well-enriched east border a profitable crop will usually result. At one time I used to sow Onion seed in February, or as early in March as the state of the ground permitted; but after taking note of the effect of frosts on the tender young plants, I have arrived at the conclusion that it is wiser to defer sowing till the end of the month or the first week in April. The first week in May is early enough to sow seed of Vegetable Marrows if the plants are not put out till June, these raised much earlier inevitably becoming badly stunted. So also do Tomato plants if the seed is sown before April. A breadth of early Potatoes may be planted on an early border towards the end of March, but the bulk of early varieties ought to be kept out of the ground till near the end of April. The late varieties ought to be the first planted, these seldom forming haulm early enough to be badly injured by spring frosts. Late and main-crop Broccoli, Kale, and Savoy are frequently sown too early, the plants being fit for putting out a month or more before the ground is ready for them. If sturdy plants are needed, and these only ought to be planted, delay sowing the seed till the middle of April, and in warm localities the first week in May is quite soon enough to sow. Celery raised very early is apt to receive a check and run to seed prematurely. A pinch may be sown in February, but the second or third week in March is the best time for sowing seeds for the main crop, and for the very latest supplies a month later answers well with us.

W. IGGULDEN.

Potatoes and Broccoli.—*The Cornishman* observes that Potato-planting in the more sheltered

or (as the market gardeners call it) the rarer parts of Potato-growing land in the vicinity of Penzance has now become general, and in a few days much of the market garden land will present quite a busy scene in the removal of the remains of the Broccoli crop and the prompt tillage of its successor. Seed Potatoes have sprouted nicely, and are being placed in the soil in good condition. You must go back several seasons before you find so much destruction to Broccoli in West Cornwall by frost as within the last fortnight. That does not arise from severe cold, but from the fact that frosty nights (or rather mornings, for occasionally there was no frost until 5 a.m.) succeeded warm days. Alternate sunshine and mild rain induced the plants to open out; the frost came, and, in truth, proved a nipping one. The outer and protecting leaves of the Broccoli have fallen and left the head completely exposed. While they are browned and shrivelled the edible part of the Broccoli is discoloured and decayed. Thousands of Broccoli have been destroyed.

KITCHEN GARDEN NOTES.

EARLY VEGETABLES IN ROUGH FRAMES.—In many gardens glazed frames are not available for forwarding vegetable crops, and in some instances even sunny, sheltered borders cannot be found for a similar purpose. Both, however, may be dispensed with, and yet capital crops of either Potatoes, Carrots, Turnips, Lettuces, Cauliflowers, or Radishes be obtained with the aid of rough frames and slight hotbeds. The latter should be formed about 3 feet in depth, and of either leaves and stable manure in mixture or stable manure only, this being previously prepared in the usual manner. Timber or rough planks being obtainable, it is advisable to construct a frame somewhat after the model of the ordinary garden frames, setting this on the hotbed prior to soiling. Deep frames are most needed for the Potatoes, the haulm in this case requiring good protection, which may be afforded either by Russian or home-made straw mats, thatched or felt-covered hurdles, or strips of old carpet. For the more hardy crops all that is needed is to drive a number of long, stout stakes round the sides of the hotbed. Inside these, boards from 9 inches to 12 inches in width may be fixed, these being necessary for enclosing the soil. The stakes, being 3 feet above the top of the bed, may be lightly braced together with other light stakes, and will then support the doubled or trebled folds of fish-netting overhead, thus both protecting the seeds from birds and plants from frosts. These beds are especially valuable for raising early crops of Carrots and Radishes, and spaces may also be reserved for frequent sowings of Mustard and Cress. I have known instances where all the earliest Lettuce, Celery, and Cauliflower plants have been raised on these beds, all being sown together, the Lettuces and Cauliflowers being drawn and pricked out before the Celery plants wanted much space. In the rough frames, Kidney Beans and Ridge Cucumbers may be grown to succeed Early Ashleaf Potatoes, while the other beds may be planted with Vegetable Marrows.

JERUSALEM ARTICHOKE.—Good crops of these may be had without much trouble. The whole of the crops should be carefully forked out of the ground, the requisite number of medium-sized tubers with unbroken central sprout being reserved for replanting, and the rest, after having the sprouts rubbed off them, stored in a heap, covered with soil or litter, and used as required. Being of tall, rank growth, these Artichokes ought, where possible, to be grown in an outside quarter, and if the ground is well manured there is no reason why they should not be kept in one place for several years in succession. On rich, fresh ground Artichokes are apt to produce too large and ugly tubers, which are not liked nearly so well as those about the size of a good Magnum Bonum Potato. If small sets are scarce, whole ones may be cut up and planted, one strong shoot being all that is required. The rows ought to be 3 feet apart and run from north to south, or somewhat in that direction, or otherwise the front rows will get all the sunshine. Plant the sets with a dibber about 4 inches deep and 12 inches asunder,

and lightly mould up the plants when well above the ground.

FORMATION OF RHUBARB BEDS.—Old clumps frequently forced are soon greatly weakened, and in any case it is advisable to form new beds occasionally. The best time to plant is when the crowns are on the point of burting. Johnstone's St. Martin, also known as Myatt's Lioness, is an excellent early variety, Mitchell's Royal Albert and Early Scarlet also being early and good. Myatt's Victoria, a later variety, produces extra fine stalks, and I have frequently forced this variety with good results. All the foregoing can be bought in planting sizes, or old clumps may be lifted, freely split up, and replanted. The ground should be deeply trenched, an abundance of solid manure being mixed with each spit. For a permanent bed the rows ought to be fully 3 feet apart, the same space being allowed from plant to plant. If it is intended to lift and force the roots when large enough for the purpose they may be planted 2 feet apart in the rows. In planting, the crown only should peep through the soil, which should be firmly packed about them and a mulching of strawy manure at once be given. Not a leaf-stalk ought to be removed during the first season's growth, and, unless extra strong, the plants should be only lightly drawn from the following season.

RHUBARB FROM SEED.—A large stock of plants may be quickly raised from seed, the only drawback being the uncertainty of the varieties sown coming true to name. It is quite possible to raise a batch of seedlings this year and force them next winter, but the seed must be sown at once in pans or boxes of fine soil, and set on a gentle hot-bed. When the seedlings are of good size they may be either pricked out thinly in shallow boxes filled with good soil, or, better still, be potted off singly into 5-inch pots. Having been kept in gentle heat till strong and well rooted, they may be hardened off and finally planted out some time in May. If the aim is to grow the plants large enough for forcing at once, give them a sheltered position and freely manured well-worked soil, putting them 2 feet apart each way. In dry weather they will need an occasional good soaking of water, also a surface mulching of strawy manure, this serving to enclose the much needed moisture at the roots. Seed may also be sown in the open ground, an east or west border being a suitable site; the drills to be drawn 18 inches apart and 2 inches deep, and the seed sown thinly; or, if preferred, broadcast sowing may be resorted to, the seed being covered with sifted soil. In this manner a number of strong plants will be obtained, these being suitable for transplanting the following spring. The first week in April is soon enough for open-air sowing.

MANURING ESTABLISHED RHUBARB.—When kept well supplied with both solid and liquid manure, a plantation of Rhubarb will remain in a profitable condition for six years and upwards. Now is the time to apply it. First remove the surface soil down to the roots, then give a liberal dressing of half-rotten manure and return the soil on to this. In this manner none of the manure is wasted and the roots soon take possession of it. Manure being scarce, loosen the ground about the clumps and apply liquid manure or sewage freely. This may be done now and again when the plants are in full leaf.

CELERIAC, OR TURNIP-ROOTED CELERY.—It is rather surprising that so little of this excellent vegetable is grown. The roots are much liked in some places for flavouring soups, or for slicing up into salads, and occasionally they are in demand as a vegetable. A pinch of seed may be sown in a pan and set in a warm frame or house to germinate. When large enough to handle, prick off and otherwise treat similarly to the ordinary Celery. Instead, however, of planting in trenches they must be grown on the surface of well-manured ground, in rows 18 inches apart, and 12 inches apart in the row each way. During the summer they will need occasional supplies of water, and should have all side shoots removed, this inducing the growth of large bulbs or roots, which only are used. The roots may eventually be lifted and stored similarly

to those of Turnips, or they may be left where grown and protected from severe frosts.

HERB BORDER.—Herbs are generally grown on one of the wall borders, a western aspect being preferred. No doubt they are very convenient in such positions, but many of them being undisturbed on the ground for several years greatly exhaust the border, the more valuable fruit trees suffering in consequence. If no better place can be found for those permanently planted, they ought at any rate to be occasionally lifted, divided, and after the ground has been heavily manured, fresh soil being also added, replanted. Fewer herbs appear to satisfy cooks than formerly, but it usually happens if any one kind is unavailable, that will be the oftenest asked for. Tarragon is largely used in salads, and it is advisable to grow a good bed of it. It may now be freely divided and replanted in rows 12 inches apart, or it may be spread thinly over the bed, covered with 2 inches of good light soil and mulched with rotten manure. Mint requires the same treatment, this also being much in demand. Place some of the roots in shallow boxes and forward in heat, so as to have it early. Common and Lemon Thyme must also be grown. I prefer to propagate this by seed, sowing it late in March in drills 6 inches apart, thinning out and transplanting when the seedlings are large enough to handle. It may also be increased by cuttings in the autumn and by division at the present time. A warm position suits Thyme, and the soil ought not to be poor. Pennyroyal will grow in any cool position, and may be readily increased by division. Sage, which is always wanted, I usually raise from seed, this being sown in March in a shallow box filled with fine soil, and it soon germinates in gentle heat. The seed will also frequently germinate when sown on a warm border, the seedlings in either case being eventually planted on good ground 15 inches apart each way. Sage may also be raised from cuttings of the young tops taken off in May and rooted under a hand-light. Bushy old plants may be split up and replanted. All are apt to flower freely, but this ought always to be prevented. Winter Savory may be raised from seed, sowing this on a warm border early in April, but the simplest plan is to divide the old plants and replant in rows 1 foot apart. The summer Savory must be raised annually, the seed being sown on a warm border in drills 9 inches apart, and the seedlings eventually thinned to about 6 inches asunder. Pot Marjoram can also be similarly raised from seed, and those who have old plants may lift, divide and replant these in fresh soil. Sweet Marjoram has to be treated as an annual, the seed being sown on a warm border early in April in drills 9 inches apart, and the seedlings lightly thinned out. In cold districts it is advisable to raise the seedlings in gentle heat, transplanting to a warm border early in June. Borage is often asked for, and this may easily be raised from seed. It is of strong growth, and the rows ought to be 15 inches apart, the same space being allowed between the plants. Seeds may be sown in March and again in May and July, a succession of plants being thus secured. If Sweet and Bush Basil are required, these must be raised from seeds sown now in gentle heat, and finally transplanted to a sheltered border in June. Plant in rows 9 inches apart and 6 inches asunder. Fennel is raised from seed, the old plants remaining serviceable for several years. Sow the seed any time in March in drills 15 inches apart, and freely thin out the seedlings, transplanting some if necessary to about 1 foot apart.

W. I. M.

Large Onions.—Although big Onion bulbs make an imposing appearance on the show table, they are of poor value as winter keepers, the forcing method of culture adopted tending to create what are little better than reservoirs of water with skins on. Some of these huge bulbs of one of the most famous of exhibition Onions were given to me early in the winter. I have endeavoured to preserve them, but one-half are already rotten, whilst the others are fast starting into growth. Bulbs of other, and even of the same kind—one-third to one-half the size grown under

ordinary conditions—are mostly very firm, and will keep sound certainly till the end of April if needed. One very naturally wonders why prizes should be offered for the encouragement of such huge and worthless bulbs. Even if employed for domestic purposes they lead to waste, as the whole of such large bulbs as those weighing from 16 ozs. to 20 ozs. are rarely required, and what is not at once employed is thrown away. Even if so grown for the production of seed stocks the result is not good, because these bulbs never produce such robust stems or any better strain than do very solid, well-kept 6-oz. bulbs. No doubt, with a view to satisfy the requirements of vegetable judges, seed is being sown already in boxes under glass for the production of these monstrosities. If prizes were offered in March for the best kept Onions, very few of these large bulbs would be forthcoming.—A. D.

THE FERTILISING MOSS DELUSION.

FOR the last fifty years at least there have been periodical revivals of this material as a substitute for soil or loam in the cultivation of plants. During all that period, I do not suppose one really practical gardener in a thousand has ever been led to substitute this just now much-landed material for soil. So far as I know, no chemist has ever tested or recommended fertilising Moss, and it is not my intention to say one word against it; but at the same time I may here point out that, after having tried several samples of fertilising Moss as purchased by me in the open market, I find it useful and convenient for certain purposes in plant culture. But I can say more. After having tried an equal bulk of ordinary wood Moss—that is to say, two or three of the most common kinds of Hypnum—I find it fully equal to the fertilising Moss of the shops. In a word, while acknowledging the convenience and usefulness of the trade article, I have obtained precisely the same results from the wild wood Moss which many, if not most people can have for the gathering. I have for years used common wood Moss for covering the soil in pots containing plants used for the decoration of dry, warm, gas-lighted rooms, and with the best results, as not only does the Moss prevent evaporation, but it exhales moisture, and so to a certain extent counteracts the aridity of fire-heated and gas-lighted apartments. As I have said, no professional gardener would for a moment give up sound fibrous loam and try to grow his plants permanently in fertilising Moss. But there are always people of the amateur class who, knowing but little of the principles or the practice of plant growth, will, like the proverbial drowning man, catch at all the floating straws and other *débris* which promise to float them out of their plant-growing difficulties. Against their purchase and utilisation of fertilising Moss I have nothing to say; they can please themselves in the matter, but I have fairly proved by direct experiment that common green wood Moss is equally efficient, and under some conditions of culture even more so. Soft-wooded plants generally delight in wood Moss, and their roots ramify into it in all directions, especially in warm plant houses. The Moss should be pressed tightly into the pots, and as the plants root freely through the Moss a little weak manure water may be applied with advantage. Cow manure and soot in a bag sunk in a barrel or soft-water tank will yield a good quality of this "fertiliser." Nearly all bulbs, such as Hyacinths, Narcissi, &c., do well under common Moss and manure-water treatment, and it is especially convenient to use in the filling of temporary flower stands, window boxes, and jardinières of various kinds. It is not better than good potting soil, but it is lighter, and so in this way often more convenient for such temporary uses.

Cuttings of nearly all kinds of plants root very quickly in a layer of wood Moss if it is laid on any moderately heated surface and kept constantly moist. Even Nephentes root freely if the base of the shoot or cutting be placed through the hole in an inverted flower-pot filled with Hypnum Moss and placed on a gentle bottom-heat in a close case or frame. Some years ago there was a great outcry

made in favour of sand and water as a medium in which to root soft-wooded cuttings, but wet Moss is, I believe, a more certain and reliable material. Roots formed in water often rot away when placed in cold, wet soil, but Moss-rooted cuttings are much more likely to succeed, there being less disparity in the density and moisture of the rooting medium.

Those amateurs who are on the constant outlook for royal roads in floriculture may rest fully assured that fertilising Moss is not one whit better as a rooting medium for plants than is the common green Moss of the woods.

VERONICA.

GARDEN FLORA.

PLATE 637.

THE GOLDEN VINE.

(*STIGMAPHYLLON CILIATUM*.)

THIS genus, an account of which appears to have been first published by Auguste St. Hilaire in the "*Flora Brasiliensis*," belongs to the much-neglected Order Malpighiaceæ, and is nearly related to Banisteria, a family which contains numerous shrubs and climbers which were formerly grown for their pretty flowers and handsome foliage, but which in some unaccountable manner have been allowed to go out of cultivation. *Stigmaphyllon*, or *Stigmatophyllon*, derives its name from the leafy nature of the stigma. The genus contains about fifty species, most of them being lofty climbers, found in Brazil and various parts of the West Indies, where they interlace and festoon the stems and branches of the forest trees. Only very few species have been introduced to our gardens. *S. ciliatum*, the subject of this week's plate, is amongst the most beautiful of the genus, and is by no means a new introduction, having been cultivated for many years. One authority says it was introduced in 1796, and another in 1840, but whichever may be correct, it should be more extensively grown, for, notwithstanding its great beauty, one seldom meets with it in a private garden. Some years ago a very fine example of this plant was to be seen in the Botanic Gardens at Kew covering a large portion of the back wall of a stove which stood at the back of the old museum, a house which contained in its time a very extensive collection of Acanthads, and also specimen Brownias, Napoleonas, and many other rare plants, including the famous *Palma*, *Stevensonia grandifolia*. The *Stigmaphyllon* many months rendered the house very gay with its numerous rich yellow trusses of bloom. A fine example of this plant now adorns the house at Kew, and it is to be hoped that the merits of this species will be more fully understood and appreciated than has hitherto been the case. *S. ciliatum* is a lofty climber, growing vigorously, although its shoots are somewhat slender; the leaves are opposite and heart-shaped, smooth, except the edges, which are fringed with numerous hairs; colour pale green, suffused with a glaucous hue. The flowers are produced in umbels of from three to six, springing from the axils of the leaves; the petals are clawed, fringed on the edges, and rich yellow in colour, and at a first glance remind one of the flowers of *Oncidium bicallosum*.

The cultivation of this plant is extremely simple, requiring to be potted in a mixture of about two parts loam, one part peat, and one of sand. These should be well incorporated and the plant firmly potted. The pots should be well drained, as the plant enjoys a copious supply of water both to its roots and overhead from

* Drawn for THE GARDEN at Mrs. Joad's, Patching, Worthing, by Miss Lowe, and printed by G. Severeys.



the syringe. If the syringing is neglected the plant will soon fall a victim to the attacks of red spider, which, on account of the thin nature of the leaves, soon destroy them and cause them to fall off, to the great disfigurement of the plant. It thrives best in an intermediate temperature, and when planted out in a border in the stove it produces a finer effect than when treated as a pot plant. W. H. G.

FRUIT GARDEN.

MULCHING NEWLY-PLANTED FRUIT TREES.

THE prevailing practice when planting fruit trees is to finish off by mulching the surface of the soil over the roots with 6 inches of half-rotted manure. I do not intend condemning the practice altogether, as no doubt on light and poor soils it is beneficial to the trees, but in many instances I am of opinion it is unnecessary and, moreover, harmful.

The condition of the soil during the greater part of our English winters is wet and cold, although such is not the case this year up to the present time, but in the majority of our winters we may count upon more wet in the form of cold rain and snow than is good for newly-planted fruit trees. For these reasons trees which are moved in the autumn, so soon as the wood and leaves are ripe enough to allow of the operation being performed with safety, have considerable advantages over those which are planted later on, as root-action commences immediately, owing to the somewhat high temperature of the ground and its moderately moist condition. Although the summer warmth cannot be retained for any length of time, we can guard against the newly-moved soil becoming saturated by avoiding the use of any material likely to retain superfluous moisture about the roots. Hence my objection to half-rotted manure, as in this condition it absorbs all the rain and snow, and forms an effectual barrier to the sun's rays at a time when warmth is needed to promote new growth at the roots. Valuable time is thus lost, and the trees suffer injury in consequence. As a covering to protect the roots from frost, such a thickness of manure is not necessary, for if covered with soil no injury to them need be feared. I should not think of covering the roots of established trees for the purpose of protection, however near to the surface they might be, and those of newly-planted trees are not more tender. It is when the roots are frozen and thawed above ground that injury results. A covering of some light material, such as spent tan, half-decayed leaves, or burnt refuse, is preferable to half-rotted manure, for while the former allows a free passage to rain, it also counteracts the influence of drying winds. Planting fruit trees, considering the permanent nature of the work, is too often carried out in a rough-and-ready manner, the result being that the trees have a hard struggle for existence, often merely putting forth a few small leaves at the commencement of the growing season, and remaining stationary during the remainder of the summer. Valuable time, which might be avoided if closer attention were paid to the nature and requirements of the trees, is thus lost.

A season may often be gained by root-pruning a tree and deferring transplanting until the succeeding autumn. During the interval a quantity of fibrous roots will be produced, and the growth of the shoots will also be of a moderate and firm nature. Trees in this condition may be safely transplanted while as yet the

leaves are green so soon as the shorter days and cool nights of autumn set in; and if the operation is performed with due care, the trees will scarcely bear evidence of having been moved. The roots of young trees which arrive from a distance and are bare of soil will often be found in a dry state. The first thing after unpacking should be to immerse such trees in water for a time, afterwards burying them in some light soil from which they can be easily removed. Before planting, which should take place as soon as possible, the roots should be dipped in a thick puddle, made with soil and cow manure, and when placed in the positions prepared for them, they should be planted in a mixture of fine loam and burnt refuse before returning the ordinary soil. Personal superintendence of the work will ensure its being more efficiently done, and a familiar acquaintance with the trees from the commencement is desirable if real interest is taken in their culture. Attention to details like the foregoing will often make all the difference between success and failure. A. BARKER.

Hindlip.

Reinette Grise Apple.—Mr. Barker sends us the above. It is a pleasure to touch its skin, firm as marble compared with the many Apples that at this season are soft, yellow, and also mawkish to the taste. When cut the Reinette Grise has the fresh and pleasant smell of a good Apple in autumn. Eaten raw, it has a distinct, high, and pleasant acid flavour, not quite so sweet as the best eating Apples, but this would make it none the less valued by many people. Stewed in a stone pipkin, without sugar or other addition, on Feb. 20, it had a brisk, good flavour. It will probably be one of our standard kinds.

Apples for cooking.—It is too bad of Mr. Fish to malign all the cooks of the United Kingdom because the paste of his Apple tarts is bad. My housekeeper says: "An Apple, to be good when cooked, must be sweetened artificially. The acid of the Apple must be tasted through the sweetness. The flavour of a naturally sweet Apple is only mawkish. Anyone who says the contrary must be a very young beginner indeed." She says also that cooking Apples are larger than eating Apples, and are consequently peeled and prepared with less loss. To the economical argument, that Apples should provide their own sugar, she says—"Fudge! I bought moist sugar, fit for any household purpose, during the whole of last year, for eighteenpence a dozen lbs. It is now a little dearer, but not more than twentypence. That argument is quite out of date." I can myself answer for this, that cooking Apple trees produce a much greater weight of fruit than those of eating Apples; so, putting all these reasons together, nurserymen are not to be blamed for making a distinction, leaving the buyer to please his own taste.—PHILOMELOS.

** As we are so far off, we venture to say that some eating Apples—good also to cook—are large—i.e., Blenheim, Newtown, and Northern Spy. It is not to be supposed that our raisers, when the true idea is before them, will not be able to get Apples good in size as in other ways. The Ribston is quite big enough to cook. When "Philomelos" and his housekeeper have taken the trouble to cook with care the finest eating Apples, we shall be glad to hear from him. It is not the price of sugar that is the objection, but that no extracted sugar is so good as that found in the fruit itself of the best quality. We have repeatedly cooked Apples supposed to be useful for dessert only, and found them excellent without any addition. There is not a word in this letter to show that the writer has tried the five Apples cooked, and none is so sure of a question as he who knows only one side of it.—ED.

Wanted, a Gooseberry.—Last autumn, in answer to several requests, there was given in THE GARDEN a select list of the most desirable Gooseberries of good flavour, the highest praise being given to a green kind named Rosebery. Wishing to grow the best kinds, I took pains to ascertain in

which nurseries I should be most likely to find them, and was advised to write to two first-rate northern firms. The first of these supplied fourteen out of the twenty sorts asked for, but neither of them knew anything about Rosebery, or the remaining five strongly commended. I have by me the catalogues of six or seven leading fruit houses in the southern counties, but in none does the wished-for Rosebery appear. I appeal to THE GARDEN and its correspondents, to whom I owe many a good turn, to do me another, and disclose the hiding-place of the much-desired Gooseberry, and of the other good kinds that do not appear in the trade lists. The names of those wanted are Rosebery, Green Globe, Starling, Topgallant, Porcupine and Sir J. B. Warren.—G. J.

PEAR MARIE LOUISE.

UNLIKE Winter Nelis, this fine Pear appeals almost as strongly to the eye as the palate, and satisfies both. The fruit is large, pyriform, the ground colour pale green, almost melting into yellow as it ripens, pricked out with lines, streaks, and, less frequently, patches of russet. The flesh is white, tender, soft, and melting, with a rich vinous flavour. The Pear is also a good keeper, lasting with careful storage through the months of October and November, and sometimes anticipating or over-reaching these dates according to soils, seasons, sites, size, and form of the trees, and other conditions.

The tree grafted either on the Pear or the Quince succeeds almost equally well on walls, palings, espaliers, or in the form of espaliers, bushes, or orchard trees in the open.

While all this is true, it should be added that the finest samples of Marie Louise ever seen or tasted by me were from horizontal trees on walls and natural standards on lawns or orchards.

One more characteristic that the Marie Louise has in common with a few other Pears—the Jargonelle, for example—is that the older the tree the more fruitful it is. It is very important to bear this in mind in this age of cordons, bushes, and small pyramids. Though the Marie Louise may submit to be thus cribbed, cabined, and confined, yet to see it at its best and in fullest fertility, it must have its head and be allowed to grow well-nigh as it likes in the open, or run far and wide, horizontal or fan-shaped, on walls. This fine Pear also fruits most freely and perfectly on the Pear stock; besides, the natural stock favours its longevity—a point of great moment in this connection if wider experience confirms the fact that advancing years heighten the fertility of Marie Louise.

This is the more important, as the one fault brought against Marie Louise is its inconstant cropping. With small-sized young trees this must be admitted; but it is not equally, nor at all true that old, well-established trees, left almost wholly to themselves after they having once begun to bear, do so every year. Barring the accidents of spring frosts, bird wreckage, or other Pear-destroying-in-the-bud or blossom contingencies, it is proved, by a wide experience of its erratic fruiting, that the Marie Louise is very liable to such or other disasters, in a young and small state especially. Additional proof of this is furnished by the fact that it seldom fails to flower with sufficient freedom to ensure a fair crop. But the promise is made to the eye and not kept to the palate.

In other cases, however, and especially in certain districts, the Marie Louise fails to bloom freely every year. In not a few of these the fault lies as much or more in the treatment than in the age of the trees, the site, soil, or climate.

The fruit spurs of this fine Pear are of exceptional form and length, thus exposing them to the risk of being cut off by the close pruner. When this happens, of course fruit is impossible. Others attribute the failure of the Marie Louise to fruit freely to its superabundant blossoming. They reason thus: that being so many, neither pistils nor pollen are perfected in any, and hence there can be no fruit. If this be so, the knife or scissors on the blossoms would prove the shortest cut to

fertility; and some affirm that it is. It may be; still we have the fact of the very high fertility of large orchard and lawn standards that have never had their blossoms thinned by artificial means.

A caution needs to be given against growing the Marie Louise on south walls; the fruit from such sunny sites is apt to prove so sweet as to be almost insipid contrasted with the finer-flavoured fruits from west, south-west, north-west, south-east, north-east, or east walls; espaliers, pyramids, bushes, and orchard standards and dwarfs in the open.

Finally, the fruit from the walls are superior to others in size, and even in colour, as a rule, but the others are mostly far superior in flavour. In the case of the Marie Louise, the fruits from all sorts, ages, and conditions of trees are sufficiently large and handsome to obtain and sustain a firm hold on the market. Consequently, it need hardly be added, that in districts and under conditions that ensure fair crops the Marie Louise is not only one of the best Pears for home consumption, but also one of the most profitable for marketing. D. T. F.

THE JARGONELLE PEAR.

THAT the Jargonelle is good when in season no one will dispute. But then its season of perfection is so brief, that some have held it seldom extends beyond a day, though the authorities claim for it the month of August. The owner of the finest tree I ever knew of the Jargonelle—it grew near Perth, in Scotland—used to say that a Jargonelle stored was a good Pear spoilt. Hence, he used to resort with his friends to a seat at the bottom of the tree and gather and eat the fruits as they ripened day after day. Remonstrated with for allowing the wasps to puncture so many of the finest fruits, he said, "Well, they deserve all they have for leading the way to those of the richest quality. I never yet was deceived by following their lead, and, as anyhow you cannot keep the quality in Jargonelles after they are ripe, the tastings of the wasps do little harm." This is all very well for those who preferred to eat their Pears off the trees, but it would never do for gardeners who are expected to place sound fruit on the table, and, to ensure this mechanical perfection, are often tempted to gather such perishable fruits as Jargonelles before they are quite ripe. Now, it was the opinion of this old expert in Jargonelles—for he ate of the fruit of that tree for over eighty years—that Jargonelles gathered before they were quite ripe never did arrive at perfection. Nothing was more common with this connoisseur in Jargonelles than to reject faulty fruit with the simple and, to him, sufficient remark, "Ah, a day too late; would have been prime yesterday."

Further experience, which, however, has been confined to the Jargonelle on walls, only confirms the soundness of those early verdicts. It may readily be granted that few Pears exceed it in the juiciness, sweetness, and tenderness of its soft yellowish white flesh, its delicacy of aroma, and mild vinous flavour. But as these are so evanescent at the best, and are by no means constant qualities, one must pause before very strongly or seriously recommending the Jargonelle either for pleasure or profit. The pleasure indeed of eating this Pear when perfect may readily be admitted. But what about the disappointment of eating it too soon and attempting to enjoy it too late, with its flesh flat and musty, and its core rotted through? For marketing this Pear is virtually useless, unless, indeed, the market could be held under the trees, after the manner adopted at times in Cherry orchards. In private gardens a tree, or rather a branch, of the Jargonelle is always welcome. And this reminds me of a good old practice that seems to have gone out of fashion, partially, no doubt, through the introduction of the cordon system, viz., the grafting of the branches of good-sized horizontal or fan-trained Pear trees with many varieties. By this simple plan some supplied their table almost all the year round from one root stock.

On the whole, I agree with Mr. Wildsmith, that Williams' Bon Chrétien, though it has faults somewhat akin to the Jargonelle, is a far better and

more generally useful variety. But there is one point I should greatly like to have cleared up in your history of the Jargonelle, viz., why is it so superior in certain districts in the north, say, for example, in Perthshire, in Scotland, to what it is in England generally? D. T. F.

Double grafting the Jargonelle Pear.

The late Mr. Thomas Rivers, who was one of the first of cultivators to bring the Quince stock into popularity in England, recommended "double grafting" in the case of Jargonelle, Marie Louise, and other sorts of Pears which are apt to bulge, or overrule the Quince stock when budded or grafted upon it directly. The following varieties of Pears all take kindly to the Quince stock, viz., Curé or Belle de Berry, the Jaminette, Beurré d'Amanlis, and Sacré Vert. By using each or any of these as intermediate stocks on the Quince, those Pears which, like the Jargonelle, do not grow freely if worked upon it directly assume a rapid and more vigorous growth. One of the best of Quinces as a stock for Pears is La Quintaine.—F. W. BURBIDGE.

Double-grafted Pears.—More than one writer on Pears has deprecated Marie Louise, even on the Quince stock. A few trees double worked, the first scion having been of some strong-growing kind, which are growing here, bush-trained, do remarkably well, and produce capital fruits. On the other hand, similar double-worked trees planted against a west wall as single cordons are not a success, as the trees throw such strong growth. In the latter case it is evident that on our soil and as wall cordons, single grafting on the Quince would have sufficed and proved successful. The cordon trees, if left to grow, will do so as vigorously as if worked on the Pear stock. I infer that the practice of double working on to the Quince would be productive of great good to many of our choicest Pears if planted as bush or pyramid trees. It is a matter for experiment. Beurré d'Amanlis is such a generally robust grower and invariably thrives so well, that it seems to be about the best kind to utilise for the first grafting. It would be interesting to learn how far nurserymen have adopted the practice of double working in reference to Apples. Mr. Crump intimates his intention to test the practice with reference to certain kinds, and his experiment may be perhaps followed by others. Some of the best flavoured Apples are of comparatively weak growth—Margil, Downton Pippin, Cockle Pippin, &c., and would, doubtless, be greatly improved in growth, and size, and quality of fruit if double worked. We have much to learn yet in relation to fruit culture.—A. D.

SHORT NOTES.—FRUIT.

Apple Besspool in Kildare.—I send you six specimens of Besspool. It has four very good pints viz.: 1, good keeper; 2, ornamental; 3, cooking; 4, dessert; and also grows its own sugar.—F. BEUFORD.

Easter Beurre.—Some of our readers believe in this. Will anyone in Britain send me a good Easter Beurré now?—W. R.

Beurre Superfin, sent to us by a good grower in Worcester, is sickly in flavour—not worth a place among good Pears in Britain. It is not large, or in any way high class.

Beurre Rance comes to us from one of our readers in the west a good grower. It is gritty, watery, medicinal! Could only please those who never tasted a good Pear.

Pear Jersey Gratioli.—In THE GARDEN, February 11 (p. 124) A. Barker praises the Jersey Gratioli. It is here always gritty and second-rate. We discarded it some years ago. I have tasted it remarkably nice stewed in halves. In this cooked form it has a distinct smack of flavour.—GEO. BUNYARD.

Scale on Apple trees.—I have sent some twigs of an Apple tree which is much injured by a small kind of scale. I have tried Gishurst compound, but that does not seem to produce much effect. Will paraffin be really effectual?—H. M. ROGERS.

* In reply to H. M. Rogers, the insects on your Apple twigs are the mussel scale (*Mytilaspis pomorum*). Paint the affected parts with a wash of quicklime about as thick as thin paint, add a quarter of a pound of soft soap to every gallon; or scrub them with half a pound of soft soap, quarter of a pound of flowers of sulphur

to one gallon of water, or half a pound soft soap, three wineglassfuls of paraffin oil, and one gallon of boiling water; use when cold, and keep well stirred.—G. S. S.

PACKING APPLES FOR EXPORTATION.

As the season of picking and packing Apples is about over, and growers have now time to think about their several experiences in the different methods of packing fruit, I think it a good time for an interchange of thought on the subject.

I will give you my ideas and methods which are based on the experience of many years of active practical life in the orchard, and I hope that what I shall write may induce some others to take up the subject and give their methods and experience, so that we may finally get the best and most economical method of placing our Apple crop in the market.

I start with the idea that fruit should be handled as carefully and as little as possible, and so packed that it cannot move until it is taken out for consumption. To this end we must be provided with proper tools, viz., baskets, ladders, and sorting table, also packages and packing material. Baskets of light Ash or Oak splits with swinging bails, holding about half a bushel, are best, and should be lined with blanket or other thick woollen material, and have a hook made of 5-16-inch iron tied securely to the bail to hang it to a branch or the round of the ladder when the fruit is being gathered.

LADDERS are made of light Spruce poles cut at midsummer, peeled and bored for the bottom rounds with an inch bit, the middle seven-eighths-inch and the upper three-quarter-inch, then ripped in two and seasoned under cover. Rounds are made of seasoned white Maple, lower one 2½ feet, upper 8 inches; the sides are brought together above the upper round and secured with two or three clinch nails. They are made of different lengths, and are very light and strong.

SORTING TABLE.—This is made of half-inch Pine on a light frame well braced; it is about 3½ feet by 7 feet with a 4-inch rim around the edge; the legs at one end are short and attached to a long-axled wheelbarrow wheel. The others are well spread at the bottom to make the table steady, a pair of handles provided to move it by, and a common coarse grey blanket is spread on the table when in use.

PACKAGE.—We always use the barrel, and get the best made, neatest, and tightest dry barrel in the market, of full flour size. We try to lay these in early, so that at odd times we may prepare them for use by nailing on the bilge hoops, nailing in the heads and taking out the bottoms, but leaving them in the barrel. We also lay in a stock of good white or manilla paper cut in sheets 18 inches square (round would be better), and a lot of excelsior shavings, finest grade.

On commencing to pick, the sorting table is wheeled near, but not under the tree, the blanket spread on it and a bit of board or plank laid on the ground alongside to stand the barrels on. As the baskets are filled they are carefully emptied on the table, and the packer after placing a thin layer of excelsior in the barrel puts a sheet of paper over it, and then "faces" the barrel by laying the first layer of Apples, stem down, until the layer is full, then filling the barrel with the same grade directly from the table, occasionally giving the barrel a gentle shake to settle the fruit into place, and when full the bottom is slipped in without pressure, wrong side out, name and quality written on it with a lumber pencil. Three grades or sizes of fruit are usually made, called extra, choice, and medium, and all Apples that fall on the ground either before or during picking are put into barrels by themselves, and set away for future examination, as they cannot be depended on for keeping.

When the barrels are filled they are taken to the fruit room and stored on end, head down as filled, until wanted for market, when the bottom is taken out, the barrel filled as full as we think safe, a cushioned head is then laid on, and a man seizing

the chime by both hands and laying his fore arms on the head, rocks the barrel backwards and forwards on the floor to shake the Apples into place and fill any shrinkage that may have occurred; then a sheet of paper is laid on the fruit and excelsior is spread on; the bottom is pressed in (right side up this time) and securely nailed. The barrel is now turned over, and having been stencilled with the name and quality of the fruit and the grower's name and address, is ready for shipment.

We use excelsior on the ends, both as a protection against bruising and as a material that will absorb the moisture exhaled by the fruit and swell, so as in a measure to fill the shrinking and keep the package full. It is clean and sweet and does not heat or develop blue mould as chaff or straw is liable to do, while the quantity used is so small that practically it makes no difference in the weight of fruit in the barrel.

Experience has taught us to distrust the keeping qualities of any Apples that have lain on the ground over night; consequently they are kept apart, and usually put up for local markets as a separate grade. Our principal market is London, and the freight and other expenses are from 5s. to 5s. 6d. per barrel, and we find that a very few spotted Apples in a barrel or a slight slackness, as it is called (when the fruit is found to move in the package when shaken), will reduce the price from 20 to 50 per cent. This being the case, the importance of this subject can be easily estimated.—R. W. S., in *Country Gentleman*.

MEDLAR JELLY.

I WAS somewhat surprised to find that the Medlar jelly exhibited by Mr. Rivers at South Kensington lacked consistency. Mr. Rivers' recipe for making it seems almost identical with that given by me in my second volume of "Hardy Fruit," page 134, and also practised here for more than twenty years, and which resulted in a jelly almost as firm as cheese. Of course, a good deal depends on the length of time of boiling, and possibly something also on the size of the Medlars. From the description given of Mr. Rivers' Medlar, it seems intermediate in size between the Dutch and the Nottingham. Our jelly, proverbial for its stiffness as well as its good quality, was made from the Nottingham variety. As I quite agree in Mr. Rivers' estimate of the high quality of the jelly, and consider the Medlar is well worthy of more extensive cultivation alike for its jelly, its fruit for dessert, and its unique and ornamental character as a low tree in our landscapes, it may be useful to repeat this recipe for Medlar jelly in full:—

Medlar jelly is probably the very finest made. Those who know both well mostly prefer it to Guava jelly, and the latter holds the first place among discriminating and fastidious connoisseurs. It may be made very much in the same way as Apple jelly, either with or without the core and rind. The best, however, is that made without either rind or seeds, though the latter from their medicinal properties are supposed by some to give a certain merit to the jelly. Peel off the very thin rind, and remove the seeds either by quartering or otherwise. Place the fruit in a pan and boil gently till quite soft—say half an hour. Leave till cool, and strain carefully through a jelly bag. To each pint of the syrupy juice add a pound of fine sugar and boil for an hour, or until it is reduced to sufficient thickness to set well, nearly all the water having been boiled out of it. Some add other flavouring, but the best way is to add nothing whatever, and this brings out the peculiar flavour of the Medlars. The fruit is also sometimes strained a second time. Medlar jelly made thus will keep for any length of time, and improve by keeping. The Medlars should hardly be so ripe for jelly as for eating, though great mistakes have been made in attempting to make Medlar jelly of green hard fruit. Such jelly is quite inferior, and in fact worthless, compared to that made from ripe fruit. D. T. F.

Damsons and Bullaces.—Although these useful fruits are very largely grown in some localities, they are totally neglected in others, and I feel sure that many private gardeners would find them a great assistance in keeping up the supply of fresh home-grown fruit as late as possible in the season. They come in just at a useful period when the supply of fruit that is available for cooking purposes

is getting very limited; consequently the fruits invariably meet with a ready sale in market, and in private gardens I never knew them to be overabundant. One of the great merits of Damsons and Bullaces is their hardness and fruitfulness in rough soil, in which but little else would grow. In Kent they are largely grown in hedgerows, and when planted on the outskirts of fruit plantations they make an excellent wind-screen for more tender, but not more useful, fruits.—J. G. H.

FRUITS UNDER GLASS.

PINES.

THE culture of English Pines having declined, preparations for the spring potting and rearrangement are a small affair compared with what they were thirty years ago. The quantity in many places no doubt has been greatly reduced, but the quality, it is gratifying to be able to say, never was better; indeed, taking into account the short time devoted to the culture of the Pine from the sucker to the finish of the fruit, it is questionable if the skill displayed by the remnant of growers has ever been equalled. February being the favourite month for commencing the spring campaign, I advised in my last paper the arrangement of all preliminaries for carrying out the work with comfort and dispatch when the plants as well as the weather are in the best possible condition for potting operations. A week ago I should have said, take advantage of this bright, mild weather, but a change to frost and snow may yet close every light in the Pine range for some weeks, as we still have a long account to settle with the winter. This possibility will not, however, prevent us from having clean crocks in clean pots ready for use, and compost, consisting of rich, sound, sandy loam, peat, charcoal, bones, &c., dry and warm for putting into them when the best autumn suckers are ready for the first and final shift. In ordinary seasons the drying and preparation of the soil take up much time; but this is an exceptional year, as we might dig turf from the pasture, break it up and use it at once—that is to say, as soon as it is warm enough. Another very important preliminary is the preparation of the bed for the reception of the plants, and as this, where fermenting leaves or tan are extensively used, takes up two or three weeks, the materials not only for the first compartment, but for all the compartments down to the sucker-pit, should be put through the usual course of fermentation and frequent turning, quite that length of time before they are wanted. When ready for use, the compartment intended for the cream of the successions should be cleared out to the very bottom to ensure the removal of the numerous pests, including worms, woodlice, crickets, and the like, which breed so rapidly in these places. The pits should then be scalded with boiling water, the glass and woodwork well washed, and the walls whitewashed with hot lime, not only to complete the spring cleaning, but also to secure the diffusion of as much light as possible—no small matter where a firm stocky growth so early in the season is of vital importance. When filling up the bed, the materials should be made very firm in layers until the proper height is attained, when it will be necessary to insert watch sticks and suspend operations until the flush of bottom-heat has descended to 85°. Where hot-water pipes give the necessary degree of heat all this trouble and anxiety are avoided, as the old tan may be sifted and renovated with a layer of new on the surface, or a few fresh, but well-fermented leaves may be worked in, when potting may be proceeded with.

Potting.—The first thing to be considered is the condition of the plants, for if these, say in 8-inch pots, have not made a sufficient number of healthy roots to hold the balls together, it will be safer to let the bed wait than pot prematurely. The plants as they are selected should be divested of a few of the smallest leaves before they are turned out of the pots; then it will be necessary to remove all old crocks and loose soil from the balls, as nothing inert or sour should be introduced with the new compost, which is to carry the fruit to maturity. The compost being dry as well as warm, the base for the reception of the ball cannot be made too firm, and, provided 12-inch pots are used for the

best Queens and 10-inch for the second size, the filling must be arranged for the top of each ball to stand 1½ inches below the level of the rim. In filling up round the balls, eschew the smallest particles of the compost, ram firmly to prevent the holding of much water in suspension, finish off the highest near the stems, allowing the soil to taper away to within an inch below the rims; plunge at once, but defer giving water. If any of the balls from their close proximity to the bottom-heat pipes have become too dry, they should be properly moistened before they are turned out, as no after-watering will correct this without souring the new compost, and passing them in this state is very often the cause of premature fruiting.

Subsequent treatment.—Days being still dark, short, and cold, there must be no attempt at undue haste, but rather the aim must be the maintenance of a steady bottom heat ranging about 85°, certainly not above 90°, the former being preferable—roots into the new compost being of more importance than elongated leaf-growth. But little, if any, air need be given at first, but when the roots have taken to the new soil, a chink may be admitted at 70° and the temperature from gleams of sunshine may rise to 80°, when the pit must be closed, with moisture secured by damping the walls and floors. If the weather is mild and the afternoons bright, aided by gentle fires, the heat may be let down gradually until it touches 65° at banking time and 60° the following morning. If covering of some kind can be placed over the glass at night, much injury from hard firing will be avoided, moisture and genial heat husbanded, when the minimum night temperature will favour rest until the roots have penetrated the whole of the compost. This point reached, say, the end of March, it will be necessary to consider the necessity for giving

Water.—A month from potting seems a long time to keep the plants without water, but when we take into account the moist condition of the fermenting bed, the quantity of new compost yet unfilled with roots, and the succulent nature of the plant, we must arrive at the conclusion that early watering is superfluous and injurious. Practical Pine growers profess to tell in the dark when a Pine requires water. Certainly they can tell by the feel and appearance of the leaves. Young beginners must examine the compost and watch their elders. The first watering need not be heavy, but each plant should be examined and receive enough to reach the crocks or wait a week longer. Soft water is the best not only for Pines, but for all other plants; hence my constant advice to look well after this now precious element. The mean of the house as yet being barely 70°, the temperature of the water need not exceed 80°; in fact, a very safe plan is the maintenance of a good supply in each house or pit for use whenever it is wanted for watering and syringing.

Progress.—Having disposed of the first batch of spring-potted plants certainly until the end of April, I have only to say, repeat the cleansing and other details in each compartment and pit as the plants become ready and the weather is favourable. Avoid being overstocked, as crowding at any time, particularly in the spring, when the weather is dark, the plants young, and but little air can be admitted, leads to results which no after-management can conquer. Grow a few plants, grow them well, and the better to secure a constant supply of fruit for home use divide them as much as possible into small batches. Give Queens the lightest, driest, and warmest pits and the smallest pots, as they are more delicate and require less water than would be good for Rothschilds and Cayennes throughout the season.

THE ORCHARD HOUSE.

Unless the trees housed early in January have been most abundantly ventilated, the past mild weather will have hastened the buds to an extent that would alarm many an amateur when he set eyes upon the heavy fall of snow this morning. Checks of all kinds, it is true, are injurious, but the Peach being fairly hardy, a low temperature, unless the buds are actually bursting, will not be likely to do any harm. I do not, as a matter of course, ad-

vocate the admission of frost, especially when the sap is on the move, but of two evils, I would ventilate freely in the coldest weather in preference to enervating the trees by coddling. If the presence of other occupants interfered with the final arrangement of the trees, this work must now be brought to a close, and, provided the different families are fairly represented, commencing at the hottest end, Figs must stand first, then Peaches and Nectarines, Plums, Pears, and Cherries. Strawberries may be introduced, but not to the dry, airy shelves, as we may yet have a long spell of wintry weather, when constant watering may keep the house too moist and sloppy for the well-being of the other occupants. A light, airy pit is the best place for late Strawberries, and, lacking this, an open part of the orchard house floor, the nearer the glass the better, will answer well and save a great deal of labour in watering until such time as the crowns begin to burst, when they must be elevated. Many people altogether miss the true purpose for which the mixed or general orchard house was originally intended, viz., the certainty and enjoyment of a full crop of fruit every year; but, amateur-like, they invest in a good pruning-knife and plenty of rich manure. They house their trees early, light a fire, and close the ventilators. All these materials, instruments, and operations are necessary to success, but unless each move is made at the right time and in the right direction, the trees suffer and the crop is lost or worthless. We advise early housing to shelter the trees from sudden and severe climatal changes, but, once under glass, retarding by free ventilation is preferable to forcing without it. Next to, indeed on a level with, fresh air, comes another element, so scarce of late, and that is water. Figs excepted, every kind of fruit tree from the Peach to the Strawberry must have a continuous and yet withal a judicious supply of water. Winter and summer the poor roots imprisoned in a peck of compost must be regularly watered and fed, not in dribbles that deceive the eye for a short time, but in quantities that will keep the entire ball in growing condition. Cleanliness and tidiness go hand-in-hand, not only in securing enjoyment to the owner, but health to the trees, and for these reasons the pots, trees, and structure should be kept as fresh, sweet, and neat as a living-room. These points properly attended to, fruit trees of all sorts should flower as strongly and set their crops as freely as their fellows on open walls in favourable seasons. Fire-heat, as a matter of course, is invaluable, but instead of applying it as the commence-all and end-all, it should be used extremely sparingly in severe or very wet weather only up to the flowering stage, then regularly to favour a free circulation of air and the dispersion of the pollen during the time the fruit is setting. To these general remarks, which the true amateur will readily turn to account, at least for the present, I have one word of advice to add. Never allow an insect of any kind to prey upon the foliage or flowers, but bath the Strawberries after they are introduced in strong soapsuds or sulphur water for the destruction of spider and mildew, and fumigate two or three times at intervals, timing the last operation to barely precede the opening of the first blossom. Do not let an apparently clean bill of health set aside the smoking, as one pair of undetected aphids will fill the house in a fortnight and ruin many trees before the crop of fruit is set. The principal work in the

Early house will be timely ventilation on fine mornings, daily syringing and careful watering, as no amount of after attention will compensate for neglect of the roots. Assuming that the trees are out of flower, and a plentiful crop of fruit is swelling, disbudding and moderate thinning, also shortening back, may be commenced as soon as the young Peaches are the size of small Peas. The fruit the first time over may safely be reduced to three on each shoot, and those near home with their points upward to the sun whilst swelling best will favour keeping pyramids close and compact, no small matter where space is limited and light imperative. In the selection of young shoots for forming the next year's bearing wood, the best near the base of the one now carrying the crop, and eventually to come away, is to be preferred.

Several for some distance above it, especially where a fruit is nestling at their base, may then be pinched to two or three leaves, but the point shoots must be allowed to make 6 inches or more of growth, when the strongest of these will require pinching. When the fruit begins to swell freely the roots must receive their first instalment of rich top-dressing, and their liquid food may be somewhat stronger than water. Whenever this is used it must be clear, weak, and tepid, and in quantity sufficient to penetrate quite through the balls and drainage. There must be no mere surface-watering, neither must the moist appearance produced by the syringe deceive the eye. If the house has not been fumigated since the trees went out of flower it will be necessary to keep an outlook for the first curled leaf, and to smoke before fly has time to do mischief. Young foliage and fruit at this early stage, it must be borne in mind, will not stand a powerful volume of tobacco smoke; hence my reason for advising preventive in preference to corrective measures. The weather being so uncertain, the temperature for the present, especially through the night, should rule low, say 50°, when sharp firing is necessary, and 55°, or sometimes a little more, when it is mild. That by day may run 10° higher from fire, and 15° from sun-heat, air, as a matter of course, being moderately and carefully admitted.

STRAWBERRIES.

Assuming that early batches have been carefully fertilised and a sufficient number of perfect berries are now swelling, it will be quite unnecessary for me to advise their removal to a hotter place, not, so to say, to avoid undue haste, as many a crop has been lost when a few more days' patience would have saved it. When properly thinned to six or nine to a plant, the fruit should be tied up to small sticks or propped with forked pegs to keep it out of harm's way and to prevent the stalks from pressing on the rims of the pots, a position in which they are likely to get injured. A good syringing with pure tepid water to cleanse the foliage and a thorough watering with clear diluted liquid will then fit them for their new and last quarters for ripening. In days gone by the fruiting Pine stove was the favourite ripening house, but Pines in many places having been given up, fresh arrangements now have to be made, the main and most important points being plenty of light, strong heat, and isolation from Vines and other occupants subject to red spider. The removal of the first batch forward is always a relief, as it enables the grower to change the position of each plant, the best of all preventives of the elongation of the leaf-stalks; whilst the removal of the weak and the blind makes room for the introduction of successions from the store pits or plunging ground. Where it is the custom to plunge the principal stock in cold pits covered with glass, the lights should now be thrown off every fine day, and the atmosphere being so extremely dry, water to the roots must be regularly administered. The winter now passing having been comparatively rainless, the latest plants plunged in the open air have not received a sufficiency of this element from the clouds, but those who understand their nature and requirements will have met this deficiency by hand. Others who have not examined them should now do so, as dryness at the root even in winter is the foster-parent of spider, mildew, loss of roots, and blindness. Batches intended for flowering and fruiting in cold pits, if not already regulated, must now be thinned out and re-plunged quite 6 inches apart every way. As surface roots will now be on the move, each ball should be well rammed, thoroughly watered with diluted liquid, and top-dressed with rich compost to which a dash of soot has been added. If spider or mildew are detected on the under sides of the leaves, overhead dipping in soap-suds and sulphur, or a solution of sulphide of potassium (half an ounce to the gallon of warm water) when the plants are out, should not be neglected. Plants placed in early Peach houses and vineries, with the view to their remaining until the fruit is ripe, must be watched, tended, and treated as the most dangerous and destructive occupants contained in the gardener's calendar. Fly is bad

enough, but spider is worse, and the only check upon these pests is fumigation, copious syringing, and good feeding. W. C.

ORCHIDS.

W. H. GOWER

CHYSIS AT STUDLEY HOUSE.

THESE are plants of great beauty, and although by no means of recent introduction, they have never become common in collections of orchidaceous plants. I was consequently much gratified recently to see nearly a complete collection of the kinds known to be in cultivation in the above establishment, where they appear to be great favourites, and where all the kinds may shortly be seen in flower. Mr. Measures, of Camberwell, also appears to be turning his attention to the Chysis, and I trust we may soon see them more generally grown. Some years ago I had three species under my charge, viz., *C. aurea*, *C. Limminghei*, and *C. bractescens*, and these made good growths and flowered annually under my treatment, which was about the same as I see practised by Mr. Cowley, who has charge of Mr. Tautz's plants. During the growing season Chysis enjoy strong heat and an abundant supply of moisture, the warmest end of the Cattleya house, or even the East India house, suiting them admirably. When, however, the large and stout spindle-shaped pseudo-bulbs are mature, the plants must be placed in cooler quarters and receive no water, in order that the growth may be thoroughly ripened. These plants are deciduous, and while at rest lose all their leaves, but as young ones are again developed before the flowers expand, this loss is not noticeable. Soon after the commencement of the year the plants should be carefully watched, so that upon the first indication of new growth they may be removed into their warm quarters and be freely supplied with moisture. The flower-spike proceeds from the side of the pseudo-bulb near to the base, and rises with the young growth. This simple treatment, if well carried out, will scarcely fail to ensure vigorous growth and a regular supply of beautiful wax-like flowers. I have grown them upon blocks, but as they obtain size their heavy pseudo-bulbs render them cumbersome when thus treated. Pot culture is preferable to that on blocks, but baskets are the best of all for these plants. The soil should consist of good fibrous peat, with some nodules of charcoal intermixed, and the whole should be surfaced with growing Sphagnum. Repotting or basketing should be done immediately the plants show signs of growth, as at that time there are no young roots liable to injury, and the surface being covered with living Moss forms a nice congenial bed for the roots just at the most critical time. The kinds which will shortly be in flower in Mr. Tautz's collection are—

C. AUREA, of which a description of the growth will suffice for all the kinds; pseudo-bulbs stout, pendent, and spindle-shaped, about 1 foot or 2 feet in length, and furnished with large, membranous, plaited leaves; the spike is about half the length of the growth, and bears a raceme of six or seven large fleshy flowers, which are yellow tipped with orange; lip yellow; front lobe white marked with reddish crimson. It blooms at various seasons, from March to May and even June, according to the time at which the plants start into growth. The flowers last about two weeks in perfection.

C. BRACDESCENS.—Raceme three to six-flowered; individual flowers about 2½ inches across, thick and waxy in texture and pure white, the lip being

stained inside with yellow and a few streaks of crimson, and bearing several fleshy ridges on the disc.

C. CHELSONI.—A Veitchian hybrid of great beauty, the result of a cross between the two previously-named kinds; sepals and petals nankeen-yellow, blotched with rose at the tips; lip bright yellow, streaked and spotted with reddish purple.

C. LEVIS produces a many-flowered raceme; flowers yellow suffused with orange; lip also yellow, blotched and streaked with crimson; the front lobe prettily crisped round the edge.

C. LIMMINGHEL.—Raceme five to six-flowered; sepals and petals bluish white, or cream-coloured, tipped with rosy pink or purple; side lobes of lip yellow, streaked and blotched with crimson; middle

elevations, delighting in the neighbourhood of waterfalls, where it is exposed to constant humidity. The Messrs. Veitch, of Chelsea, were the first to succeed in importing this noble plant in a living state, and it first flowered in their establishment in the spring of the year 1870.—W. H. G.

THE LONG-TONGUED PACHYSTOMA.

(P. THOMSONIANUM.)

THIS singular and beautiful Orchid was introduced some few years ago by the Messrs. Veitch, of Chelsea, from the West Coast of Africa. When not in bloom it somewhat resembles some of the *Erias*, but its flowers show that it is dis-

streaked with white. The brilliant flowers are produced during the autumn months and last a considerable time in perfection.

This plant should be grown in a pot, in a mixture of good fibrous peat and Sphagnum Moss. It enjoys full exposure to the light, but requires to be shaded from the sun during the hottest part of the day. The temperature of the East India house is necessary for its healthy development, and it enjoys a moderate supply of water when growing, and should not be allowed to become dry at any season.

Ada aurantiaca is an Orchid which some years ago was exceedingly rare. It was, however, imported in quantity for a short time, and, either from there being no demand for it or because the supply was exhausted in its native country, no more came home, and those who had secured plants set about growing them. The result is, that although not the easiest of plants to establish in the state in which it usually arrives home, there are numerous fine examples to be found in the country, and this is just the season when the long, nodding racemes of bright orange or cinnabar flowers are produced. I recently noted healthy, well-flowered specimens of this species both with Sir Trevor Lawrence at Dorking, and also in Mr. Measures' collection at Streatham. In both places the plants are grown under exactly the same conditions as *Odontoglossum Alexandræ*. They like shade, and do not like frequent change of position.—W. H. G.

Fish manure for Orchids.—"W. H. G.," in *THE GARDEN* (p. 102), says that fish manure is not beneficial to *Cypripediums*, and asks the experience of others. I used this manure all last year on our Orchids here with good results. The *Cypripediums* in particular seem greatly benefited by it, as they are in the rudest of health, and have flowered well. *C. insigne* has thrown a larger number of twin flowers than usual. Such Orchids as *Cattleyas*, *Cœlogynes*, *Dendrobiums*, *Lycastes*, *Oncidiums*, *Odontoglossums*, *Lælias*, &c., have made larger bulbs than in previous years, showing that this manure is beneficial to them. The only case in which we saw evil results follow was through using it on a plant of *Dendrobium chrysanthum*, the young growths of which were blackened and afterwards died off. I think it must have got some of the manure from the bottom of the water-pot. It is used as recommended by Mr. Gilks, of Higham House, viz., mixed with water to a paste and kept in a wide-mouthed bottle—one teaspoonful of manure to a gallon of water. "W. H. G." does not say how it was used on Mr. Southgate's *Cypripediums*. Perhaps he would inform us.—W. J. MITCHISON.

Masdevallias at Downside.—At almost every season of the year a collection of *Masdevallias* shows some flowers, and at the present time several species and varieties are in bloom at Downside, Leatherhead. The most striking, by reason of their brilliant colours, are *M. Veitchiana* and its variety *grandiflora* and *M. ignea*. The first-named is a noteworthy species, the scape bearing a solitary flower of a rich orange-scarlet shaded with metallic purple, and coated with minute hairs. In the variety the flowers are larger and have more substance. A specimen of *M. ignea* was full of flowers, these cinnabar-red in colour, and each sepal enriched with lines of a deeper shade. It is curious to note that one spike was carrying two blooms, a rather unusual occurrence in *Masdevallias*, though not so in *Cypripediums*. There were several flowering plants of the beautiful *M. Shuttleworthi*, the prettiest perhaps of all the genus, and also of the spotless white *M. tovarensis*, which has now become deservedly common. An interesting, though not a particularly showy kind is *M. melanoxantha*, which we also saw at Kew. It is a sturdy grower, the sepals forming a fleshy tubular flower, the upper half greenish white with two or three lines of purple, the lower portion of a somewhat curious colour to describe, but approaching mauve-purple. A free-blooming and pretty species is *M. triangularis*, the triangular sepals freely spotted with



Pachystoma Thomsonianum.

lobe lilac, flushed with pink and streaked with purple.

Vanda Cathcarti.—Hitherto this plant has had a somewhat evil reputation amongst Orchid growers, it being generally considered a bad species to establish from imported specimens—an ugly, scrambling plant when it is established, and a shy bloomer withal. Judging, however, by several plants about 18 inches or 2 feet high which I have observed flowering recently, this character of it will no longer hold good. The plants referred to I have noted in the establishments of Sir Trevor Lawrence at Burford Lodge, Mr. Measures at Camberwell, and Mr. Bull at Chelsea. Sir Trevor Lawrence's plant was, however, the best variety, the large concave flowers being particularly well marked. The plant is said to grow in hot, damp, shady valleys in the Eastern Himalayas at considerable

tinct from any other Orchid at present in cultivation, although it is said to be closely allied to the genus *Ipsea*. Neither *Erias* nor *Ipseas* are common in cultivation, although I recently observed nice examples of both *Ipsea* and this *Pachystoma* growing in Sir Trevor Lawrence's collection, where such gems as the plant here illustrated are to be found in great numbers. The leaves of this are solitary or in pairs, some 6 inches long, plaited, and pale green; the peduncle is erect, as long, or longer, than the leaves, bearing two or more flowers, each of which measures 3 inches across; the sepals and petals are pure shining white; the curiously-shaped lip is trifid; the erect side lobes white, broadly streaked with red on the inner side; the middle lobe produced into a long, recurved tongue-like process, deep magenta-purple,

brownish yellow on a buff yellow ground, with the long tails deep red. Mr. Woolford, who has charge of the Downside Orchids, grows *M. Chimæra* and its varieties exceptionally well in baskets suspended near the light of a comparatively cool house. The type is in bloom, also a few varieties, one named *Roezli* having flowers of a dark, clouded, slaty hue, almost impossible to describe with any degree of clearness. This is an interesting section, as not only is there a curious mixture of colours, but the form of the flower is remarkable.

Cœlogyne cristata.—This lovely species is flowering most profusely in The Woodlands collection at Streatham, where the plants are grown in quite a cool house, in fact in company with *Lycaste Skinneri*, that is to say, just a trifle warmer than the *Odontoglossums*. I counted over five hundred spikes upon the *Cœlogyne*s, each spike carrying on the average five blooms, so that about 2500 flowers are open at one time, the plants presenting quite a dazzling sheet of pure white. Amongst these were the *Chatsworth* variety, the variety *maxima*, and *cristata Lemoniana*, which is very chaste; besides being a large and full flower, the delicate pale yellow in the throat renders it very desirable. There was also a grand plant of the variety known as *alba*, and also as *cristata hololeuca*, bearing thirty spikes, but the buds were not developed. This is one of those Orchids in which the flowers are entirely pure white, without stain or mark of any colour whatever. It still remains rare and valuable. —W. H. G.

Bolbophyllum barbigerum.—This is a member of a genus which does not find much favour with Orchid growers, but the species here noted is one of the most singular plants in the whole vegetable kingdom. A nice example of it is now flowering in the Burford Lodge collection. It is a dwarf plant, with somewhat flat pseudo-bulbs, which each bear a solitary deep green leaf. It bears a raceme of long-stalked flowers, of which the lip is the chief point of attraction, being long, narrow, and covered with short, yellow, woolly hairs. Near the top is a brush-like beard of longer, deep purple hairs, and at the extreme tip is a crest of long, thread-like purple hairs, which are club-tipped and continually in motion, waving backwards and forwards with the slightest breath of air. In addition to this the lip is jointed, and any sharp current of air sets the whole in motion. It is an old plant, though seldom seen, having been introduced from Sierra Leone by the Messrs. Loddiges, of Hackney, upwards of fifty years ago. Like all the plants from that district of Western Africa, it enjoys abundance of moisture and strong heat. It may be grown either upon a block or as a pot plant; if the former plan is adopted, it requires extra attention to keep it moist. —W. H. G.

Odontoglossum Leeanum.—Amongst the many species and varieties of *Odontoglossum* that we have now there are few, if any, that have such cheerful colouring as this, which is a reputed natural hybrid, and showing an affinity both to *O. triumphans* and *gloriosum*. A strong specimen was recently in bloom at Downside, Leatherhead, and though the flowers are by no means of bold, striking form, they are brilliantly coloured, and measure about 3 inches across. The sepals and petals are narrow, and bright clear yellow, freely dotted with deep brown; the apex of the lip yellow, the centre white, and at the base there is a large blotch of brown. It is a plant of good constitution, and a few specimens in full bloom add greatly to the showiness and beauty of a group.

Cœlogyne sparsa.—This is a *Cœlogyne* that, although not showy, is extremely interesting and free-flowering, and apparently belongs to the *ocellata* group. A single specimen is suspended near the roof in the Catleya house at Downside, and is crowded with flowers, these being borne on short racemes, and having a pretty appearance clustering amongst the leaves. The sepals and petals are white, and the lip also white, but at the apex there is a horseshoe-like band of yellow margined with orange. It appears easy to grow, as the pot was crammed with bulbs, and a *Selaginella* had also found a home in it.

Cypripedium grande.—This is well named, as it is a hybrid that presents fine characters, and belongs to the interesting *Selenipedium* group, having *C. Roezli*

and *C. caudatum* as its parents. There is a very robust and well-developed specimen in the collection of Mr. Lee at Downside, the long stout scape bearing a large, handsome bloom. The dorsal sepal is veined with a yellowish green hue on a whitish ground, the ribbon-like petals attaining a length of about 1 foot, and coloured with light rose, except at the base, where they are whitish yellow. The lip is very large, and of a dull brown tint. Its great beauty is in the cheerful colouring of the flowers, a relief from the monotony of browns that characterise many of this class.

ORCHID NOTES FROM AMERICA.

MOTH ORCHIDS.—The house devoted to the *Phalænopsis* is at the present time very attractive. Many hundreds are in flower, and the numerous undeveloped spikes and buds give promise of a long season of bloom. The collection is very rich, embracing nearly every known kind. A good proportion of those in flower now are hybrids, either natural or artificial, all of them being related to *Schilleriana* or *amabilis*. The direct progeny of these may be seen in *P. casta*, with *amabilis* as the seed parent, while *leucorrhoda* is the result of the reverse cross. Both are lovely kinds, but *casta* has better shaped and more richly coloured blooms. Flowers of three examples of the white form of *leucorrhoda* are open, and all differ from each other in the spotting and intensity of the tints. *P. Sanderiana* possibly results from the same parentage as the foregoing, or it may have *grandiflora* as a seed parent. Be this as it may, it is a charming kind, varying considerably in colour. The darkest form is seen in *rosea*, and a much spotted one is *marmorata*; the latter very much resembles *P. casta*. In *intermedia*, of which there are three specimens in flower, we have the hybrid of *amabilis* and *rosea* possessing an exact intermediate character. A larger and better coloured form of this may be seen in *P. Portei*, carrying a branched spike of thirty-five flowers. *Brymeriana* is another variety in which the sepals and petals have more colour than the type, the leaves being deep green with numerous small dots at the base. *P. Veitchi*, of which two plants are in flower, is undoubtedly a hybrid between *Schilleriana* and *rosea*, the former being the seed parent; the foliage resembles that of *P. Schilleriana*. The flowers partake of the characters of both parents. A pale and much more handsome variety of this is *brachyodon*. *P. Harriettæ* is in fine flower. This is the result of crossing *P. violacea* with *P. amabilis*, the former being the seed parent. In both growth and flower this forms an intermediate character, but the flower-spike is entirely that of *violacea*. One good point about these artificial hybrids is that they are strong growers, and it is gratifying to know that there are many more to bloom. Of *Stuartiana* there are several plants in bloom, varying greatly in size and spotting of the flowers; several root-buds from these plants are growing freely, and a few flowers will be open in a few days. Among the many varieties of *Schilleriana*, a noteworthy kind is *advena*. This is pure white save the faintest tint of rose at the back of the sepals and petals and a dash of yellow on the crest. There are many good varieties in the *amabilis* and *grandiflora* sections, particularly *Day's* variety of the former and the golden form of the latter. *Rosea*, which is well represented, is now on the wane. This species, with *P. Esmeralda* and *Lowi*, rendered the house quite attractive during the autumn months. A very interesting, though by no means showy, kind is *Parishi*. On one of the posts in this house is a fine plant of *Angreum Chailluanum* in flower, while near is the handsome *A. cryptodon*.

LÆLIA BELLA is in flower in Mr. Corning's collection. This is a magnificent hybrid between the old *Cattleya labiata* and *Lælia purpurata*, combining the best qualities of these, and producing flowers that are certainly unsurpassed.

L. TRIOPHALMA is also open. This is the result of crossing *C. superba* with *L. exoniensis*, itself a hybrid. It is a very free-growing kind, but I do not think it is any improvement on either of its parents.

L. GOULDIANA, described in a former number, has several spikes of bloom, and near it is *L. Crawshayi*; both of these are natural hybrids, and, I

think, a close examination will show that *L. albidia* is the seed parent in *Crawshayi*, and the pollen parent in *Gouldiana*; while *anceps* is the pollen parent of *Crawshayi*, and *autumnalis* the seed parent of *Gouldiana*; both are grand acquisitions.

Kenwood, Albany, N.Y.

F. GOLDRING.

ORCHIDS IN FLOWER AT FOREST HILL.

ALTHOUGH this nursery is so justly celebrated for its *Begonias*, Orchids receive a very large share of attention from Mr. Laing. At the present time the most noteworthy is a grand lot of *Dendrobium Wardianum* just coming into bloom. The plants form part of a large lot imported by Mr. Laing some two years ago. They have now become thoroughly established and have made fine stout pseudo-bulbs, in many instances superior in size to those made in their native country, while they are producing a corresponding quantity of flowers. Associated with these are also numbers of *D. crassinode*, with its bright flowers and curious pagoda-like pseudo-bulbs, many forms of the good old *D. nobile* and its richly-coloured variety *pendulum*, the ever-welcome *D. heterocarpum* with its violet-scented flowers, and *D. Ainsworthi*. These *Dendrobies*, and indeed all the East Indian kinds, are not grown in great heat, but the houses have a very genial atmosphere, there being very little stonework about them, whilst the paths are composed of clean coal ashes (similar to the plan so prevalent in the Belgian gardens), which, while they are easily kept clean and neat, continually yield a gentle and genial moisture, which appears to suit the plants admirably. In another house a quantity of *Cattleyas* is grown. Many of the *Trianae* section are now opening their flowers, and amongst them are some excellent varieties. Here also was to be seen, at the time of my visit, a plant in flower of that beautiful hybrid of Mr. Dominy's *Cattleya exoniensis*, its great beauty and its rarity still causing it to realise high prices, in proof of which a plant of this variety recently realised £100 at a public auction. Plants of *Cœlogyne cristata* grown here with the *Cattleyas* were just opening their snowy flowers, promising a brilliant show later on, together with the equally beautiful, but somewhat rarer, *C. elata*, and there still lingered some spikes of that useful Orchid, *Calanthe Veitchi*, which began the display some two months ago. Amongst miscellaneous species now in bloom the most worthy of note were *Cypripedium Dominionum*, various forms of the old *C. insigne* and *Boxalli*, *Oncidium Forbesi*, *Pilumna nobilis*, and a very remarkable form of *Odontoglossum grande*, which, when it is more fully established and the growths become strong enough to produce flowers of full size, will require a varietal name. Can anyone say why this grand old Orchid, which requires only cool treatment, and which produces such a magnificent display for so little attention, is still so seldom seen in quantity, as it is rarely that more than half a dozen plants are found in a collection? Amongst *Masdevallias* I noted *igneæ*, *polysticta*, and the snowy-flowered *tovarensis*, which latter appears to thrive best in a slightly warmer position than the *Harryana* and *igneæ* sections.

W. H. G.

SHORT NOTES.—ORCHIDS.

Saccolabium giganteum album.—This was recently flowering in the Chelsea nursery of Messrs. Veitch and is very similar to the type, but pure white, and, as the parent, powerfully fragrant. It must be classed amongst the choicest of white-flowered Orchids.

Lælia harpophylla is perhaps the most showy Orchid now in bloom, as the bright orange-scarlet colour of its flowers is exceptionally brilliant, and when seen in a mass, almost painful to the eyes. It is a Brazilian species and is similar to the distinct *L. cinnabarina*, but the flowers are larger and the colour is more intense.

Spathoglottis pubescens.—A small plant of this Orchid is in bloom at Kew, and though it flowers without the leaves, it is interesting and in its way beautiful. The slender peduncle is about 6 inches or so in length, and bears at the tip two neat flowers about the size of a halfpenny, clear yellow in colour, except the inside of the lateral lobes of the lip, where there is a suffusion of brown. Those who like small-flowered Orchids will appreciate this gem.

Miltonia cuneata.—The great beauty of this flower is chiefly in the lovely pure white lip, that presents a fine contrast to the sepals and petals, which are narrow and rich

chestnut-brown, the tips and bases pale lemon colour. An imported clump in the nursery of Messrs. Shuttleworth & Carter, Clapham, was bearing a good raceme, and it was an excellent variety, the foliage abundant, and the flowers well formed.

Stenorhynchus maculatus.—This is a form of *S. speciosus*, of which I sent you a note a short time ago. In this plant the leaves are beautifully spotted with silvery white, and the flowers appear to be red as well as the bracts. Fine examples of this kind are now flowering in Sir Trevor Lawrence's garden at Dorking, where it is grown in the intermediate house. It is a desirable variety for those who appreciate variegated leaves.—W. H. G.

Epidendrum Endresi.—This is a beautiful little gem in its way, but scarcely showy enough to please all orchidists. It is something like a tufted alpine, the stems being a few inches high and clothed with small deep green leaves. The flowers are white, except the lip, which is of a charming amethyst colour, something like what we find in *Saccolabium celeste*. A plant is flowering in the collection of Mr. Lee, of Downside, and is grown in a basket suspended near the glass in one of the warmest houses.

Odontoglossum hystrix.—This is considered a variety of the beautiful *O. luteo-purpureum*, an Orchid that should be in every collection, as few are easier to grow, and its flowers have a bold form and colouring. The variety *hystrix* is remarkably handsome, and one of the finest specimens that I have seen for some time was recently in perfection at Downside. The raceme was very thick and of considerable length, carrying twenty flowers of great substance and width; the sepals and petals rich brown, tipped with pale yellow, the lip of the latter colour and crested at the margin. The leaves are abundant, and the appearance of the plant betokens a strong vigorous habit.—X.

Ceogyne graminifolia.—This is said to be a very rare Orchid, and supposed to be flowering for the first time in this country. It may be seen in the Kew collection, where it has been in cultivation for a long time. It is a good deal like some of the other white-flowered species, such as *C. media*, *ochracea*, and others, but the foliage is distinct, being unusually narrow, of thick texture, deep green and erect, but the specific name *graminifolia* seems to be far-fetched, as the leaves are not very like Grass. The flowers are about 2 inches across, sepals and petals white, lip marked with yellow of different shades. It may be interesting to Orchid specialists, but it is doubtful if it will make such a good garden plant as the commoner white species. It is a native of Assam and Moulmein.—W. G.

Maxularia lepidota.—One of the most striking Orchids recently blooming at Burford Lodge was a couple of fine masses of this plant. It is dwarf and compact in habit and a most profuse bloomer, the flowers being borne singly upon long stems, and are very *Masdevallia*-like in appearance. The colour is bright orange-yellow, all the sepals being lengthened out into long tail-like points, which are brownish purple, the petals being about half the length of the sepals and orange-yellow. It is grown here in the house with the *Odontoglossums*, and should be sought after by all those having such convenience, as it is one of the most brilliant of winter-flowering Orchids.—W. H. G.

Cattleyas at Downside, Leatherhead.—The large *Cattleya* house at Downside, Leatherhead, the residence of Mr. Lee, is becoming gay with flowers, and as the spring advances will present a mass of colour from end to end. Varieties of *C. Trianae* are now the attraction, and it is surprising the vivid hues and delicate tints to be found in a comprehensive collection. *C. Trianae alba* was flowering freely; it is pure white, except the suffusion of yellow in the throat, but a form named *virginalis* eclipses even this in beauty and purity; it has petals of exquisite transparency, crisp, broad, and pure white, the only colour being in the throat of the lip, where there is a slight shade of yellow, the faint tinge of lilac that appears on the expanded portion when the bloom first opens almost disappearing with age. A finely-coloured variety is *Emperor*, the lip of the richest purple, and a bold contrast to the tinted sepals and petals. *C. T. Backhousiana* also has a lustrous purple-magenta lip, the sepals and petals lilac, the centre in each case enriched with a deeper shade. The finest of all now in bloom is *Leeana*, which has a massive, boldly-formed, and richly-coloured flower, the

petals measuring $3\frac{1}{2}$ inches across, and together with the sepals are of a rosy lilac tint; the lobes of the lip are purplish, the throat pencilled with orange, and the expanded portion deep magenta margined with white. Another very beautiful form is *Emilie*, characterised by very compact flowers, the wavy, broad, and pale lilac petals closing round the lip, which is deep purple fading to a lighter shade at the crinkled margin, the yellow colouring at the entrance to the throat intensifying the purple. Besides the forms of *C. Trianae* there were several of the variable *C. Percivaliana* in bloom, these being noticeable for the combination of gold and purple colours displayed in the lip.

ROSE GARDEN.

T. W. GIRDLESTONE.

ROSE STOCKS.

THAT suckers from the stock were an insurmountable objection to worked Rose trees would seem the natural conclusion to be drawn from Mr. Douglas's letter on page 50, but, as a matter of fact, in gardens where the plants are well looked after, suckers are not very numerous, and when Roses are transplanted, the number of suckers among them may be taken as a very reliable measure of the amount of neglect to which the plants have been subjected. For the avoidance of suckers, which, of course, it is desirable to reduce to a minimum, the most important precaution to be taken (short of employing only Roses on their own roots) is to make sure that the buds are inserted as close as possible to the roots of the stock. It is a good plan in budding to make the first incision of the point of the budding knife at the point whence the roots of the stock start from the stem, and then to draw it upwards for the longitudinal cut, subsequently pushing the bud down as far as it will go towards the roots, and if all eyes have been carefully removed from the base of the stocks when root-pruned and planted, Roses so worked will not throw up any suckers for a considerable period. It is impossible even so absolutely to guard against suckers from Briers which, although it is a very rare thing to find suckers from seedling Briers, occasionally develop eyes at some point of thickening of a root—it may be at a considerable distance from the main stem, and thence the familiar "robber" will appear. In such a case it is not sufficient to pull the sucker up, but the soil should be removed to find the point from which the shoot starts, and with a sharp knife that root should be severed just above the point at which the sucker springs from it. The Briers most liable to this kind of suckers are unquestionably standards, perhaps because they generally have such woody root-stocks, as "D. T. F." points out on page 95. By the way, the Brier-man's remarks there referred to are not very far off the mark, no doubt, for it is quite immaterial, when the Briers are manipulated by a skilful hand, whether they have any roots in the ordinary sense of the word or not, wonderful as it may appear how seemingly rootless standard Brier stocks establish themselves and thrive as they do. But it is hardly worth while to raise the question of desirability when the matter is one of necessity. "D. T. F." would know, if he had ever tried collecting Briers from the hedges, how almost impossible it is to obtain them with practicable roots. Generally, the specially coveted straight nut-brown stem has its roots out on the other side of the hedge, or there are half-a-dozen available stems all springing from one bole, and in either case the only chance is to chop off the root-stock near the base of the stem required, and trust to its making itself

roots afresh there, which somehow it usually contrives to do when replanted in the garden.

It was this somewhat imaginary difficulty of roots, or rather the lack of them, that induced the raising of standard Briers from seed, and so obtaining standard seedling Briers with a fine mass of roots; but in practice this is found to be the reverse of an improvement in the matter of suckers, as the "collar" of seedlings—below which the bud is inserted when the seedling stocks are worked as dwarfs—is a fertile source of trouble. Brier cuttings have been similarly tried and found to furnish splendidly rooted plants, but it could never be seen that they were subsequently a bit better than plants worked on the stump-ended Briers out of the hedges.

The great secret of success in growing standard Briers is to commence the operation of planting in good time. Standards planted in October are better than those planted in November, which in turn are much better than those planted in December. Where great quantities have to be planted, a start may be made even in the middle of September in ordinary seasons, and all should be completed before Christmas. If planting is deferred much later than this and a drying March succeeds, the Brier stems begin to shrivel and shrink before there is sufficient root action to keep them supplied with moisture, and the plants get no chance to make a fair start. It is only under such circumstances that there are seen the "sick and dying Briers" that "D. T. F." refers to—that is to say, where growers have been neglectful of doing things at the proper time; but if at the right season good sound stems are selected and planted, they will not fail to be thoroughly established and ready for budding in July, and it will still be (as it always has been) found in practice that it is absolutely immaterial that at the time of planting they were as rootless as the proverbial hockey-stick.

FORCING ROSES.

THE most lovely of all the flowers usually exhibited in March and April at the exhibitions of the Royal Botanic Society are the forced Roses. The question may well be asked: How are such flowers obtained so early as March? They are forced, of course, but the mere act of putting Roses early enough into a forcing house and supplying them with water will not do. The plants must have been well cultivated the previous season, so that the wood may be well ripened, and, therefore, furnished with plump buds ready to burst into active life when placed in a warm, moist atmosphere. They must also be near to the glass in order to have a free circulation of air. Light and air are the essential properties most necessary for the perfect development of leaf and flower. A temperature of 55° as a minimum is better than a higher figure early in the year, green-fly and mildew not being likely to attack them in the lower temperature. These parasites must be destroyed on their very first appearance, as they would speedily disfigure the leaves, which in a healthy state are only less beautiful than the flowers. In the higher temperature the texture of the leaves will not be so firm, growth will not be so vigorous, and as a result of this the flowers will be wanting in fulness and brightness of petal. In ordinary gardens the difficulty is to obtain a good position for plants intended to be forced. The trade growers have a house set apart for forcing their Roses in, but, as a rule, the amateur tries to grow too great a variety in one house, and fails to do anything well. Some things require a high temperature, others a low one, and in the effort to make a compromise something must suffer.

I force Roses well in the lofty lean-to early vineries. When the Vines are started, I place the Roses on an extemporised stage over the hot-water

pipes, and if they are then too far from the roof-glass, an inverted flower-pot is placed under each. The houses when started early have a low minimum temperature, about 45°, and as the season advances this is gradually increased, but does not go above 55° until the Vines have started. The Roses are generally well into leaf and bud before they are too much shaded by the Vine leaves, and as soon as the buds show colour, or even earlier, the plants may be placed in the greenhouse to fully develop their flowers.

J. DOUGLAS.

TREES AND SHRUBS.

ABSURD TREE PLANTING AND PROTECTING.

In many places there appears to exist a mania for tree planting, the development of which has led to the disfigurement of many pretty meadows and fertile fields. I allude particularly to the planting of groups of trees for a supposed ornamental effect. All lovers of landscape are aware how much depends upon trees, and vast tracts of land, which without trees are open, bare, and monotonous, are by their presence rendered attractive and beautiful. Moreover, inasmuch as the eye cannot take in the whole of the scene at one time as before, but is arrested by a fine group of trees, their presence has apparently added to the area. Possibly this may have led to the indiscriminate planting of groups of trees without due consideration as to the effect they will have upon the existing scenery. I have seen many of these tree-planting absurdities in rural and pretty parts of Kent and Sussex. In some cases forty or fifty trees, such as Scotch Fir, Beech, Elm, Lime, and Spruce Fir, have been crowded together in such a ridiculously small space, that even if thinning were resorted to there would be only room for the development of one fair-sized tree, and that expected to take place after the ground has been impoverished by others grown only to be cut away. I saw a few days ago what would be a fine meadow spoiled by several immense groups of trees, which, whilst producing no effect in themselves, shut out beautiful and natural scenery—green fields and woods of Oak, and a nice expanse of green turf cut into stupid pieces, narrow strips and tortuous windings leading from nowhere to nowhere.

There is another extreme of this pernicious grouping system in which the trees are planted too far apart, allowed much more room than they will ever require, cover nearly half an acre, and are surrounded by immense cradles of wood or iron called protectors.

From many of these unsatisfactory attempts to beautify the landscape, one draws the conclusion that it is a matter requiring great care and much thought. Doubtless, there are places where beautiful and hardy trees might be grouped advantageously and form distinct features, but it must not be done in a haphazard fashion. After careful consideration, the planting should be entrusted to some thoroughly competent man. Nearly every nurseryman styles himself a landscape gardener, but there are to be seen many sorry spectacles of nurserymen's planting where the contract has enabled them to get rid of a lot of surplus stock. The ability to grow and supply a number of trees does not qualify a man as a landscape gardener.

Tree-planting and landscape work in general should form an important part of every gardener's qualification, but it is much neglected by him, and, without doubt, there are numbers of glasshouse gardeners quite incapable of carrying out such improvements as would lead to satisfactory results. Such work does not come within a nurseryman's sphere, but he has stepped in to fill a gap, contracting not only to supply the materials, but also the hands to do the work. It is impossible for a man who has the responsibility of a large nursery business to give the time and thought requisite to such an important matter, for the landscape gardener's work is not routine, as what is suitable for one place is not for another, and he needs a long and varied experience.

It is possible, too, that the unsatisfactory results seen are opposed to the nurserymen's interests, and apt to deter others from embarking upon planting improvements.

There seems to be a great need of some simpler methods of protecting newly-planted trees other than those already adopted. I was recently at a place in Kent where a new road had been made, with a lot of trees planted at the sides, and surrounded by immense cages of wood which, if barred across the top, would effectually secure a man. They were formed of uprights of Larch, with cross pieces to hold them together, and were perfectly open, affording no protection against the depredations of hares and rabbits on winter nights. Some of the trees were small, and could not be seen above the tops of the cumbersome cages, so I went and looked inside to ascertain if they were really there. I never remember to have seen anything more grotesque than these large tree-protectors along the sides of a new road in an open corn-growing country.

Another stupid way often adopted for protecting newly-planted trees in parks and meadows is by placing pieces of iron fence around them. These are ugly enough in themselves, and I have seen hundreds of them, but after protecting the trees so that cattle cannot graze around their roots, the Grass is allowed to grow as high as it likes, drawing the goodness from the soil, and the tree stands protected from one enemy to do battle with another.

A. HERRINGTON.

Variegated Cucumber tree (*Magnolia acuminata*).—I have not seen a variegated form of this *Magnolia*, and I conclude that it is either very rare or does not exist in this country. A well-marked variegated form, however, exists in America, evidence of which I have in some very fine leaves sent to me some time ago by the late Mr. Hovey, of Boston. The largest of these leaves measures 11 inches in length by $4\frac{1}{2}$ inches in breadth. The variegation consists of bold blotches and bands of creamy white, and the green being dark the contrast is effective, and reminds me strongly of that of the variegated form of *Polygonum molle*. A large tree of this variegated *Magnolia* must indeed have a fine appearance.—W. G.

The Patagonian Cypress (*Fitzroya patagonica*).—I was rather surprised the other day to see how well this somewhat uncommon coniferous tree is thriving in Mrs. Robb's garden at Chiltley, Liphook, where the situation is not altogether suitable for tender trees. The specimens are very healthy, of a deep green, and seem to be quite at home. None of them, however, have made a leader, but form an irregular and rather spreading dense mass. The branches and twigs have an elegant way of arranging themselves in half-drooping masses, thus rendering this variety different from other Conifers. Though it thrives fairly well in a few places, it is not to be recommended for general planting. I have seen it growing well on the south coast on almost pure chalk, but I think that the soil, if not too stiff, does not influence it much.—W. G.

Ivies in pots.—Very handsome and effective specimens of Ivies used to be grown in pots, as they could be turned to good account in cold houses in winter, and during summer and autumn were most useful for terraces, &c., in the open air. For some reason they are not so much cultivated now in this way, and yet, when well grown and covered with nice fresh foliage, they are really very effective. Mr. C. Turner was famous for the fine specimens he grew some twenty years ago, and I think a revival of his method of growing them in the form of handsome cones is desirable. A few of the most useful varieties for this purpose are *Hedera elegantissima*, the leaves small, and unequally margined with red and yellow; *algeriensis*, a very fine form, with large, robust, shining green leaves; major, the leaves small and veined with cream; minor, in the same way as the preceding, but with smaller leaves; *lucida*, the shining dark green leaves having blotches of paler green, *lobata* major, with regularly lobed green leaves of medium size;

grandiflora arborescens, a Tree Ivy with vigorous foliage; *grandiflora latifolia maculata*, the bold leaves splashed and spotted with creamy yellow; and *marmorata* major, a small-leaved kind, with veins and dashes of pale yellow. It need scarcely be added that, in order to have Ivies in good form by the end of summer, the pots in which the plants are growing should be plunged up to their rims in some suitable material and the soil kept moist. I have seen Ivies in pots keep in good character in hot and drying positions in summer, through each pot being placed within a larger one, and filling up the vacuum by ramming in firmly between the pots Moss or Cocoa fibre. Not long since I saw a stretch of brick wall, some 5 feet in height, that had been planted its whole length with Ivies, the various types being intermingled, and the effect was charming, more particularly in the depth of winter.—R. D.

Varieties of *Cupressus Lawsoniana*.—

There is a fact particularly interesting to me in the notes upon these by "H. P." in *THE GARDEN*, February 11 (p. 128). He says that while the *erecta viridis* variety is the easiest to propagate, the most difficult is the loose-growing form *intertexta*. Now this is singularly in contrast to the behaviour of these two forms after transplantation, for while I find that *erecta viridis* is a difficult plant to transplant in a large state, *C. intertexta* and other loose-growing varieties may be transplanted most successfully. Two years ago I had occasion to transplant a large number of Conifers of considerable size, among them being numerous forms of *Lawson's Cypress*, and the result was that only 50 per cent. of the *erecta viridis* withstood the moving, while the others were almost all successfully moved. Many of the *erecta viridis* specimens did not die outright, but turned rusty half-way down, the lower part remaining green, but, of course, as specimens they were useless. Some of the looser-growing forms were 20 feet high, and lived through the terrible drought of last summer, and are doing well. My experience with *erecta viridis* is just the same with trees from nurseries. It seems to transplant best when of a size ranging from 1½ feet to 3 feet 6 inches in height. It is singular that there should be so much difference of constitution in plants springing from the same parent. The behaviour of large trees and shrubs after having been transplanted is of importance, and information thereon will, I am sure, be welcomed by all interested in them.—W. G.

The Mezereon shaded or exposed.—I thank both my friend Louis Kropatsch and "A. D. W." for the attention they have given to my note in *THE GARDEN*, Jan. 7 (p. 2), concerning this shrub. M. Kropatsch's note is interesting to me, as I learn from it that the Spurge Laurel (*D. Laureola*) and the Mezereon grow both in rather shaded woods in the Austrian Alps. But I beg of "A. D. W." not to be too rash in assuming that I made a mistake in stating that the Mezereon dislikes being overshadowed by other growth. If he will take the trouble to observe for himself, he will, I think, find that the Mezereon does thrive best in the open, notwithstanding the fact that it grows naturally in shade. I was led to make observations upon the subject after reading some years ago Loudon's remarks on the subject in his "Arboretum," vol. iii., p. 1303. He there states, in speaking of the Mezereon: "It thrives best in a loamy soil and in an open situation." Knowing that it is usually planted in shady places, I was struck with this remark, and since then have observed that the best Mezereons are almost always in the open, as then they ripen their wood better than in shade, and consequently flower better. Therefore, I repeat that the Mezereon should not be planted in shade. It may flourish in another country in the shade where the summers are hotter, but in this country it is a different matter. Because a plant grows wild under certain conditions, it does not follow that a strict imitation of those conditions in a northern climate is the right course to follow in the cultivation of the plant. If such were the case, we should have to modify considerably our present methods of cultivating a large number of exotics. My observations are not confined to our "great public garden," as I have the

opportunity of seeing many gardens far and wide, and of observing the conditions under which open-air plants thrive or otherwise, but Kew being a public garden so near London, it is natural to direct attention to what may be seen there. As to the instance "A. D. W." mentions of a Chili Pine "struggling beneath the shade of trees at Kew," I ask him, in how many gardens or estates of similar extent (250 acres) is every tree planted according to his own notions of right and wrong?—W. GOLDRING, *Gloucester Road, Ken.*

The Chilean Yew, or Plum-fruited Yew as *Prumnopitys elegans* is called, cannot be much known, or I am sure that such a beautiful shrub would be much oftener seen than it is. At one time I did not think much of it, but since I have seen it growing in several gardens luxuriantly, and making such a handsome feature, I have altered my opinion, and include it among the choicest of Conifers of small growth. From books we learn that it grows into a good-sized tree, 40 feet or 50 feet high, in its native home in the mountains of Southern Chili, but I have never seen it more than a shrub in this country, the tallest I have measured being between 6 feet and 7 feet high. It is something like our common Yew, but is easily recognised by its foliage being of a duller, if not of a deeper green, and by the irregularity of the leaves, which are whitish on their under surfaces. The leaves as well as the branches are very abundant, and the tree generally assumes a symmetrical pyramid-like habit, not unlike that of *Abies Hookeri* and *A. Pattoniana*. It likes shelter from north winds, and from what I have observed as to its growth on various soils, it appears to prefer a stiffish, if not a clayey soil. Last week I saw it growing luxuriantly in Mr. Waterhouse's beautiful tree garden at Upcroft, in Berkshire, and there the soil at a spit deep is a heavy clay, yet a large number—I might say the majority—of coniferous trees grow with unusual vigour upon it.—G.

The Raisin Barberry is the name given long ago by Lindley to *Berberis asiatica*, and an appropriate name it is, as the berries are covered with a glaucous bloom just like that on raisins. This Barberry is not so frequently seen as its relative, *B. aristata*. I wonder it is not more used as a covert plant, as it grows so strongly in any kind of soil and sends up a multitude of strong suckers. I saw this Barberry in fine condition in Mrs. Robb's garden at Chiltley the other week, and I do not remember ever seeing it so large. She has numbers of specimens 7 feet or 8 feet high, and so dense that one can hardly see through them. Judging by the remains of last season's crop of berries, this Barberry must have a pretty effect when in perfection of fruit, the oval berries being the size of Peas and hanging in short clusters. It is a native of the Himalayas; whereas *B. aristata* comes from Nepal. Both are thoroughly hardy, very strong growers, and indifferent as to quality of the soil, provided it is not rank clay. Though both seed freely in this country and are otherwise much propagated, I find that out of eight tree and shrub nursery catalogues to which I have referred, these Barberries are only mentioned in one, and that a foreign one. It is not surprising then that shrubs like this should be so uncommon when they cannot be easily obtained in the usual way.—G.

SHORT NOTES.—TREES AND SHRUBS.

Fambusa Veitchii. M. Carrière, in the *Revue Horticole*, praises this Bamboo, and says it is likely to prove a useful and hardy plant.

Rapid growth of Gum Tree.—I have a stem of *Eucalyptus globulus* two years from seed measuring at 3 feet from the ground 15 inches in circumference. It was grown at Antibes (Alpes-Maritimes) by M. Henri de Vilmorin.—CHARLES BATES.

A noble Oak leaf.—*Après* of Oak leaves, I enclose the facsimile of one I gathered in my garden in Kent in 1872 from a shoot which had sprung up from a young cut-down tree of *Quercus ruber*. It is the largest leaf I ever saw. It was spread out on paper, and cut exactly.—A. R., *Wandermere*.

* * * The Oak leaf referred to above was of handsome form and measured 1½ inches long by 8 inches wide.—Ed.

The Colchic Bladder-nut (*Staphylea colchica*) has for the past few years been a favourite shrub among gardeners for forcing early into bloom. The

clusters of snow-white flowers, in contrast with the tender green foliage, make it very beautiful, and quite different from the commoner *Deutzia gracilis*, double Chinese Plum (*Prunus chinensis* fl.-pl.), Lilac and others. The plants should be induced to make a quantity of flowering shoots, which should be thoroughly ripened out of doors during the previous summer and autumn. A good crop of bloom from properly prepared plants may be thus ensured at the present time in company with other forced shrubs, such as *Cydonia Maulei*, double Chinese Plum; it helps to make the conservatory (No. 4) at Kew particularly gay.

AZALEA MOLLIS.

THIS Azalea is very suitable for forcing into bloom, and a great point in its favour is the fact that no special attention is needed in order to obtain specimens adapted for this purpose. Of course, in selecting plants for forcing, care must be taken to see that they are well set with flower-buds, and with regard to this no mistake need arise, as they stand forth very prominently on the ends of the shoots. Provided the plants are well attended to during the summer, especially in the matter of water, they may be kept in pots and flowered under glass year after year, while, on the other hand, fresh plants may be obtained for forcing every year, and after the flowers are past, the plants may be hardened off and ultimately planted out. This Azalea is by no means difficult to obtain in the shape of neat little bushes available for forcing, as, besides the vast numbers that are grown by our English nurserymen, enormous quantities are every year imported from the Continent. There is a wide range of colour now to be found among the recognised varieties of this Azalea, and even in the case of a batch of seedlings there is a vast difference between them, not only in the colour of the flower, but also in the shape thereof, profusion of blooming, habit of plant, and in the autumnal tints of the foliage. This last is very noticeable at that season, for some die off an intensely bright crimson, others a dull brownish hue, many of them different shades of yellow, while a few retain their green tint till they drop. The named varieties are propagated either by layers, by grafting, or by seedlings, this last being the method usually employed, as seeds readily ripen from which young plants in quantity can be raised. Those that flower early in the season, if they are established plants and the blooms are artificially fertilised, will, before the summer is far advanced, ripen their seeds, which may be at once sown in pans or boxes of sandy peat, and kept close and shaded until germination takes place. A very good plan if a quantity of seeds is to be sown is to take an ordinary frame and place about an inch of drainage material over the bottom, then on that a couple of inches of sandy peat, moderately fine, and levelled over smoothly. On this the seed may be sown, and a little fine sand just scattered over it, when no more attention will be needed till the young plants require pricking off. The seed can also be sown in a sheltered spot and covered with Spruce branches till germination takes place, but the young plants make more rapid progress when they pass through their earlier stages under glass.

H. P.

Evergreen Oaks.—I am highly pleased to learn that there is such a grand specimen of Turner's Oak at Eastnor Castle, and I thank Mr. Coleman for the information he gives in THE GARDEN, Feb. 4 (p. 106), respecting it. The trees must have grown very quickly, seeing that one is 38 feet high, though planted only forty years. This is, as Mr. Coleman may be aware, one of the Oaks of doubtful origin, and is supposed to be a hybrid between the British Oak, *Q. pedunculata*, and *Q. ilex*. No matter what its origin is, it is a grand evergreen tree, and it is a pity that one cannot buy decent specimens of it at a fair price. It is, in fact, one of the trees nurserymen tell you there is no demand for. As to *Q. austriaca sempervirens* being inferior, I cannot agree with Mr. Coleman, as it is hardly to be compared with it, seeing that it is not a true

Evergreen—that is, its foliage turns rusty in spring but it is a very cheerful light green throughout the winter. Then, again, its symmetrical globular head, so dense and compact, renders it a favourite with some people. As to the identity of what is generally known as *Q. austriaca sempervirens* with what is named at Kew *Q. glandulifera*, I have no doubt that the two names are synonymous, and that *Q. glandulifera* is a new name for an old and well-known tree—known well in London's time, and long before. I have come to this conclusion since I wrote the note to which Mr. Coleman refers. His praise of *Q. ilex Fordi* is thoroughly deserved, it being, I think, the most desirable of all the forms of *Q. ilex*. I wish nurserymen would pay more attention to these Evergreen Oaks than they do. They are, of course, among the most difficult to manage during their nursery career; but I believe if some means could be devised whereby one could get good plants with their roots, not twisted like corkscrews in small pots, no one who wanted the trees would mind paying a good price for them. The miserable specimens one gets as a rule from nurseries deter people from planting them.—W. G.

Prunus sinensis flore-pleno.—This is an extremely pretty little shrub, and one that may be readily forced into bloom early in the season, at which time its slender twigs, densely studded with pretty little rosette-like blossoms, are much admired. It forms a dwarf, but upright-growing and much-branched shrub, and if frequently transplanted when young, neat, well-furnished specimens may be put in pots 6 inches in diameter. The plants may be grown in pots year after year, or planted out and lifted when required for forcing purposes. The plants do best if lifted in the autumn just before the leaves fall, and if potted at once they may be plunged in a sheltered spot either in coal ashes, Cocoa-nut refuse, or decayed leaves. There are a couple of varieties, in one of which the little double blossoms are pure white, and in another tinged with pink. The pink form is not only very pretty when under glass, but it also forms a very ornamental shrub when in the open ground, and is well suited for association with small-growing subjects. This shrub will thrive well trained to a low wall, in which position the blossoms are sheltered from spring frosts, which sometimes injure the flowers when in the open ground. Another capital wall plant, and a near ally of this last, is *Prunus triloba*, which is available for forcing equally with the other. The blooms of this, which are, when first expanded, of a beautiful bright rose colour, but paler before they drop, are semi-double, and the branches are clothed with them for a considerable distance. This shrub is also occasionally met with under the name of *Amygdalopsis Lindleyi*.—H. P.

MARKET GARDEN NOTES.

FAVoured by mild, open weather, work is being rapidly pushed forward, manuring, ploughing and digging being well advanced for the time of year. Green crops are being cleared off as rapidly as possible, and instead of a scarcity, as was predicted last summer, the markets are well supplied with all kinds of green vegetables in excellent condition, and at much lower prices than prevailed any time last summer. The sowing of Peas and Broad Beans, and the planting of Cabbages, Lettuces, and Onions have been done on land in capital condition. Frames and hotbeds are being put in order for the coming season. The main crops being brought forward under glass are Cucumbers, Tomatoes, Cauliflowers, and Lettuce plants; these are sown in pots or boxes, and grown on in warm pits or houses until large enough to harden off for frame or outdoor culture. Those who grow flowers under fruit trees are now getting a good supply of Violets, that are tied in small bunches and sold to greengrocers and florists.

Good supplies of forced Rhubarb and Seakale are now coming in, and there is a ready sale for Green Mint. This is one of the easiest things to grow, and repays forcing better than many crops that require far more attention. I put the plants on a slight bottom-heat, and keep the frame close until the shoots are well above the soil, when air is given

freely on mild days. A vast quantity of bunches of Mint is obtained from a very small space, the only thing the plant seems to require being a fresh site every year, and as it increases as rapidly as Couch Grass, this can be easily given it. J. G. H.

NOTES OF THE WEEK.

Pear Olivier de Serres.—Mr. Geo. Bunyard sends us fruits of this Pear. There is something in the Pear, but it is a little uncertain. It deserves careful trial and report, and is not (as are many Pears sent us) devoid of all delicacy of flavour.

The Plum-coloured Christmas Rose (*Helleborus colchicus*).—Messrs. Smith, of Worcester, who, we are glad to see, are giving much attention to hardy flowers, send us a fine box of flowers of this Hellebore. It is a very useful and beautiful variety, flowering as it does during all this inclement weather.

Dendrobium nobile.—We have received from Mr. A. McDonald, Tayside Gardens, Perth, a photograph of a fine specimen of *Dendrobium nobile*, smothered with its brightly coloured flowers. There are few Orchids to surpass this old favourite for beauty and usefulness.

Two Grapes.—Mr. Goodacre (who was my first foreman here) has sent me a couple of photographs of Grapes Gros Colman and Mrs. Pearson, and I think them so good that I have sent them on to you by parcels post. Mrs. Pearson is a noble Grape, and does well here. The bunch figured in Mr. Barron's Vine book came from here.—W. WILDSMITH.

Draba hæutica, an interesting hardy flower, is in bloom in a cold frame at Broxbourne, and is entitled to consideration, as it is of a distinct character. It blooms from the centre of the hairy rosettes, and has rich golden yellow flowers that are very effective at this season. It is grown in a pot, with pieces of sandstone placed round the collar of the plant, to keep the soil in a nice state of moisture.

Galanthus Sharlocki is a pretty and distinct Snowdrop, now conspicuous on the rockery in the nursery of Messrs. Paul at Broxbourne. It has comparatively broad, glaucous foliage, and the nodding flower comes from between two upright pointed leaves, which terminate a stout stem. In size it is similar to the common Snowdrop of the fields, but the segments have each a blotch of green at the base. It is an interesting kind for the lover of Snowdrops.

Early Daffodils from Cork.—I send you owners of common double Daffodils picked in the open at Glengarriffe, Co. Cork, this day (Feb. 17). Is this considered early, or can the Cornish climate approach it? The Crocus bloom is nearly over. I should think that the flowers of Daffodils that one sees in Covent Garden at this early period have been forced.—R. M. F. TOWNSEND, *Stone View, Blarney*.

*** The Scilly Islands, off the Cornish coast, produce the earliest Daffodils, and many of those now seen in the markets come from there.—ED.

Lælia superbiens.—I have two plants of this *Lælia* in bloom. One spike has fourteen flowers, each from 5 inches to 6 inches across, and a stem 6 feet in length from the crown of the bulb to the base of the spike; it may well be called the Wand of St. Joseph. Another plant has a stem 4 feet long and a spike of ten flowers. The flowering bulb of this plant is strong. The flowering bulb of the larger specimen is a, comparatively speaking, mere elongation of the stem. I had these plants direct from Guatemala some years ago, and they have yielded spikes of bloom now for a series of years. It is well worth a place in the intermediate house, lasts long in bloom, and is valuable for decoration in many positions.—P. MIDDLETON, *Wynnstay*.

An early Saxifrage.—One of the earliest of the Saxifrages to bloom is *S. Sancta*, but one named *S. Frederici Augusti*, now a mass of flowers on the Broxbourne rockery, is still earlier, as it commences its gay career before January is out. The flowers are very plentiful, pale sulphur-yellow in colour, and borne in small clusters on stems 2 or 3 inches high. It is quite hardy, and at this season makes a pretty pot plant. The chief points of difference between this and *Sancta* are its denser growth, greater freedom of flowering, and slightly encrusted leaves. The latter Saxifrage was growing side by side with the newer form, but while this was a mass of flower the buds of the

other were only just peeping through the dense mat-like growth.

Ardisia mamillata.—This is a new addition to stove berry-bearing plants, and it gives promise of becoming at least as useful as the old—one might almost write neglected—*A. crenulata*. A plant of the new one was shown at the last meeting of the Royal Horticultural Society by the Messrs. Veitch, and was awarded a first-class certificate. It was introduced to Kew by means of seeds from Hong-Kong, and a batch of healthy plants may now be seen in one of the houses there. The leaves are pale green, curiously puckered all over the surface, and a silky hair springs from the top of each point or margin, whence the specific name. It has an erect unbranched stem, thickly clad with horizontal leaves, which are 4 inches long by $1\frac{1}{2}$ inches wide; the flowers are borne on horizontal stalks in bunches, and they are succeeded by scarlet berries, brighter than those of *A. crenulata*. For stove decoration in winter this well-berried plant will be found useful. It requires plenty of moisture always.—W.

Narcissus cyclamineus.—I was much struck with the elegant beauty of this charming and most free-blooming miniature *Narcissus* when I saw, in the window of one of our leading seedsmen and florists in the city of Cork, a large panful of it containing over 100 bulbs, almost all of them in full flower. I was additionally surprised to learn from the proprietor that these bulbs which were blooming so well were most of them so small (many of them not much larger than a pea) that no one would buy them from him the previous autumn, thinking them too small to bloom. As this little gem is perfectly hardy, it should prove a great acquisition to our gardens.—W. E. G.

A variegated hardy plant that makes a distinct feature on the border or rockery at the present season, when there are few flowers to give colour to the garden, is the variegated form of the common Madonna Lily, named *Lilium candidum aureo-marginatum*. The growth is robust and the leaves plentiful, these having a band of green down the centre, broadly margined with rich yellow. A few plants on a border at Broxbourne are very bright and cheerful, and as an ornamental pot plant for the greenhouse it is of no small value during the winter. There are a few hardy flowers that may be grown for the sake of their foliage alone, and this is one of the number.

Aerides vanderarum.—This is a species one seldom sees in cultivation. It is, however, included in the Burford Lodge collection, where a fine plant is now bearing fourteen of its large pure white flowers. It was at first called a white *Vanda teres*, and has been grown in English gardens, and figured in the *Botanical Magazine* under the erroneous name of *Aerides cylindricum*. It does not readily conform to cultivation in this country, but the specimen referred to appears to be growing vigorously upon a Teak wood raft suspended against a wall in the East India house, where it gets frequent sprinklings from the syringe, saving when in bloom. It does not appear to require much Moss about its roots.—W. H. G.

Notes from Howth.—I visited "St. Brigid's" deserted garden yesterday. The Alexandrian Laurel (*Ruscus racemosus*), 4 feet high, is lovely—clean glossy foliage splendid for big vases. The Lenten Roses are fine, especially the spotted Berlin hybrids. The finest of all the wild kinds is *H. colchicus*, with dark claret-coloured flowers and bronzy purple foliage. A specimen surrounded with Snowdrops in an irregular ring was lovely. *Iris stylosa* was flowering freely, and the plants of Christmas Roses—seedlings from the noble St. Brigid var.—were still yielding a few good late flowers, although, of course, the best and largest are over. *Romneya Coulteri* is growing like a weed; so also graceful Bamboos beside an old wall, and *Abutilon vitifolium* is growing into a tree and flowers well here every year. At Mr. Riall's place near Bray there is a small tree of this *Abutilon* 20 feet high, and it bears great clusters of its pale mauve, *Meconopsis*-like flowers every summer. One of the neatest and most distinct of hardy Ever-

greens in "St. Brigid's" garden is *Pittosporum undulatum*, or is it *P. Mayi*? for I cannot find any satisfactory distinction between these reputed kinds. It forms a dense bush 6 feet to 8 feet high, and defies the rough gales which blow in here from the sea. *Sisyrinchium grandiflorum* grows and flowers and seeds about here like a weed. It is now very lovely, its purple bells dangling among the pure white Snowdrops. The Anemones are throwing up their great double flowers, and *Narcissus Tazetta floribundus*, with leaves like those of a Leek, is fast coming into bloom. I have seen single scapes of this fine variety bearing from twelve to eighteen flowers each in the deep, rich soil of this seaside garden. *Anemone fulgens*, with *Narcissus pallidus præcox* amongst it, is coming into bloom, and a clump of *Galanthus Elwesii* bore flower-buds an inch long, and over half an inch in diameter at their widest part. Primroses and Polyanthus suffered here, as elsewhere, during last summer's heat and drought, but they are now coming into flower, as also the double yellow Daffodils. To-day (Sunday) has been very stormy, wind, hail, sleet, snow, &c., but the latter does not lie long here. We had 14° of frost one night this week.—F. W. BURBIDGE.

Iris Roenbachiana.—This is the most beautiful of the early-flowering kinds, and apparently the most hardy. We have had a week of severe cold and frost this season, and this *Iris* has opened during it and without any protection. It is very dwarf in habit, and fourth in the order of flowering—*Histrio*, *reticulata*, *reticulata cyanea*, *Roenbachiana*. You will be able to describe its colour combination much better than I can, a by no means easy task.—T. SMITH, *Nerry*.

*** A very bright flower, pale lavender with dark purple lip, but with a very rich yellow band going far down the limb. A beautiful thing!

Dracæna Cantleyi.—This is a new addition to the true *Dracænas*, but, so far as is known, the plant at Kew is the only one in English gardens. It was sent to Kew some years ago by Mr. Cantley, the superintendent of the Singapore Botanic Gardens, and it is now flowering for the first time. The flowers are of no account, being small, greenish white, and crowded on an erect, terminal-branched spike. The leaves are, however, attractive, owing to the surface being marked with large pale green spots on a deep green ground. The spots suggest the markings on a mackerel's back. The length of the leaves is about 3 feet, by about 4 inches in width. For large stoves this *Dracæna* ought to become a favourite, as the peculiar marking on the leaves is noteworthy; the plant, too, forms a handsome specimen.

Flowers from the south of Ireland.—I send you a gathering from the open air at Temple Hill, including the following flowers: *Iris reticulata*, *Helleborus* (Riverston variety), of which we have been cutting since November; Daffodil *Ard-Righ*, *Narcissus pallidus præcox*, *N. Telamonius plenus*, and Paper-white, small varieties. From the cold house I enclose *Primula obconica*, *Narcissus capax* or Queen Anne, *N. poeticus angustifolius*, and *N. præcox* of Italy. I did not grow ornatus, which is much earlier. We are having dreadful weather now with snow and north wind.—W. B. H.

*** Fresh and charming blossoms, nearly all sweet. We wish the perennial Irish question were as welcome.—ED.

Hardy Cyclamens make bright patches of colour on the rockery now, and the wonder is that these miniature gems are not used more for giving colour to the hardy garden, when there is little else but the nodding Snowdrops in bloom. *C. Coum* is one of the richest, the neat, small, deep crimson flowers appearing just above the heart-shaped leaves. A frameful of *C. Atkinsii* was in bloom at Broxbourne, and when merely protected from frosts, the flowers have a surprising freshness and beauty. There are several forms of the latter, the best-known being roseum, rubrum, and album. On large rockeries where there are many little recesses and nooks splendid opportunities for making a natural display with these early February flowers are given. They grow under ordinary conditions, and

a few might be grown in pans for the enrichment of the greenhouse.

Odontoglossum ramosissimum.—This is not a common species, though it has been introduced many years, and has flowers that if not showy are extremely beautiful owing to their delicate colours. The leaves are long, and a well-grown plant will bear a large panicle crowded with small flowers that have narrow sepals and petals, wholly pure white, except a tinge of lilac-mauve at the base of the latter; the lip is crested at the apex, and also white. It is one of the best of the small-flowered *Odontoglossums* flowering in winter. A good specimen was blooming recently in the collection of Mr. Lee, Downside.

Cydonia Maulei forced into bloom early is one of the most delightful shrubs one can have in a greenhouse, the colour of the flowers being different from that of other flowers. The contrast of the orange-red or, as some call it, brick-red blooms with the bright tender green foliage is charming. In the greenhouse at Kew there is a group of it, the bushes having their long slender branches wreathed with flowers and leaves. It would be a great boon to many gardeners at this season who wish to introduce as much variety of colour as they can into their conservatories. It is easily forced; the chief point to observe is, not to begin to force it too early or in too high a temperature. Well-rooted bushes are necessary, and those that have been grown fully exposed during the previous summer flower most freely. The only colour that approaches that of Maule's Quince is that of *Azalea mollis*.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL. Scientific Committee.

Orchids.—Mr. O'Brien remarked on a so-called *Masdevallia culex*, but which is really *Pleurothallis Barbareana*, bearing minute delicate flowers. A *Dendrobium Kingianum* var. *albidum* was also exhibited. The inflorescence bore eighteen flowers. The original specimen, figured in the *Botanical Magazine*, 1845, No. 61, bears pink flowers, and in the description two only are said to have then been the average number. It is refigured, in 1850, in the *Botanical Magazine*, No. 4527.

Wallflower, monstrous.—Mr. Henslow reported upon the specimens exhibited by Mr. Lynch at the last meeting, known as "Miss Hope's." They were not gynanthous, but a form of "double" flowers. The calyx was normal, but contained more or less than ten petals, that is to say, the usual four, and six others representing the stamens. Instead of a pistil, the axis was prolonged, and terminated with a double flower, having a normal calyx, but a corolla of an indefinite mass of petals. This case, therefore, resembled the double form of *Helianthemum vulgare*, only in that flower the calyx and corolla are repeated three or four times.

Honey from Eucalyptus globulus.—A specimen had been sent from Adelaide, S. Australia, to Mr. T. Christy, as possessing similar properties to those of the tree itself, being, for example, antiseptic in its nature. It is found to be very efficacious in cases of lung disease. The honey can only be procured every other year, as the tree flowers biennially. One peculiarity is that, though liquid on arrival, it rapidly crystallises in this climate. It has a very peculiar flavour and scent.

"Jambul," Eugenia Jambolano.—Mr. T. Christy sent a growing plant as well as seeds of this important drug. Its peculiarity resides in the power of its seeds to arrest the conversion of starch into sugar; hence its value in diabetes. The seed appears to contain about 31·4 per cent. of oil and 4·32 per cent. of ash; also yellow-green resin and a crystalline principle are present. Experiments with starch and malt extract, with and without jambul, showed that while 22·4 grains were converted into sugar where no jambul was present, only 9·8 grains were charged with 15 grains of the seed; and 6·3 grains of starch became sugar with 25 grains of

jambul. It is now used very extensively in America and Germany, and has begun to be employed in England apparently with very beneficial results. From a preliminary analysis, the seed does not appear to contain any starch, and therefore the question arises whether the particular ferment which emulsifies oils in seeds may not generally have a sort of anti-diastatic action. Further details will be found in No. 10 of *Med. Com. Pl. and Drugs*, by Mr. Christy.

Oranges, cultivation of, in England.—Mr. T. Christy contributed the following remarks upon Orange growing: "In discussing the question of Orange growing in this country with Dr. Amadeus, he tells me how much has been done by grafting in Porto Rico. He recommends the graft to be made on the strong stems, and the plants do so much better when not grafted too young. With regard to the transport of the fruit, he believes that the fifteen days' sea journey will be fatal to the quality and flavour of the thin-skinned Oranges, so that it would be better to send some cases of plants of the best varieties for growth in houses here. Since the receipt of the large shipment from Bahia many growers have bought stock of the Orange trees, with the view of so doing. It only remains for the commercial question to be threshed out. One grower informed me that he got so much juice in his fruit that it burst in ripening; so this fact sets at rest the question of hard 'woody fruits' only being produced in this country. Mr. H. Dixon, of Cherkley Court, Leatherhead, has two Orange trees, each bearing more than 200 fruits; and from his *Pomeloes* he says that he is able to make a delicious preserve. With regard to foreign fruit, a captain in the Mediterranean trade tells me that from his experience in collecting Oranges in most parts of the world where they are grown, he believes the palm for delicately flavoured varieties must be awarded to those from Malta. This he attributes to the great care bestowed in their cultivation. When attending the display of fruit at the Agricultural Show in Paris every year, I have been struck with the fine exhibitions of these fruits together with Citrons and Limes from Algeria; and I was informed that the French government obtained thence the best varieties for their botanical gardens, and that the trees were in full bearing."

A fine series of home-grown Oranges, Lemons, Citrons, and kindred fruits was exhibited by Mr. Rivers, who has cultivated them for the last twenty years. Mr. Michael corroborated the difficulty of importing Oranges from Bahia—one of the best Orange-growing districts.

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

This most useful institution—one that offers peculiar advantages to young gardeners—is a benefit society and a savings bank combined, the payments not being more than in the case of ordinary benefit societies whose members have no claim upon the surplus funds. The payment of 6d. per week, or 26s. per year, ensures 10s. 6d. weekly in case of sickness; the payment of 9d. weekly, or 36s. per year, ensuring 16s. weekly. A small payment is made annually to the benevolent fund, and all pay 2s. 6d. annually to the management fund, and for the present all that the secretary receives for the discharge of his onerous duties is any balance remaining over from the management fund at the close of the year. When a member is wholly unable by sickness to work, he is entitled to full sick pay; a proportion of the sick pay is paid even when he can do a little work. From the benevolent fund extra allowances are made in special cases and to meet accidents, &c. The overplus of the society is divided among the members every year, and is invested in the public funds, and there is at the present time a sum of £4000 invested in three-per-cent. consols. Each member has a separate account; the growing fund, with interest added yearly, is payable to the nominee of a member upon his death, or it can be drawn by himself at the age of seventy years. Even should a member cease to subscribe, he does not, as in the case of ordinary

benefit societies, lose what he has paid, but it is handed over to his nominee at his death. It is a most deserving institution, encouraging thrift among young gardeners. There is a class of honorary members who subscribe one guinea per annum, and the sums so obtained are carried to the benevolent fund. Gentlemen interested in the society can render it efficient assistance by becoming honorary members.

The annual meeting of this society took place at the Caledonian Hotel, Adelphi, on Monday evening, the 13th inst. Mr. Richard Dean, one of the honorary members, in the chair, a considerable number of members being present. The annual report of the committee set forth that the society had made rapid growth during the year, fifty ordinary and sixteen honorary members having joined. One of the oldest members, William Heale, late of Hereford, had died, and the sum paid to his widow at his death was very nearly £50, and he had received a further sum of £18 odd as sick pay. The total amount of sick pay for the year was £61, but two or three exceptional cases had made this sum higher than usual. During the year a further sum of £350 of Government Stock had been purchased. The society celebrated its twenty-first anniversary in October last by a dinner, at which Mr. Harry J. Veitch presided, and the committee bear testimony to the great service rendered to the society by Mr. Veitch on that occasion. The gardening papers gave full reports of the dinner, and as a result many applications for membership had been made. The treasurer's balance-sheet showed a total income of £603 16s. and an expenditure of £512 5s. 5d., a balance of £91 0s. 7d. being carried forward, the amount of the working expenses being very low for a society of this character. The secretary is Mr. W. Collins, 5, Martinhoe Terrace, Martindale Road, Balham, S.W.

Weather in Kildare.—Hardy flowers are having a bad time of it, as for the past seven days we have had from 10° to 15° of frost every night and no sign of change.—F. BEDFORD, *Straffan*.

Christmas Rose St. Brigid.—Would some one of your readers kindly say where *Helleborus St. Brigid* can be procured true to name?—G. T.

Tufted Pansies.—I wish to plant a ribbon border of about half a mile in length, and should be glad to have the names of three varieties of Viola or Pansies—dark blue, yellow, and white—most suitable for the purpose. They should be compact, free-flowering, and bright-coloured.—A SUBSCRIBER, *Cornwall*.

Cultivation of aquatics.—In connection with the botanical pond at Howietown, I have built a hot-house for aquatics, so arranged as to give any required depth of water. The overflow is taken from the bottom. The house is to be heated by hot-water pipes above the surface of the water. Should hot-water pipes be laid in the water also? There is a ledge 30 inches from the surface, extending to within 6 feet of the centre, which could be utilised, or pipes could be laid at a depth of 5 feet from the surface of the water. It is desired to have the power of studying tropical and sub-tropical aquatics, but the house would be used principally for wintering semi-hardy aquatics for bedding-out in summer. The arrangements admit of two distinct water temperatures. If hot-water pipes are required under water, should they be of copper?—J. R. G. MAITLAND.

BOOKS RECEIVED.

Part 1 of the new issue of "Cassell's Popular Gardening."

Bulletin of Miscellaneous Information. No. 14: List of Seeds of Herbaceous Plants. Royal Gardens Kew.

List of Seeds available for Distribution. From the Cambridge Botanic Garden.

Names of plants.—A. M.—Cannot name florists' flowers.—*Vulcan*.—*Sophronis grandiflora*.

Names of fruit.—*Newark*.—*Beurré Rance*.—*F. Bedford*.—*Lewis's* Incomparable.—*A Ten Years' Subscriber*.—15, 50, 32, 56, King of the Pippins; 27, Sheep's-nose; 17, Worcester Pearmain; 23, Wellington; 46, Minchall Crab; 37, Mère de Ménage; 13, Cellini; 55, Old Nonpareil; Pear Chaumontel.

WOODS & FORESTS.

PRUNING.

WHEN pruning is properly carried out and conducted on rational principles, the results obtained promote the growth and formation of timber in the stem, and consequently increase the value of the tree. On the other hand, when the art is but imperfectly understood and the work conducted upon wrong principles, much harm and loss result. Some tell us not to prune at all, but to leave it to Nature; others advise us to prune only in winter when the trees are at rest; others recommend pruning in spring; while others say the best time is summer and autumn. Such testimony is of so conflicting a nature, that one is apt to get bewildered. Writers, therefore, upon this subject would do well to give a brief, concise statement of their reasons for performing the operation at the different seasons of the year. In dealing with a mixed plantation of young trees I found that some of the Oaks had been barked around the collars of the plants by rabbits, while others had their leaders cut off by hares, the consequence being that the stems of the former died and a number of young suckers sprang from the roots, while the latter produced several leaders. Now, had these been left to Nature, the plants would have assumed the shape of mere bushes; whereas by pruning off the superfluous shoots the nucleus of a tree was formed, thus proving the theory of leaving the trees to Nature to be illusory and defective. The best time to perform the pruning in this case is the month of June, as then the whole energy of the plant is directed into the stem left for the future tree, and under ordinary circumstances the plants will have attained a good size by autumn. On the other hand, when the work is done during winter there is always a risk that some of the shoots and branches left to form the leader and stem would be cut or destroyed by vermin before spring; whereas by leaving the whole of the shoots till June, the risk is lessened and the best can be selected and the others cut away. It is seldom that all the shoots and branches are destroyed on a plant, so that the advantage of this system can be easily understood.

Young trees of the Ash, Elm, Alder, Laburnum, Beech and Lime may be treated in the same way, while trees of the Spanish Chestnut, Birch, Maple, Plane, and Sycamore had better be left till the month of August, as they are apt to bleed when pruned in spring or early summer. When young trees are managed in this way they soon get established, and the after management, as regards pruning, is principally to remove rival leaders by cutting them off close to the stem before they have attained a large size, and in doing so care should be taken to leave the surface of the wound smooth and sloping. Large, unwieldy side branches should be cut back, in order to preserve a proper balance of the top and lessen the risk of fracture by wind, and in doing so the part to be removed should be cut off close at the base of a lateral twig. In this way trees of medium size, with the exception of such as are apt to bleed, as already noticed, may be pruned in June and July, and when the work is done at this season the wound begins to heal at once, and I have never seen any bad results follow. On the other hand, when trees are pruned during winter the bare wound gets bleached and dry, and by the months of March and April the surface presents a series

of cracks and fissures which imbibe and retain water.

Leaders and branches that have been torn off by the wind during a storm should have the wounds properly dressed by paring off to the solid timber all the fragments and splinters of wood. When such wounds are of considerable size, and in cases where the bark has been torn off by the stem, it is a good plan to apply a coat of paint or tar to the surface, in order to fill up the chinks and prevent the lodgment of water. Winter-pruned trees generally produce a quantity of suckers or sprouts on the bark of the trunk around the wound, and if these are not removed they lessen the functions of the tree in the formation of useful timber. Such sprouts not only have an ugly appearance, but they entail a good deal of labour and expense in their removal, all of which may be avoided by summer pruning. The great aim of the planter should always be to produce the largest quantity of clean-grown marketable timber at the smallest outlay, and if we take this as our base in forest-tree culture for profit, we find that the less pruning, except under exceptional circumstances, the better. Practical experience, therefore, tells us that if trees are properly handled as regards pruning in the early stages of their growth, and until they become thoroughly established, that the after management as regards thinning must be conducted in such a way that the trees prune themselves. This is best accomplished by allowing the trees space for their development, at the same time confining them to such an extent that the side branches lose their vitality and fall to the ground of their own accord. By this system fine clean timber is produced at the smallest cost, and it is only in cases where double leaders appear and in cases of fracture by wind that pruning becomes necessary in the interior of the forest. Trees, however, around the margin of the forest should have their side branches cut off as soon as they show marks of decay, otherwise these branches become very hard and produce a loose knot which lessens the value of the timber when cut up and seasoned. This is a serious evil, and ought to be always guarded against by cutting off dead branches as soon as they show symptoms of decay.

I have never seen the evils of the non-pruning system, as advocated by some, better illustrated than when cutting up wood in the natural forest. Isolated trees, and such as were growing along the margin of the forest where the situation was open and exposed to the free circulation of air, were often found to be damaged. Some large trees when cut up showed a hard knot almost to the centre of the log; whereas had these branches been cut off as soon as they lost their vitality, the trunk would have been perfectly sound. This may be clearly exemplified by trees growing in the interior where the atmosphere is confined, and where the branches gradually rot and fall to the ground. These trees were perfectly sound and free from knots or blemish of any kind, and showed clearly that under certain conditions Nature performs the work well, while in other cases where the climate is quite different failure is the result.

J. B. WEBSTER.

Transplanting Larch.—In answer to "H." in THE GARDEN, Feb. 11 (p. 134), much will depend upon the quality of the soil where the trees are growing as well as on the way in which the transplanting is carried out. Larch trees growing upon clay and dry gravelly ground are generally deficient in small fibrous roots, and consequently cannot be safely transplanted; while trees upon soft, pliable

soil are generally better furnished with small roots and may be moved with greater certainty. In lifting the trees use a steel fork for the purpose, and be careful not to cut or mutilate the roots, and if a small ball of earth adheres to the roots so much the better. Place the tree in the pit made to receive it, spread out the roots to their full length, and cover them with fine soft soil of a mossy texture, if it can be had, afterwards filling in with the ordinary soil and making it firm. Should the ground be of a dry texture, a mulching round the roots will be beneficial. Stake and tie the trees to keep them from being shaken by the wind until they become established. —J. B. W.

The Winged Elm (*Ulmus alata*).—During winter this is one of the most distinct and conspicuous of hard-wooded trees, [on account of the corky excrescence that is arranged on either side of the stem. To such an extent does this corky outgrowth of the bark prevail, that in the majority of trees of this particular kind the branches seem at least three times their actual thickness. But not only as a conspicuous winter object is the Winged Elm of interest to tree planters in this country, but likewise on account of its extreme hardihood and adaptability to withstand our most severe and long-continued storms. The truth of this was well exemplified not long ago in the case of a plantation on an exposed and wind-swept hillside at 720 feet altitude, where this Elm was flourishing on the most exposed side, and that where even our strong and hardy Highland Pine was suffering from the hard-hitting and long-continued blasts. Save the Birch and Sycamore, few trees dared to lift their heads far above the 6-feet-high wall with which this particular wood was surrounded, and yet this Elm grew stout and strong, throwing its largest branches into the very teeth of the blast, and, in fact, seeming as if quite at home in every way. It is a tree of small dimensions, and perhaps of no value in a commercial sense; but then its powers of withstanding keen and long-blowing winds will, I feel sure, ere long make it a favourite with tree-planters, particularly in the higher-lying districts of these isles. —A. D. WEBSTER.

Rabbits and trees.—M. Kropatsch's note about the fondness of rabbits for the bark of Laburnums reminds me of what an old forester on a Scotch estate told me some years ago. He said that the estate was overrun with rabbits, which, as a matter of course, attacked every young tree that was planted if not protected in some way. It was noticed, however, that it was only after all the toothsome bark of young Laburnums had been demolished that the rabbits went to other trees, so it occurred to the forester and his employer that by sowing a patch of Laburnum seed here and there about the estate every year it would answer two purposes, that of affording to the rabbits their favourite food, and diverting their attention from choicer trees. The experiment, he said, was successful, for while a Laburnum was to be had the vermin would not touch the other trees. Afterwards the plan of sowing a quantity of Laburnum seeds every year was carried out in order to give the counter attraction to the rabbits. It was found that the seedlings that were the worst barked by the rabbits frequently died, but some broke out afresh from below the injured part. The plan may not be new, but I certainly think it a good one on large estates where the complete annihilation of the pest is impossible. As a gamekeeper told me once, you cannot breed foxes and rear pheasants in one place satisfactorily, so you cannot have young choice trees and rabbits unless a good deal of trouble is taken. —W. G.

—In answer to J. W. Pring in THE GARDEN, Jan. 28 (p. 84), it is rather an unusual thing for rabbits to attack and peel so many trees during time, open weather, but during a spell of frost and snow I have seen all the species named (especially young trees recently planted out) attacked by hares and rabbits. Laurels are seldom barked by vermin, but Oak, Holly and Laburnum are especial favourites of both hares and rabbits, and should therefore be protected in the early stages of their growth, and even after they have attained a large size they require protection during a time of frost and snow. —J. B. W.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

A FRUIT-GROWER'S DIFFICULTY.

TILLERS of the soil are advised to convert their fields into market gardens and fruit orchards; they are told that Apples, Pears, Plums, and bush fruits will pay better than corn. But all is not gold that glitters, as many difficulties, exclusive of climatal extremes, have to be contended with. Only a few years ago an outcry in defence of small birds was raised, and an Act for their preservation was passed; but the framers unfortunately left gamekeepers at liberty to destroy hawks and owls, their natural, but otherwise harmless enemies. The outcome of this legislation is an overwhelming number of seed and bud-eating birds, which now do serious mischief; and much as all lovers of Nature admire these charming creatures, they cannot shut their eyes to the serious losses inflicted by them upon dwellers in rural and wooded districts. The bullfinch, one of our most beautiful birds, just now is in sad disgrace, for no sooner do the flower-buds of the Pear, the Plum, the Cherry, and the Gooseberry reach a certain stage than he is down upon them, and, despite the use of lime, soot, and other disfiguring preventives, he perseveres until the crop is completely ruined. A correspondent a short time ago stated that scarcity of other food forced these birds to feed upon the fruit-buds; but to the best of my belief these dainty tit-bits form their natural diet, and as well may we try to stem the tide as to prevent them clearing all the best buds off our standards, bushes, and pyramids. Rapeseed, I believe, forms their principal food when in confinement; but has anyone succeeded in drawing them away from his fruit trees by casting it plentifully upon the ground? or has any close observer seen the bullfinch at this or any other season actually making his morning repast on terra firma? I am a great lover and preserver of birds, this locality affording facilities for watching them closely, and although the other finches feed upon our seed-beds, I never yet saw my piping friend making his meal off the seeds of any of the Brassica family or the pungent Radish.

Last year our Gooseberry trees came in for persistent attention and Pears were neglected. This season, certain sorts of Pears, notably the best dessert kinds, are literally devoured, whilst stewing Pears are neglected. Inferior sorts of Pears, it is true, always escape, and the same may be said of a few Plums; but why the birds invariably strip the Green Gage and Jefferson's and pass Coe's Golden Drop is a problem which some learned ornithologist will greatly oblige by explaining. If the birds remained, only a short time, one could understand why they took the most tooth-

some buds for their first course; but, then, they are always with us, and yet certain choice sorts of Plums and Pears, although equally tempting, do not attract their attention. Again, the embryo bud season is comparatively short, and birds must have their daily supply all the year round. What, then, do they eat when buds have developed into flowers and fruit? Do they then fall back upon insects, the eggs of which, as many suppose, at this early season are biding their time within the miniature folds of the future blossom? If so, the insects which laid those eggs, like the birds which seek them, must be guided by unerring instinct, otherwise the good, bad, and indifferent varieties would be visited, if not by the insects, certainly by their foes in their search for food. My object in penning these lines is to attract the attention of learned naturalists, who surely can put the gardener into the way of circumventing these beautiful birds without having recourse to gins and guns. Meantime, planting being considerably on the increase, we must confine ourselves as much as possible to the cordon, bush, and espalier, three forms of training which offer the greatest facilities for tiding over the vulnerable time by temporary netting.

W. C.

COLOURED FLOWERS AT FUNERALS.

It is pleasing to find our American cousins going in for this welcome change of colour. This has been creeping along in this country for some years. But in the old country such changes of fashion are slow and difficult of accomplishment; whereas, our friends on the other side of the ocean take less note of precedents, and often rush ahead almost at one bound from one fashion to another, so that already you are able to report in your "American Notes" "that coloured flowers in funeral work have now become almost a rule instead of an exception, as was formerly the case." The very opposite holds good in this country. Still, the cause of colour is progressing. Several years since the writer draped a bier with white Roses, Lilies of the Valley, white Camellias, and Azaleas, lightened up with the glowing scarlet Passion Flowers and pink Tacsonias. In another case pink and scarlet May were the only flowers used at the funeral of a young lady. These cases excited much notice and not a little adverse criticism. The latter, so far as heard, amounted to the usual exclamation, that such a thing had never been seen nor heard of, and seemed somehow to reflect on the sanctity and sacredness of the dead—as if, indeed, coloured flowers were less pure or sacred to grief or joy than white ones. The classing together here of those two emotions reveals the incongruity of using white flowers to express such very opposite experiences; and one of the most forcible reasons for the use of colours at funerals may be found in the obvious propriety of making the latter as unlike marriages as may be. Neither can anything be more appropriate than the dressing and decorating brides with white. The habit is engraven deeply into our habits, woven into our poetry, commends itself to our sense of propriety, and is in harmony with our most cherished sentiments.

But neither common sense nor anything in the strongly contrasting circumstances can warrant the practice of decorating our biers as we do our brides. The undertakers have made the habiliments of death sombre enough in all

conscience without the self-denying ordinance, so long rigorously enforced by the tyranny of fashion, of allowing mourners only the liberty of adding white to black. The circumstances of funerals bring sadness enough without enforcing the use of pale, sad white flowers only. Fuller knowledge, larger hopes, have tended to rob death of most of its old terrors, and the use of bright-coloured flowers at funerals may do something to dispel the dreary melancholy that has so long brooded over the rites of Christian burial. For this and other reasons this new and more catholic departure in what may be called the soothing ministry of flowers at funerals should be heartily welcomed and freely practised.

A friend of exceptional taste to whom these views have been communicated says she would draw the line at yellow or orange flowers, though she would not object to the soft, pale common Primrose. And I must admit that these and the blue Forget-me-nots are among the most chaste materials for the wreathing of coffins or lining of graves.

But some also object to blue, and I confess that with a free choice of pink, red, scarlet and crimson colours added to any desirable mass of white, funeral wreaths, bouquets, and decorations might be inspired with as much as possible of brightness and of beauty. CELESTE.

P.S.—The same artistic authority says that pink is too gladsomely beautiful for funerals, and that the other three deeper colours, red, scarlet, crimson, go better with grief. What have my sister readers of THE GARDEN to say to these niceties of expression in colour?

CHRYSANTHEMUMS.

E. MOLYNEUX.

SEASONABLE NOTES.

By this time many plants which were struck early and grown in cool houses will be ready to go into cold frames if the pots have become well filled with roots. When the plants have been potted into 3½-inch pots the cold frame is the best position for them, as a stouter growth is obtained in the frames after that time than in the house, where the plants are more liable to become somewhat drawn.

Care should be taken to admit air cautiously to those plants already in frames during the prevalence of strong east winds, and to tilt the lights on the opposite side of the frame to which the wind is blowing from. Although Chrysanthemums are hardy, yet when grown under present conditions they do not like direct draughts of cold air, which give a sickly hue to the foliage. The plants should never suffer for want of water. This is best applied in the morning at this time of the year, as any spilt upon the leaves has time to become dried up before night. In this manner the plants are less liable to suffer from frost should any occur during the night. The water should be tepid when given to the plants.

Pompon, Anemone Pompon, single varieties, and the plants intended for "bush" growth should be topped directly they attain a height of 4 inches to induce a bushy habit, which is obtained by pinching the point out of each leading stem. Plants intended for trained specimens should be growing freely, and at this stage will have formed additional shoots consequent upon the main stem being topped about the middle of January. These extra shoots form the basis of the future specimens. Directly the pots are fairly well filled with roots shift the plants into 4½-inch pots, returning them to their

former position on the shelf near the glass in a cool house. As soon as the roots reach the sides of the pots again place the plants on ashes close to the glass in a cold frame or pit, protecting from frost and keeping them rather close for a few days until they become hardened. Afterwards, when the weather is favourable, ventilate freely, and on fine days remove the lights altogether. The frame should be so placed that it can receive the full benefit of the sun at this season. A sharp look-out should be kept for the first appearance of mildew, and upon the first sign of this pest a dusting of sulphur should be applied to the leaves so affected; this and careful ventilation will soon dispel all traces. Shift the plants into 6½-inch pots before they are at all pot-bound. As soon as the shoots have grown 5 inches long top them again. Plants which are growing at the foot of walls are now pushing up their suckers freely; in fact, too much so, for if all were to remain, the growth would be much drawn and too weakly to be of service for flowering freely. Remove those growths not required for covering the wall, thereby rendering those retained stouter in growth. Thin the suckers to ten or twelve upon each plant, leaving the final thinning until a little later on, when all danger of damage to the growths is past. The plants grown for all purposes should be accurately named, to avoid confusion later on. Where the plants are cultivated for large blooms and the varieties are not known to the cultivator by their habit of growth or form of leaves, it is important that the names do not get mixed, as in the case of some sorts a slight difference in the treatment is needed at one stage or other of growth, and if the names are not accurately given to each plant, mistakes will occur. At the exhibitions much confusion is also occasioned by misnaming the varieties in the stands. Many people go to exhibitions and see blooms well shown, and take the names and order the varieties; consequently, if wrongly named at the show, when the plants bloom in the following season they are quite different to those expected, because the nurseryman has sent the varieties true to name. Hence there is annoyance to the nurseryman and to the purchaser. Therefore, it behoves all growers of Chrysanthemums to have their plants correctly named, both for their own interest and that of others.

Late Chrysanthemums.—Now is the time to commence preparing a batch of plants for producing late blooms. If a selection is made from my list of the best varieties, securing several plants of a few sorts rather than having a large number of varieties and the plants are treated properly, a supply of blooms may be kept up until the middle of February. From Christmas to the time named Chrysanthemum blooms will be much appreciated, as much or more so than when the bulk of the ordinary November varieties are in full perfection. For convenience the cuttings may be struck two or three together in small pots, transferring them to single pots directly roots are well formed. By this means the check of dividing the plants is less felt than when they are larger. Directly the plants are established in the pots, pinch the point from each leader after the first potting to increase the number of branches. Continue to top the branches three or four times, the last one taking place about the first week in July. Transfer the plants to larger pots as required, and those 9 inches in diameter will suffice to bloom them in. Abundance of space between the plants should be allowed during the summer to render the growth as firm as possible. Towards the end of September some varieties will form their flower-buds, while others will not show the buds for a fortnight later. At that time it must be decided what number and for what purpose the blooms are required. If good-sized blooms are wanted, disbudding must take place, allowing one

to each stem, but if a number rather than mere size of flowers is required, do not disbud so freely. The longer the plants can be kept outside with security from frost so much the better, as this retards their blooming considerably. A thin covering of canvas stretched on poles at night will ward off a sharp frost. When it is necessary to remove the plants inside, admit air freely night and day when favourable weather prevails. At this stage assist the plants liberally with stimulants of various kinds, and take all available means to prevent the flowers damping while they are developing. Should the weather be wet or foggy, a little fire-heat at times will assist to dispel damp and secure the longer lasting of the flowers, as a dry atmosphere is more favourable to the keeping of the flowers than one charged with moisture.—E. M.

CHRYSANTHEMUMS FROM SEED.

ACCORDING to the note in THE GARDEN of Feb. 4 (p. 96), far better Chrysanthemum seed can be obtained in America than I have been able to get from the Continent through an English seedsman. The produce of this kind of seed was so disappointing, that I only made one attempt at growing seedlings. Out of about sixty plants which I grew, I did not get one plant that produced flowers worthy of a place in the conservatory. Most of the flowers were single, while the others were semi-double. Some of the plants also grew to a height of 3 feet and more in height, while others were branching and quite dwarf. The whole of the plants flowered about the same time as those of the named stock. But as raising seedlings is an interesting subject, many may like to try their hand at it. It is quite early enough to sow the seed about the middle of March, and a warm corner in the greenhouse will afford the plants all the heat they require. The seed is best sown thinly, so that the plants have room to grow to a fair size before they are moved. In my case nearly every seed sown must have grown, so that it is best to allow for a good crop coming up, and not to move the plants from the seed-pan too soon, for they do not require any coddling. If when large enough the plants are put singly into 3-inch pots, and get a little shade for a few days after being potted, they need not be taken out of the house. I found that as soon as the roots had got hold of the soil in the pots the plants grew rapidly; so much so, that I transferred them to a cold frame by the middle of May. I did not pinch the tops of the plants, nor do I think it is desirable to do so, as stopping might prevent their flowering the first year. The plants only had one shift, which was given them about the middle of June. The strongest plants had pots 7 inches in diameter, and the more weakly ones a size less. The seedlings were then placed by the side of the named varieties, and treated in the same way. Such as required supports had them, but a single stick was enough for most of them. The result was that every plant flowered, some a little earlier than others, but they had all produced sufficient flowers to judge of their merits by the middle of December. Thus ended my first experience of growing seedling Chrysanthemums, and I do not think it likely that I shall make another attempt for some time.

J. C. C.

Growing Chrysanthemums in boxes.

Mr. Morrison, the gardener at Narrowwater Castle, last season grew most of his Chrysanthemums in wooden boxes instead of pots; he used three sizes: 1, about 7 × 7 × 7; 2, 8 × 8 × 8; and some a little larger. There was no apparent difference in the way the plants grew either in pots or boxes. Now it seems to me that a great saving could be effected in many gardens by the adoption of boxes instead of pots. On many estates wood is cheap and pots comparatively dear. Those I speak of were roughly put together, and nothing of a protective nature done to them. They might be neatly made and pitched inside, and so treated would no doubt last a good many years. Wooden boxes have many advantages over pots. There would be much more internal space for the roots in any given size than in a round pot of the

same diameter. The frost has no effect upon them, and if, in handling either empty ones or full ones, one should fall it does not get broken. No doubt in many gardens pots are preferred to boxes, and I admit that so far as appearance goes pots are preferable, but as regards Chrysanthemums when in bloom, they are either placed behind other plants or are grouped by themselves in such a way that the pots in which the front row plants are grown are alone seen. Even here a compromise could be made, and front row plants alone be grown in pots; but the trade grower, who only wants cut flowers, could effect a considerable saving over a series of years by the adoption of boxes, and I have no doubt that a strongly made article could be supplied by manufacturers of such things at a cost very much less than that of pots.—T. SMITH, *Newry*.

PROPAGATING.

FERNS.—This is the best time of the year to sow Fern spores, as they quickly commence to grow, and if pricked off when necessary make good progress without any check; whereas, if sown during the winter, the surface of the pot often becomes covered with *confervæ*, which completely choke the growth of young Ferns. At the same time should the sowing be delayed until far into the summer, many of the young plants may perish when winter sets in. By sowing now there is the whole of the growing season before them, and consequently far less risk than at any other time. There are many different ways of raising Ferns from spores, but the method I adopt gives, I think, as little trouble as any. The fronds are gathered a few days before being sown, and each sort is put in a piece of white paper and kept in a dry place. By so doing the spores are shed in the paper, that is if care is taken to select only fronds that are in the proper condition for gathering, as they must not be too green, neither must they be taken after the spores have dropped. Whether pots or pans are used for sowing, it is essential to drain them well, and then fill them to within half an inch of the surface with soil. A good compost for most Ferns consists of equal parts of peat, loam, and sand, the whole being passed through a sieve with a quarter of an inch mesh, as (though rough soil is favoured by many) the young plants are so much more easily pricked off when they are in a finer compost. The soil, having been made level on the surface, should have a good watering, and while still wet the spores must be sown thereon. The pots or pans may then be either put in a close propagating case, or a pane of glass may be laid over the top of each. Whichever is done, evaporation is to a great extent arrested, and consequently they will not need any water for some time, often not until the young Ferns, in the shape of delicate Moss-like growth, make their appearance. It will be often necessary to prick them off before the least signs of fronds are to be seen, and when the young Ferns are in the shape of small scale-like bodies that cover the surface of the pot with a cushion of green. When in this stage they are liable to damp, and the pricking off is done to prevent decay. The soil and pots for this operation are prepared the same as for sowing, except that the soil is put in as lightly as possible and is not watered. Then with a pointed stick a small tuft of the young seedlings is taken, and a gentle pressure with the forefinger of the left hand will fix it in its place. A space of about half an inch should be left between these little tufts, as they soon spread again after being removed to their new quarters. When the pot is finished a good watering should be given through a fine rose, and, if possible, the pots be returned to a close case for a little time. So treated the plants will make rapid progress, and when large enough may be potted off. Where small Ferns in quantity are required a good crop may be often obtained by scattering the spores on any surface that is likely to suit them, and that will not be disturbed for some time. This rough-and-ready method has one very great drawback, inasmuch as the kinds raised in this way consist, for the most part, of a few

different *Pteris*, the well-known serrulata being largely represented, some *Adiantums*, and *Gymnogrammas*. Of the two last mentioned a few kinds will crop up almost everywhere. In sowing Ferns take care that the spores are not mixed, and unless special pains are taken it is not easy to prevent such a thing happening. By carrying out the following particulars I am seldom troubled with a mixed crop. The sowing takes place at the opposite end of the house from that in which the pots are stood afterwards, and no more pots are brought forward on the bench for sowing than are needed for any one particular kind, while the hands are wiped with a towel between the sowing of each sort. Unless a very large number of any one kind is required, a couple of pots 5 inches in diameter will be sufficient, as one pot of good, healthy seedlings will, at the first pricking off, fill half a dozen. As the different Mosses and ferns often form a film over the surface of the soil and destroy all other vegetation, a very good way, if it can be carried out, is to expose the soil before using it to a temperature sufficient to destroy all vegetable life; in fact, to bake it.

FORSYTHIA SUSPENS.—This early flowering shrub is by no means difficult to strike from cuttings, but yet another way of propagating it is available, a good illustration of which I recently met with in the case of a large and neglected specimen. This plant was originally secured to a wall, and then allowed to grow at will, the consequence being that many of the long flexible shoots were in contact with the earth. Where the extreme point of the shoot touched the soil the stem thickened and formed a sort of node, from whence roots were produced and shoots pushed up, which drew their nourishment quite independently of the parent plant. In this way a colony of young plants had sprung up exactly as the common Bramble of our hedgerows behaves when the points of the shoots find a congenial spot. This peculiarity can be taken advantage of for the increase of the pretty double-flowered forms of Bramble.

AZALEAS.—The different varieties of *A. indica* are nearly always propagated by grafting, and this method certainly possesses the great advantage of giving larger plants within a given time than those raised from cuttings; but still there is no reason why they should not be struck from cuttings more frequently than they are, as by this means the long, naked stem which forms such a conspicuous, if not attractive, feature in the case of imported plants could be done away with. With a plant on its own roots branches could be obtained right down to the rim of the pot. The spring is the time to take the cuttings, but the exact period will, of course, depend upon the treatment the plants have received. The cutting should consist of the entire shoot of the current year when it is about half ripe. As the medium-sized shoots are better than the very stoutest ones, they are usually about the right length (4 inches) for a cutting, which should, if possible, consist of the entire shoot taken off just at its union with the old wood. A very sharp knife must be used, as the bark is easily injured, and if this occurs the cutting is liable to rot. One or two leaves at the bottom having been removed, the cuttings are ready for insertion. The pots prepared for their reception must be well drained and filled to within half an inch of the top with very sandy peat, sifted fine and pressed down firmly. A thin layer of silver sand on the top should then be added. If the surface sand is slightly watered through a fine Rose it will facilitate the insertion of the cuttings, which must be dibbled in firmly, and though no space should be lost, overcrowding must be guarded against. As the pot is finished, a thorough watering must be given it, and when drained a little it should be either removed to a close case or covered with a bell-glass. The temperature of an intermediate house is the most suitable for the reception of the cuttings, as there they root in about six weeks, when they must be hardened off, and as soon as possible potted. I have a quantity of young plants raised in this way, and good sturdy stuff they are, for as soon as they were well rooted the top of each was pinched off in order to encourage a bushy habit of growth.

PHLOXES AND PENTSTEMONS.—In a general way, the varieties of these, and more especially the Phlox, can be propagated by division, yet where it is desired to increase perhaps a new variety of which one may possess but a small plant, other means have to be resorted to. Given a few small plants in pots at this time of the year which it may be desired to make the most of, a very good way will be to stand them in a frame kept rather close. The result of this will be that each plant will push up quickly a shoot or shoots, which directly they are long enough may be taken off and inserted as cuttings. In doing this the shoot must not be removed altogether, but the bottom leaves with their attendant buds allowed to remain, as they thus form a base from whence other shoots will spring. In this way two or three crops of cuttings may be obtained which will make specimens large enough to flower the first season if planted out directly they are ready. The shoots must be taken as soon as they are long enough, as if allowed to become hard they stand a considerable time before they root.

DIMORPHANTHUS MANDCHURICUS.—This fine-foliaged tree is one of the easiest of all subjects to propagate by cuttings of the roots, for if an established specimen is removed and several broken roots be left in the ground, as will most likely be the case, the probability is that quite a crop of young plants will make their appearance the following season. Such being the case, it is evident that root cuttings can be depended upon for its propagation, and among our hardy trees and shrubs that can also be readily increased in this way may be mentioned some of the *Rhus*, *Aralia spinosa*, *Clerodendron trichotomum*, *Tecoma radicans*, *Ailantus glandulosa*, and the pretty autumn-flowering *Desmodium penduliflorum*. T.

FLOWERS AS NATURE MADE AND AS ART SPOILS THEM.

"**VERONICA**" and the editor have once more earned the warmest thanks of all lovers of Nature and possessors of cultured taste by their vigorous protest against the pincushion bouquets demanded by fashion, and therefore, of necessity, made up in thousands and tens of thousands by Art. You do wisely in appealing to the ladies on such matters (p. 85). It is to be hoped that your appeal will be promptly and powerfully responded to, for it is certain that none suffer so much from the present absurdities of fashion as the ladies. The mere weight of not a few modern bouquets—with their ponderous accessories of damp Moss, wadding, green twiglets and iron—become burdens too grievous to be borne by their fair holders or carriers. Hence it is no uncommon thing to see ladies resorting to various expedients to relieve themselves of those huge jammed masses of flowers that were compounded at such great cost of labour and money for their supreme delight.

Apart altogether from their grievous faults of form and of style, the modern bouquets fail to please from their sheer specific gravity. The bouquetists and those who encourage them to enlarge them in mushroomy masses—wider and still wider yet—ought to be doomed to carry them in their hands throughout an entire evening party. Their practical acquaintance with aching hands and arms, and the sheer wearisomeness and burdensomeness of modern bouquets, might surely lead to a lightening of their weight, if not also to a reduction of their size.

I should also like your lady readers to discuss another point in relation to bouquets, viz., whether it would not add greatly to their freedom and enjoyment to have them improved out of their hands altogether. What gentleman, who in a moment of chivalry has taken charge of a lady's bouquet, and has had the moments lengthen into hours, has not felt severely embarrassed through the encumbrance. Possibly it is only the force of fashion and the strength of habit that render the tie and the fetter of a bouquet in a woman's hand less irksome to her than it is to man. Or is it equally irksome and embarrassing, and do ladies

really carry these monstrous bouquets to please others rather than gratify themselves?

If so, which is highly probable, it is to be hoped that the lady readers of *THE GARDEN* will use this discussion as a means of emancipating their hands from the cruel thralldom of ponderous bouquets, and determine to wear all flowers on their heads, arms, or dresses for the future. The tendency to massiveness in bunches or posies of flowers carried in the hand has taken such deep root in practice, and runs to such extremes, that possibly the first step towards a more refined and cultured, as well as more natural use of flowers in personal adornment may consist in wholly relieving the hands of flowers, at least for a time.

Were "*Veronica*" but a lady, I should earnestly summon him to this great new decorative cult, the tasteful adornment of woman's entire figure with flowers in their natural state, and the freeing of her hands at once—it might be for ever—from those huge contortions and abortions of leaden-like weight and uniformity—fashionable bouquets. What scope for "*Veronica's*" genius in wreaths, sprays, floral crowns, if he would, for the head, sprays, tiny bunches, natural bouquets of flowers verdured with their growing shootlets and foliage for bosom, shoulders, arms, and any and all other parts of the figure or dress.

As "*Veronica*" says, more flowers would be used, as well as more variety, were this new and more sensible plan of wearing them rather than carrying them adopted, and each assembly of fair women become a flower-show of the sweetest and the best.

Next to the emancipation of the fair sex, our flowers, foliage, and plants would gain the most, through the more natural, and therefore more effective use of them. Instead of being beheaded, dissected, impaled, jammed, and even clipped into forms as monotonous, artificial, and dead-like as possible, each twig and spray, leaf and bloom would add its own natural grace, colour, and form to the enriching and greater variety of the whole.

By simply following Nature to the extent of as far as possible setting each flower in its own leaves and stems, and confining each decoration to one, two, or a very few flowers, an immense improvement would be effected. This change of style and taste would likewise invite, if not compel, the use of a greater variety of plants and flowers. The limited varieties of flowers and foliage that readily lend themselves to the present system of bouquet and wreath-making confirm and heighten the monotony of our present fashion. Not, however, that less of our present materials need be used, for though comparatively few in number, they are the very cream of our decorative material alike in fragrance, purity, and beauty. As the new system of decoration will test the merits of each flower more severely than the old, and as the decoration of the person may require more flowers than the forming of a bouquet, it is certain that the demand for flowers will be greater, not less, than before—hence more Tuberoses, Lilacs, Roses, Lilies of the Valley, Gardenias, Deutzias, Spiræas, Violets, Stephanotis, Bouvardias, Jasmines, Orchids, bulbs, &c., will be needed than ever. The bouquet-makers would likewise gain greatly by the change. They are often and most unfairly blamed for most of the defects of the present system. This is as unjust as it is ungenerous. Society, fashion, imitation are responsible for the bouquets of the day as much as they are for the bonnets, and the bouquetist grinds them out by rules and manipulations as unchangeable as fate—so many flowers of given sorts in to mount, and so many bouquets of unchangeable size and form out, with so much Fern as a fringe. Almost the whole art, drudgery rather, is mechanical—a mere thing of wire, padding, manipulation and floral millinery.

Under such conditions it is little wonder that other things as well as the flowers are jammed and crushed. Among some of the more valuable are natural or educated faculties of selecting and combining colours and forms; cultivated, refined, or original taste, and the invaluable qualification of fitting or adapting flowers to figures and faces. When this last point is reached, the decorated and

the decorator should study Art together, and to such good purpose, until each flower, twiglet, and leaf, like each touch of the painter's brush, is made to augment the beauty and increase the charms of the subject operated upon. Such high aims will quicken invention, stimulate the apprehension, appreciation, and adaptation of natural beauty, and, in a word, lead to such a fine use and skilful selection and fitness of all the fairest and sweetest flowers and most charming greenery so prodigally provided for our use by Nature, as to leave nothing to be desired in the very legitimate and charming employment of flowers for personal use and adornment. CELESTE.

NOTES OF THE WEEK.

Angræcum citratum.—This beautiful Orchid is now in perfection in the nursery of Messrs. H. Low and Co., of Clapton. There is a house full of it, and the pure white flowers present a picture of beauty.

We have received from Mr. Owen, Floral Nursery, Maidenhead, flowers of his excellent Imperial strain of Chinese Primulas. The flowers are of good size and shape, and the colours are bright and varied. The plants from which these were gathered were raised from seed sown at the latter end of last August.

Potato Tree (*Solanum crispum*).—As grown here this is perfectly hardy, even in full exposure on a hill. When so planted and with room to spread, it becomes a diffuse bush, making lateral shoots many feet in length annually. It is a shrub that ought never to be cramped in a pot, as plants so grown become corkscrew-rooted, and unless nailed to a wall have always a tendency to shake about. It is quite a distinct sub-evergreen shrub and blooms in the most profuse manner, and is worth a place in any collection.—T. SMITH, *Neury*.

Thunbergia Harrisii.—I have a specimen of this plant at the present time covering yards of the glass in our stove, and if the sun would only visit this locality for a few hours each day the creeper would be a perfect sight, and worth coming some distance to look at. There are thousands of flower-buds upon it. But it is only useful as a stove-flowering plant, as the flowers are useless when cut. They are so delicate that the slightest touch spoils them, and when cut from the plant in the morning they are quite faded by the evening.—SOPHIA CHRISTY, *Malvern House, Sydenham*.

Brownea grandiceps.—I must altogether question the correctness of the statement of your correspondent "G.," on p. 161 of your last issue, to the effect that the above-named handsome South American stove shrub is the finest of all cultivated Brownias, as it cannot for a moment compare with the gorgeous *B. macrophylla* (so well figured opposite p. 346 of your fifteenth volume) in either size of head or intense brilliancy of its fiery orange colouring. As *B. macrophylla* is but seldom met with in cultivation, it may not be known to your correspondent, in which case allow me to refer him to your plate.—W. E. G.

Candollea Standishii.—This is an Australian plant and one that is seldom seen, but it really deserves the attention of all those who would have early flowers without forcing. It belongs to the family of Dilleniads, and is a dwarf, compact plant, with small pale green obovate leaves, and produces handsome bright yellow, cup-shaped flowers in abundance. I recently noted this plant blooming in one of the greenhouses at Wilton House, Southampton, in company with such things as *Cyclamens*, *Primulas*, and *Lachenalias*, the latter being largely grown for winter and spring blooming. The *Candollea* is potted in sandy loam and peat, and is said to grow freely, but never robustly, and it flowers regularly and profusely.—W. H. G.

Winter-flowering Begonias receive considerable attention at Kew, and amongst the many kinds now in flower in the house devoted chiefly to them there are a few that deserve more than passing notice. Although this race of *Begonias* is comparatively large, yet there are many places from which they are absent, notwithstanding their thorough usefulness during a season when flowers even of the hothouse character are by no means too plentiful. *B. manicata* was flowering freely, and when it does so it is a most ornamental plant, throwing up tall stems bearing dozens of small pink flowers in rather compact heads. The foliage, although coarse,

is not unsightly, and the habit is comparatively compact. Another that might be recommended is *Amelise*, the plant spreading and well furnished with light green leaves, against which the rich rose-pink flowers make a good contrast. A very handsome variety, owing to the decided chocolate-crimson colour of the abundant leafage, is *B. incarnata papillosa*—an excellent varietal name, as the foliage is coated with short red hairs and quite rough to the touch; the flowers are plentiful and of a pinky tinge. Another good kind is *B. Lindleyana*, which has rose-pink flowers in pendent spikes; the leaves are narrow, deep green, and kidney-shaped. The last to be mentioned is *B. pruinata*, which is rather coarse, as the leaves are thick, fleshy, and large, the flowers being white, or nearly so.

Spring Snowflake (*Leucojum vernum*) is one of the prettiest of spring hardy bulbs, and is now, together with the Winter Aconite, a feature on the Kew rockery, where such things are planted with commendable taste, that is naturally and without stereotyped pattern. These and the Snowdrops, of which, perhaps, *Galanthus Elwesii* is the best, make a charming group for the beautifying of the garden in the spring. The Snowflake does well on the higher tiers of the rock work, and, as is well known, carries its flowers on a stalk about 6 inches high, and their drooping character gives them a distinct and inviting appearance. Snowdrops and Snowflakes do exceedingly well in a light, well-drained soil.

St. Michael's Pines.—It is grievous to see the beauty of the splendid St. Michael's Pines in our best fruit shops entirely marred through the withering of their tops. The merchants are under the impression that this is caused by exposure to the cold air; whereas it arises entirely from the effects of gaslight. The remedy is a counter case with glass top, a very easy way of preventing a loss of at least 25 per cent. in the value of each fruit through the spoiling of its appearance. If anyone will place a freshly-arrived Pine in a cool place, say where there is no gaslight, it may be kept for a fortnight without the slightest deterioration of the top of the Pine; whereas in a gas-lighted shop it will, without protection, spoil in three days.—W. HOUGHTON.

Two Primrose-flowered Acacias named *A. leprosa* and *A. myrtifolia* are among the select few of the genus that I should recommend for general culture. Both are of very graceful habit, more particularly *A. leprosa*, whose shoots are very slender and droop. In both the flowers are little brush-like balls, set densely on the twigs, and being of a pale primrose-yellow, have a charming effect. The flowers are of that yellow shade that goes well with several contrasting tints, and on this account I look upon these two *Acacias* as most serviceable to gardeners for cutting from, as well as for specimen pot plants in the greenhouse at this season. The cruder kind of yellow tints such as are found in the flowers of *A. lineata* are not nearly so pleasing, and are more difficult to mix satisfactorily with other shades. One could select for himself the best *Acacias* from the crowds of species that are now in bloom in the temperate house at Kew. The best, according to my selection, would include *A. leprosa*, *myrtifolia*, *Drummondii*, *linearis*, *Riceana* (very graceful in growth), *verticillata*, *armata*, and *pulchella*.—W. G.

The silvery Rhododendron (*R. argenteum*) generally heralds the flower tide of the noble race of Indian *Rhododendrons*, which throughout the spring are unquestionably the main attraction in the great temperate house at Kew. Some people regret that these noble shrubs can only be grown to perfection in monster conservatories, and that they cannot be seen in bloom without visiting Kew or the few gardens in which it is possible to grow them. On the other hand, some are glad that at least one class of beautiful plants cannot be grown everywhere, and become so common that there is no real enjoyment in seeing them in bloom. The Himalayan *Rhododendrons* at Kew are the delight of visitors, they being so different from all other trees and shrubs, and this particular kind (*R. argenteum*) now in bloom is the admiration of everyone. It is a large and rather awkward growing shrub,

10 feet or 12 feet high, and bears at the tips of its branches huge globular clusters of great bell-shaped flowers, which from their thick texture look like white wax. The white is not that cold white seen in some flowers, but there is a softness about it that harmonises charmingly with the large leaves, which are dull green above and silvery white beneath. The unexpanded flower-buds are a deep carmine or almost a crimson, and as the buds unfold this colour fades to white. The large deep blotch of deep plum-purple at the bottom of each flower emphasises the purity of the rest, as does the pink-tipped pistil that hangs with the stamens out of the corolla. This species has been in bloom for a fortnight, and will continue probably for another fortnight. Another *Rhododendron* labelled *R. longifolium* is evidently synonymous or identical with *R. argenteum*.

Angræcum hyaloides.—This is entirely distinct, as regards appearance, from such giants as *A. sesquipedale* and *A. eburneum*, though in its way quite as beautiful. A small plant is in bloom in the Orchid house at Kew, and it is grown in a basket suspended near the glass. This miniature gem scarcely rises more than a few inches, and is quite tufted in character, showing at this season more flowers than leaves. The former are borne in short, dense racemes, that crowd round the base of the plant, and owing to their transparent whiteness, with the short spur of the same glistening character, a specimen in full bloom and health is by no means unattractive. *Angræcum hyaloides* is one of those things that would suit the lover of curiosities.

Hibbertia dentata.—This beautiful greenhouse climber has been blooming throughout the winter, and even now its rich bronzy foliage is relieved by a few of the brilliant yellow flowers. It is a pity more is not seen of this vigorous growing and almost perpetual blooming climber. It is one of the best things for planting at the base of a rafter, which it will soon cover with leaves, these at the latter end of the summer almost hidden by the wealth of golden flowers. It is not difficult to grow, and might well have the attention of the amateur who wants a cheerful plant to brighten his greenhouse during the dull months of the year.

Sea Lavenders.—These are far too much neglected, more especially as they produce an effect which few other plants can supply. I know that *Statice profusa* is grown by those who exhibit stove and greenhouse plants, and it is always a telling plant in a collection, but in very few private gardens are the *Statices* grown as they deserve to be. I recently noted two kinds, viz., *S. Halfordii* and *Butcheri*, blooming profusely in the Victoria Nursery at Holloway, and producing a fine effect. These plants were amongst the most conspicuous ornaments in a warm greenhouse. By the way, the reason these plants remain so long in perfection is because their chief beauty is in their persistent calyx, that of *S. Butcheri* being deep purplish blue, and that of *Halfordii* bright clear blue. The flowers of both kinds are white, but soon fall away, leaving the calyx behind. Their English name implies that they are for the most part seaside plants, and they should be potted firmly in light sandy loam, adding a little leaf-mould and well-decomposed manure. At the same time the drainage must be good.—W. H. G.

Tufted Pansies.—In reply to "A Subscriber, Cornwall," I should suggest King of Yellows, really the finest of all bedding Pansies, flowers large and rich yellow; it is the first and last to bloom, and the habit is very fine; and White King, a sport from Blue King, the counterpart of that well-known kind in everything except colour, which is pure white. I will leave the best blue to someone else. There are a good many sorts, and, to my mind, all have some defect.—T. SMITH.

— "Subscriber, Cornwall," will find Countess of Hopetoun the very best white Pansy grown—free-branching and tufted in habit, flowering freely the whole summer, the flowers large and pure white. Ardwell Gem is a lovely yellow, and Archie Grant a fine rich blue and very strong-growing, throwing up its flowers on footstalks 6 inches long. Another very choice variety is Holyrood; the flowers are very beautiful, and of a deep rich plum colour.—A. H.

SPECIMEN SELAGINELLAS.

THIS is a very extensive genus of plants, comprising between 300 and 400 species and varieties. A great number of these, however, have not yet been introduced to cultivation, and some of them resemble each other very closely. They are found in the East and West Indies, South and North America, and in Europe, but, curiously enough, although New Zealand is so rich in Ferns, there does not appear to be a single species in those islands. Beautiful as are all the Selaginellas, they are by no means so extensively grown as they deserve to be; neither are they used in an artistic manner, the stereotyped fashion of growing them in round or square pans being still, as a rule, the only system adopted. Selaginellas may be grouped into several sections for horticultural purposes. Some trail along the ground. These, instead of simply being represented in a house by an ugly panful, might be utilised for surfacing the otherwise bare pots of such plants as Palms, Tree Ferns, or, indeed, anything which rises upon a single stem and does not hide the surface of the pot with its own foliage. In this manner quite a large collection might be grown; and thus treated would afford infinitely more pleasure than by the old system. Again, these kinds make excellent edgings to walks in the stove and fernery. This system, I am aware, is adopted in some places, but it is not nearly so general as it should be.

A few kinds well adapted for this purpose are *Kraussiana* and its golden and white variegated forms, *apus* and *brasiliensis*, both of which require to be occasionally pressed close to the soil to preserve a close growth, and which should not be subjected to much drip. Other kinds are *Ludoviciana*, *delicatissima*, *sarmentosa*, and *serpens*. The latter changes to silvery white towards evening, but assumes its normal bright green again in the morning. *Uncinata* (better known perhaps as *cæsia*) when grown in the shade assumes a beautiful metallic blue hue. For the greenhouse, used in a similar way, the following kinds are available: *helvetica* and *denticulata*, as well as *Kraussiana* and its varieties. Many other kinds are available for clothing the bare, ugly pillars which support the roof, converting them into beautiful columns of verdure. The plan I adopt is to surround the pillar with galvanised wire netting of rather a small mesh, leaving a little space between the pillar and the wire, which must be filled with *Sphagnum* Moss and peat, packed in firmly. When well saturated with moisture, prick into the soil all round in a regular manner pieces of such kinds as *atroviridis*, *Martensi* and its variegated form, *Galeotti*, *ciliata*, *viridangula*, *Victorie*, *inequalifolia*, *Martensi formosa*, and *stolonifera*, &c.; these will require pegging into the soil from time to time, so as to keep them from spreading too much. They will soon present a very pleasing appearance, very different from that of the bare iron pillars. Only one kind should be used on the same column, as in this way a much better effect is obtained than when several species are planted together. The one great requisite for such specimens is an abundant and regular supply of water, and sprinklings with the syringe during warm

weather. Elegant specimens of a pyramidal shape can also be grown in a similar manner, by a double wire trellis, fastening the base to the outside of the pot, and packing the soil and Moss between the wires, thus leaving the centre hollow. An upright stake should be placed in the middle, round which the top portion of the pyramid is to be fastened, and then the pieces of Selaginellas are to be pricked in as before-mentioned in this manner. Pyramids of any size can be formed, and they have a free and elegant appearance in the plant stove or fernery, and are extremely telling as exhibition specimens. There is a scandent species commonly known as *cæsia arborea* and *lævigata*, but which is said more correctly to be *Wildenovei*. It forms a beautiful object upon a back wall in a

loam to the soil. In this group the following species are remarkable for their beauty: *erythropus*, *filičina*, *africana*, *grandis*, *caulescens* and its varieties, *Lyalli*, and others. Of the plants of the rosulate group, which have an erect stem and fasciculate growth, and which should be grown as single specimens, as they form beautiful rosette-like plants, *lepidophylla* may be named as worthy of culture. This is popularly known as the Resurrection Plant, owing to its habit when dry of rolling its frondules inwards, the whole forming a hard ball, but which readily expands again when placed in water, long after the plant is dead. I believe all the species of this group have the same property; other distinct kinds of this set are *involvens*, *convoluta*, *pilifera*, and *cuspidata*. Although it must be said that the growing of the Selaginella as a pyramid is uncommon, yet we do occasionally see specimens that show great skill in this method of culture. The grand Selaginellas exhibited occasionally by Mr. Wright, of Devonhurst Gardens, Chiswick, one of whose specimens is represented in the accompanying illustration, show what beautiful plants they are when properly treated.

W. H. G.

FERNS.

HARDY MAIDEN-HAIR FERNS.

OF all the Ferns growing wild in these islands, the Maiden-hair, if not the most showy, is undoubtedly that which creates the greatest impression upon the Fern collector. Its value is greatly enhanced by its comparative scarcity, and it is certainly all the more sought after now that the places where it is found growing in a natural state are very few compared with the much more extensive habitats of most other indigenous Ferns. *Adiantum Capillus-veneris* is found abundantly in the warmer countries of Europe, in Italy, Spain, Portugal, and even in the south of France; also in Northern America, Asia, India, and Northern Africa; indeed, it is stated by such authorities as Mr. Houlston and Mr. Moore that, under the influence of a warmer climate, as in the Channel Islands and in Madeira, this lovely Fern attains such proportions that fronds of it, measuring 18 in., are frequently met with, the plant being then called *A. Moritzianum*. When, however, our native Maiden-hair is grown in a moist stove, as it is frequently seen now-a-days, specially with market growers, it produces fronds of equal dimensions to those from the south of Europe and Madeira, with which it is no doubt identical. In England the *Adiantum Capillus-veneris*, which is an evergreen species, is essentially a coast plant, found chiefly in the mildest and moistest climates of Devon, Cornwall, South Wales, and of various parts of Ireland—all places in which it grows in caves and fissures of rocks; but it has also been found on the Islands of Arran and on the banks of the Carron, in Scotland. The first mention made of its being a native of England is from Gerard, who says: "The right Maiden-hair groweth upon walls, in stony, shadowy, and moist places near unto fountains, and where water dropeth. It is a stranger to England; notwithstanding I have heard it reported by some of good credit that it groweth in divers places in the west country of England." Parkinson has heard it "reported that it is found in Gloucestershire." Even in 1686 we find Ray saying, "it rarely or never occurs in England;" and it is only when about the year 1700 it was found wild at Barry Island and Porth Kirig, in Glamorganshire, by Mr. Lloyd, that the *Adiantum Capillus-veneris* was accepted as an indigenous plant, the first announcement of



Selaginella grown in tree form. Engraved for THE GARDEN.

shady place, as it produces large, broad frondules of vivid iridescent blue, and the deeper the shade the more intense is the colour. I have also tried this upon the pyramidal system, but never succeeded sufficiently well to please myself, as I could not get it to hide the structure on account of the branches being somewhat distant, otherwise it presents a charming appearance when so treated. Again, there are species which produce roots only from the base of the stem; their growth is erect, and they assume a more shrubby habit. These should be grown in pots and treated similar to Ferns, the only difference required in their treatment from the other kinds being the addition of some

which we find in the third edition of Ray's "Synopsis Methodica Stirpium Britannicarum" (vol. i., p. 123), published in 1724. Unless it is in a particularly well-sheltered situation, it is perfectly useless to attempt growing this Maiden-hair either upon the ordinary rockwork or in any part of the open-air fernery. With the exception of the North American Maiden-hair, *A. pedatum*, which is deciduous and bears a good amount of frost, I am not acquainted with any other perfectly hardy kinds, and our own species requires at least the protection of a greenhouse, where it makes very pretty pot specimens; but it is in the warm house that it thrives best and has a most striking effect, especially when growing on a damp wall. It is in this latter, its most natural position, that it grows and flourishes best, and the effect of heat and moisture upon its growth is such, that whereas the fronds of those plants grown in a cool house for several years never attained more than a length of 6 inches, those that were produced in a moist, shady part of the stove now form a most beautiful and interesting picture, many of the fronds measuring 15 inches in length. The Maiden-hair Fern may also be grown as a pot plant, and in that case requires a compost composed of fibrous peat, thoroughly decayed leaf-mould, loam, and lime rubbish in equal proportions. Thorough drainage is of great importance. Its propagation may be effected by means of spores, which, when sown in heat and at almost any time of the year, vegetate readily, and produce young plants in a comparatively short space of time. It may also be increased by division, and each rhizome separated from the mother plant and provided with roots soon becomes established. For this latter operation the month of April is the most suitable time.

Adiantum Capillus-veneris has produced a certain quantity of varieties, some of which are extremely curious, while others are as beautiful as any that can be found among the very long list of exotic Maiden-hair Ferns. Among the curious forms we particularly notice *A. Cap.-ven. daphnites*, which possesses a singularly interesting appearance. Its fronds, which reach from 10 inches to 14 inches in height, form an agreeable contrast with the dull green tint of the pinnules, which are broad and overlapping. *A. Cap.-ven. incisum* and its sub-variety *Footi* are also among the most curious forms; the former, whose dimensions are about the same as those of the species, has its pinnules broader and deeply slit into narrow segments near the base. It is of Irish origin, as is also the sub-variety *Footi*, specimens of which were received from Ireland in 1862 by Mr. B. S. Williams, who says that this beautiful variety grows upwards of a foot in height. The pinnules, which are very ample, and of a much more cheerful or lighter colour than those of the species, are very deeply cut, and the fronds are nearly erect. But of all the cut forms of *A. Capillus-veneris* the variety *fissum* is undoubtedly the most striking, as also the most elegant; the plant has the neat dwarf habit of the species, but the pinnules are of a brighter colour, which they retain for a longer period. It is a most pleasing addition to our list of *Adiantums* for the cool house, in which it succeeds admirably. Of the various other dwarf forms in cultivation with entire pinnules, *A. Cap.-ven. rotundatum* and *undulatum* are the most distinct. The fronds of the former variety, which was originally found in the Isle of Man, are somewhat variable in form, and not so broad as those of the common species; the pinnules are usually round, and do not show the cuneate base characteristic in the normal form. The variety *undulatum* is an elegant plant of dwarf habit with fronds dense, compact and remarkable for the undulated nature of the edges of its broad, roundish pinnules, which are of the dark green colour observable in the species. *A. Cap.-ven. crispulum* is a very handsome form, of robust and vigorous habit, although its fronds, including the stalk, seldom exceed 10 inches to 12 inches in length; they are not so wide at the base, and also more attenuated than those of the typical species, while the pinnules, which are broad and crisp, are more scanty, and of a rich, bright green colour. In *A. Cap.-ven. imbricatum* we have one of the most

beautiful forms of our native Maiden-hair Fern that has yet appeared. Its lovely fronds, which, including the stalk, measure about 12 inches in length by about 4 inches wide at their base, overhang each other in a most graceful manner. Its habit, together with the large size of its imbricated pinnules and their charmingly undulated and crispy appearance, combine to render this hitherto barren variety one of the most attractive of the genus. It is of quite recent introduction, having been raised by Mr. G. Masters, gardener at High Leigh Hill, in Cheshire, who having noticed among a batch of seedlings of *A. Capillus-veneris* its more compact habit, selected it and gave it special attention, and when exhibited at Kensington on October 12, 1886, it was acknowledged to possess very great merit. *A. Cap.-ven. magnificum* is a very fine and massive form with beautifully arched fronds from 12 inches to 15 inches long. The pinnules, of a particularly soft rich green colour, overlap each other. In *A. Cap.-ven. digitatum* we have a curious variety obtained from spores some years ago and constantly sterile. Its fronds are unsymmetrical, but with a tendency to become unequally ovate, dwarfish, and smooth. For gracefulness and elegance combined, the Cornish form, *A. Cap.-ven. cornubiense*, far surpasses the typical species. Its fronds, produced in great abundance, are from 12 inches to 15 inches long.

The honour of discovering this beautiful form and of introducing it into cultivation is due to Mr. H. H. Trevithick, of Hayle, who found it some twelve years ago growing on the rocks by the sea near his home. The name bestowed upon it by Mr. F. Tyerman, to whom we are indebted for these particulars, marks it as one more, and not the least valuable of the many beautiful Fern sports found in that part of the country. Notwithstanding the truth of the above assertions, Mr. Phillpott, of Porthgidden, Truro, who has grown it successfully for more than thirty years, states that the said plant had been well known to him and other Cornish gardeners for many years, and that the fear of the depredations caused by excursionists and others, who, they feared, would have entirely destroyed it, was the only reason that prevented him from publishing an account of the plant and its whereabouts. A very characteristic and truly handsome form of the British Maiden-hair Fern is *A. Cap.-ven. Mairisi*, which is supposed to be a natural hybrid, having been found, we presume, as an accidental seedling among other Ferns by Messrs. Mairis and Co., nurserymen, at Weston-in-Gordano, Bristol, and introduced into cultivation by Messrs. W. and J. Birkenhead, of Sale, near Manchester, about a couple of years ago. This variety, which is a remarkably strong-growing one, as may be seen by a wonderfully fine specimen planted out in the beautiful fernery at Ospringe House, Faversham, where the fronds exceed 18 inches in length, is at first sight suggestive of a much enlarged form of *A. cuneatum*, but besides the characteristic running rhizomes which belong to *A. Capillus-veneris* and all its varieties, and which is totally absent in those of *A. cuneatum*, it is soon seen that it does not belong to this species owing to its cornute pinnules. It may possibly, however, be the result of a cross between this species and some form of *A. Capillus-veneris*, and the small, strongly-marked cuneate pinnules which are in the central part of the fronds are suggestive of such parentage. The fronds, triangular in shape, are dark green above and somewhat pale underneath. This beautiful variety may be reasonably regarded as one of the most ornamental forms of hardy Maiden-hair Ferns, and it is as hardy as the species itself. The latest addition to the genus is *A. Cap.-ven. O'Brieni*, an exceedingly graceful variety, producing in great abundance its dark-coloured fronds from 12 inches to 15 inches high, and as elegant as those of *A. amabile*. It is, we believe, a native of Ireland, and has lately been put in commerce by Messrs. J. Veitch and Sons.

S. G.

Adiantum trapeziforme.—A magnificent specimen of this Maiden-hair Fern is just now a striking object in Mr. Luing's nursery, where it is growing in a stove amongst other ornamental-foliated plants, such as *Crotons*, *Dracenas*,

Palmes, &c., and is itself one of the most beautiful. This species cannot be too strongly recommended to those requiring a bold handsome Fern.—W. H. G.

FRUIT GARDEN.

TOP-DRESSING FRUIT BORDERS.

An annual surface-dressing of new compost for Peach and Vine borders is, by all cultivators who aim at the production of fine fruit and of good quality, considered indispensable. Outside fruit tree borders, often from a lack of time or material, or both, do not come in for an equal share of attention in this respect, but where applied, no doubt can be entertained as to its beneficial effects upon the trees; therefore an effort should be made to renew the surface-soil of a portion at least of these borders each year. The present is a suitable time to set about the work—of course presuming that the pruning and nailing of the trees have been completed. A clear space of not less than 4 feet should be reserved next to the wall exclusively for the roots of the trees; if another foot or two can be spared so much the better, but space on these sheltered borders is generally valuable, and it often becomes a question as to whether fruit trees or vegetables shall have the greatest share of it. But, considering that the fruit trees are permanent occupants, and, besides, have taken considerable time and attention to become established, they are entitled to the space above stated being allotted to them.

It does not often happen that new loam can be spared for these borders, but if such is not available, a very good compost for the purpose can be made by using up any soil which has been taken from Vine or Peach borders in the process of renovation, and adding to it newly-slaked lime in proportion to its nature. If the soil is heavy, about one-tenth of its bulk; if light, a less quantity will suffice. Burnt earth, or refuse and old mortar, may also be added, mixing all well together before applying them.

With a steel fork remove the soil from the surface of the border to the depth of from 4 inches to 6 inches, or deep enough to lay bare a portion of the roots. The soil may either be utilised on the vegetable quarters or wheeled away, replacing it with the compost prepared. Fruit trees delight in a mixture of this description, and will soon, if in health, fill it with a mass of fibrous roots—the best possible agents for conveying food to the trees, in the form of stimulants applied to the surface, and watered in with the hose later on when the fruit is swelling.

Many cultivators are content with an annual dressing of manure for these borders, which, although better than neglect to supply anything of the kind, does not possess the advantages that one of compost does, as the latter induces the formation of numerous roots of a hardy nature near to the surface of the ground and within the influence of sun and air. Further treatment in the way of mulching is best determined by the conditions of the weather later on. If heat and drought, as was the case last summer, are prevalent, then recourse must be had to mulchings with manure, followed by copious supplies of water. If the reverse should be the case and the rainfall render watering unnecessary, then sprinklings of artificial manure will be the best form of stimulants to apply. In all cases where abundant root action is encouraged near at home, so much easier will be the task of keeping the trees in a healthy and fruitful condition, the very best antidote against

disease and the attacks of numerous insect enemies.
A. BARKER.

STANDARD PEARS FOR BRITAIN.

YOU want two more varieties between Jargonelle and Marie Louise. I shall name Beurré d'Amanlis and Beurré Superfin. This latter used to be in prime condition towards the end of October at the Woolhope exhibitions at Hereford. I consider that Beurré Superfin is equal in flavour to any of the best Peaches. Just a word as to flavour. Many gardeners allow Pears to become too ripe, or over-ripe, before they send them to table. I have known Beurré Superfin, by its outward appearance, appear under-ripe, but when tried the flavour has been delicious. Pears are like Peaches, they want to be taken at the right time.—A. YOUNG, *Abberley Hall Gardens, Stourport.*

—All readers of THE GARDEN who are interested in fruit will not only thank you for the time and trouble you have devoted to this subject, but those among them who know anything at all about Pears will congratulate you on your first selection. Commencing as you did with the old and universal favourite, the Jargonelle, one of our earliest Pears, I thought possibly you might have selected the dozen in their order of ripening; but the fifth on the list being Josephine de Malines, I conclude you intend doubling back for a portion of the remainder. Such being the case, the best way in which readers can respond to your invitation in selecting the seventh is by stating what they would really and truly add to the selection were the five already named the only varieties in their own gardens. Looking ahead, I should say let me have the Bergamotte d'Esperen as a successor to Josephine de Malines, or failing this I should cast longing eyes on Olivier de Serres in preference, I think, to Beurré Rance, an inferior Pear in cold wet seasons. Looking back into the months of November and December, which glut our market with enough and to spare of the best, I should certainly feel sorry to lose Beurré Superfin, Thompson's, Pitmaston Duchess, and Glou Morceau, all of them buttery Pears of the highest quality. The last, it is true, is not satisfactory on our cold marl, but it does well close by; and of the hardest Pears grown is found good in all parts of the country. The strongest proof of my opinion of these Pears is the statement that I am now planting and grafting them extensively, not that I wish for anything better than the first five selected; but I find, and all who require a continuous supply of good Pears will corroborate my statement, that one variety cannot be depended upon for giving a certain number of dishes at a stated time every year.—W. C.

*** We do not mind order of ripening now. It is a gain to have more than one for a season, as one may fail for a year, through weather or other causes. Thompson's Pear is of doubtful flavour to us and others. Pitmaston Duchess is not a first-class Pear, though a big one. Our selection is not to be confined by any means to six, but we want to be as sure as possible of the quality as we go on. Any Pear like Beurré Rance that is only good in certain seasons had better be dropped out of cultivation.—ED.

Pear Glou Morceau.—For a place I would suggest Glou Morceau; it is a Pear of first-class quality, and although rather fastidious as to soil and position, this fault should not deter cultivators who have not succeeded with it from trying it in various aspects, and under different conditions of culture. With us, on a south wall, it is all that can be desired, the fruit being clean, of good size, and high quality; on a west aspect, trained as a cordon on the Quince, it is not so satisfactory, being neither so clean nor so fine, but still the flavour is good. The majority of your correspondents on this subject, I observe, include it in their selection, from which I conclude it is a reliable variety.—A. BARKER, *Hindlip.*

—I see no reason why Glou Morceau should not rank reasonably high amongst your selected Pears. Here it is considered as one of the very best of our Pears, and we have

none to follow it that is really fit to be placed on the table. I have had it keep very good till the first week in February, and I may say that clean fruits, if not gathered too early, when ripe, are, in my opinion, for flesh and flavour, little, if anything, inferior to that grand Pear Marie Louise. I have in some districts seen it grow somewhat scabby, but this generally occurs on old trees, the roots of which presumably have got out of bounds. At all events, I consider it is well deserving of rank amongst your twelve.—H. MARKHAM.

*** Are our readers willing? We are doubtful about it for the country generally.—ED.

The Jargonelle Pear.—Probably one of the handiest trees of this useful old Pear exists in the grounds of my neighbour, Mr. C. Painter. The tree is trained along the front of his stables, the aspect being east. The roots grow under the paved stable yard, hence have no artificial assistance whatever. It bears excellent crops, huge clusters of four or five finely-formed fruits growing over its whole extent, and hanging down over the doorways, windows, &c. So great was the crop last season, that large basketfuls had to be sent to a London hospital to save them from being wasted. The tree is free growing, easily trained, and requires little pruning after the main branches are laid in and spurs formed. Even though an early Pear, it is perhaps better to plant it and secure its abundant crops than plant so-called higher-classed varieties and look in vain for such good results.—WILLIAM EARLEY, *Ilford.*

—I notice that Mr. H. Markham, February 18, (p. 144) recommends the gathering of this grand old Pear at intervals so as to prolong its season. My experience is, that it should ripen on the tree. I gathered a few last season to make a dish for a certain date, but the fruit rotted at the core before the flavour was developed. Those that ripened on the tree were simply delicious. Having a quantity in at one time, I handed them to the housekeeper to see if she could preserve them so as to be fit for use at this season of the year. This she did very successfully. At the present time they are praised very highly by those who know what the flavour of good fruit is. If your correspondent, "J. C. C.," could see the grand old trees trained against hundreds of cottages and farmhouses in Worcestershire, he would not say that it was not a reliable bearer.—A. Y.

—I have been very much interested indeed in the various articles that have appeared upon Pear culture. "Veronica" in THE GARDEN, Feb. 18 (p. 70), quotes a letter signed "J. O.," wherein the Jargonelle Pear is said to be "the Pear of Pears for Scotland." My own experience of Scotch-grown fruit would have hardly justified this remark. It always occurs to me that very great enthusiasm in the native culture is required to say that the fruit ripens at all. This particularly so "fifty miles north of Aberdeen." I shall look with interest for further remarks on this fruit grown in Scotland, and if "Veronica" or "J. O." could indicate the particular locality their observations are made from, I should be much obliged.—C. L. B.

—The following, I think, will tend to show the value of the Jargonelle Pear now so much under notice. About twenty-three years ago this Pear was erroneously planted against a north wall 12 feet in height, but never bore fruit worth gathering, and that only sparingly. When it came under my care about seven years since, not wishing to destroy the tree, I took some of the topmost branches and trained them perpendicularly down the other side of the wall, and then left it to take care of itself in the matter of pruning. Now it makes nothing but spurs, and the part on the south aspect bears annually a good crop of from 12 to 16 stones of good and large-sized fruits, which, I think, are of far better quality than those obtained from trees of the same variety in other parts of the garden.—HORT'S, *West Riding, Yorkshire.*

—I shall not give in to Jargonelle over Williams' Bon Chrétien. My No. 7 shall be Thompson's.—W. WILDSMITH.

*** Thompson's is very much praised, but we are not sure of the flavour. No. 6 is settled, and what is No. 7 to be? We think we will leave 7 to Mr. Coleman, and make Mr. Wildsmith responsible for No. 8—the eighth wonder of the world, we hope it will prove.

Jargonelle as a market fruit.—Is it true

that this is not a market fruit in any part of the country?—J. L.

Marie Louise.—That was a just article by "D. T. F." about Marie Louise. I saw once a Pear tree as big as an Oak laden with fruit in a garden on the clay in Notts. There were nearly as many fruits as leaves. On going near I found it was Marie Louise.—V.

Pear Beurre d'Aremberg.—I am surprised that your readers give such a poor account of this Pear. Here it came in between Doyenné du Comice and Winter Nelis. It was grown on a south wall. Those of your readers who condemn it may only have tried it on an unfavourable aspect or in the open. It should also be on the Pear stock.—A. Y., *Abberley Hall Gardens, Stourport.*

THE BROWN, GOLDEN, OR GREY BEURRE.

THIS fine Pear has many other names, though no one has yet placed it, so far as I have noticed, either in the best six or the best twelve Pears. Notwithstanding that it is far less generally known or grown than many Pears of inferior quality, it deserves to rank with such sterling sorts as Winter Nelis and Marie Louise. It has, however, one misfortune, for it cannot be called a fault, and that is, it comes in season a little ahead and runs abreast with Marie Louise through October. Now, the latter is so good, that we hardly need another Pear of similar form and size to compete with, nor threaten to rival it when in season. Neither is its season a long one. Its flesh is too soft, buttery, and tender to keep much more than a month after it is ripe. The fruits are large and handsome, a ground colour of green, almost wholly surfaced over with russet, the latter tinted with reddish brown where fully exposed to the light. But the fruit is liable to great changes of colour, and hence the various names of Brown, Grey, and Golden Beurré, in all of which it is certain that the quality is identical, though the colours are so varied. The writer, however, once grew two fine trees of this Pear on the same wall, and these two trees reproduced Golden and Brown Beurrés respectively year after year. But experts, nevertheless, declared them to be both alike, as they were in size and quality. The Brown Beurré, so far as growth goes, is hardy, and grows with about equal vigour on the Quince or the Pear, as a bush, standard, espalier, or wall tree. But—and this is its second misfortune—it needs the assistance of a wall to perfectly finish its fruit. The latter is mostly higher coloured, too, when grown on the Quince than on the Pear. My experience of the Brown Beurré has been wholly on the Pear stock and on walls, and there are few varieties that can be moulded into finer trees or preserved for a longer period in health and fertility than the Brown Beurré.

To avoid what I have characterised the misfortunes of the Brown or Golden Beurré, I would name as an attractive No. 6 Glou Morceau. After many years' personal experience of this fine variety I can testify that it has seldom or never failed me either in crop or quality, and yet its merits have as yet received but scant notice in the selections of your correspondents. It comes in at a most convenient season, filling up or sustaining the Pear supply of the last month of the old and the opening month of the new year. The fruit is large and handsome, rather unique in form from the bulging near the eye, and the colour is deep green, changing to pale yellow when quite ripe, and thickly spotted with russet dots. The flesh is tender, smooth, juicy, and sweet.

Though this fine Pear differs considerably in quality in different soils, sites, and seasons, it is, on the whole, as regular as most of our finer varieties. It thrives well as a standard either on the Quince or the Pear, though the size of the fruit is smaller either on standards or pyramids than on a wall. Unlike the Marie Louise, too, the quality suffers, as a rule, when grown in such forms, and though Glou Morceau is a hardier Pear than the Brown Beurré, it is equally true of the former, as of the latter, that it needs a wall, as a rule, to raise its quality to the high standard of a first-rate dessert Pear. For many years I have depended almost

wholly on this fine Pear for a continuous supply of fruit through December and January, and in no case do I remember it to have been found fault with. Well grown, carefully stored, and served when fully ripe, this Pear seldom turns out either flat, harsh, or gritty, while the tenderness of its flesh and its juicy sweetness, free alike from perfume or musky aroma, render it a general favourite.

D. T. F.

Gros Colman Grape.—Mr. Turton, of Maiden Erleigh, informed me recently that so late as the first week of the past month (February) the dozen bunches of Gros Colman Grape, the produce of the inarched Vine on to Lady Downe's stock, were consumed, and found not only after being several weeks bottled to have kept admirably, but to have stouter skins than the ordinary Gros Colman, and to be of better flavour. When it is understood that although Lady Downe's makes good growth, it seldom fruits well at Maiden Erleigh, and that whilst Gros Colman on own roots fruits well, but rarely colours freely, it will be seen how great is the gain, which through the junction of the two Vines not only causes Gros Colman to colour earlier and densely, but also gives to the berries stouter skins and more flavour, and enables them to be kept sound and plump two months later than is usual.—A. D.

Fruit prospects.—It is, perhaps, rather early to note the fruit prospects for 1888, as even covering, unless it is substantial, is powerless against such a frost as we experienced in April of 1882, and Apples, pyramidal Plums, Pears, &c., have in a great measure to take their chance. If, however, we are favoured with a genial season at the flowering time, there is every reason to hope that we shall have an exceptionally good fruit year. All kinds of fruit are the same, the trees literally covered with fruit buds, and, up to the present, all promising well. Apricots seem likely to swell up kindly this year, and appear to have passed the critical time of what I may call, in default of a better expression, "bud-rotting." This objectionable characteristic of the Apricot, rarely noticed in any other fruit, is very difficult to explain. I fancy it must be caused by a wet, cold autumn and early winter injuring the bud before it is thoroughly matured. This seems to me a more likely cause of the evil than any influence from the root. *Apricots of buds*, I see Mr. Coleman complains that he has been troubled with birds this year and has had recourse to nets. Has he tried sprinkling the trees with a strong solution of soft soap before applying the annual dusting of lime? It has proved very satisfactory with me, the lime adhering so tenaciously to the buds, that the birds do not seem inclined to touch them.—E. BURRELL, *Claremont*.

SHORT NOTES.—FRUIT.

The best late Apples in France.—Our best Apples are the following: Reinette Blanche de Canada, Reinette Franche, Fenouille (several kinds, all remarkably good), Reinette Grise, Doux d'Argent (Ostogate), Calville Blanc. The last is considered with us as the best of all, but in England it requires a wall, and quite deserves it.—F. JAMIN.

Sparrows destroying fruit-buds.—Will any experienced fruit grower kindly oblige by giving his experience as to sparrows destroying the fruit-buds of Plums and Red Currants? During the mild weather the birds mentioned made such havoc among ours, that the crop will be a scanty one. We find sparrows much more troublesome than bullfinches.—G. PAYNE, *Bedwell Park*.

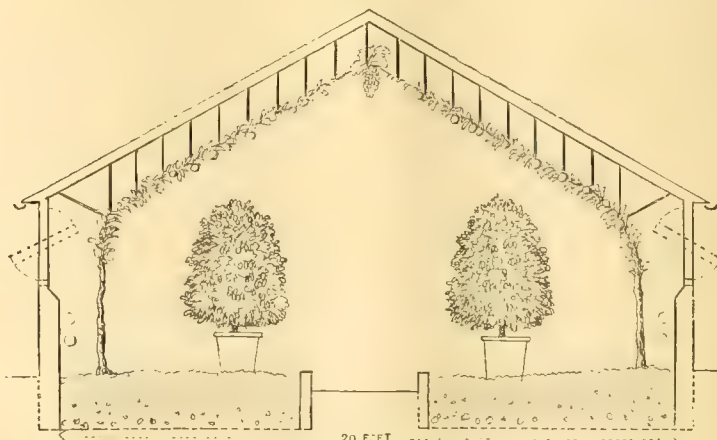
Damsons.—In some cases these are allowed to grow quite unpruned, but I have seen such splendid crops on pruned trees that I should always adopt this practice, especially with young specimens. The plan is to stop all the strong shoots and allow the small spray to grow at will, thus causing quite a mass of spurs so thickly set with fruit, that it is quite wedged together, like clusters of Grapes. The most prolific is the Crittenden, or Farleigh Damson, a splendid variety. The Cheshire, or Prune Damson, a large late variety, and Shepherd's Bullace, a large greenish white fruit that will keep a long time when gathered, are also good. An idea prevails in many places that these

fruits will not grow, but the fact is they are not planted, and I would advise anyone not having a supply of such useful fruits to plant at once, so as not to lose another season.—J. G., *Hants*.

THE ORCHARD HOUSE.

FORTY years ago the orchard house, a primitive structure, was looked down upon by the profession as an amateur's toy, a sort of safety-valve for letting off horticultural enthusiasm that might benefit the fruit tree nurseryman, but could never be of any use to the consumer of choice fruit. These gloomy predictions, so far as the hedge and the rough-weather-boarded houses are concerned, no doubt are true, but there the jeremiads must cease, as we now find them superseded and supplemented by very large houses covering scores of acres in all parts of the kingdom. Many have been built as lean-to's against existing walls; more have taken the form of the true span-roof running from north to south, not a few being set on piers, an arrangement which gives the tenant the option of moving them at pleasure, and all are erected upon the most approved principles, both as regards materials, workmanship, heating, and ventilation. So far the nurseryman and the builder have derived great benefit from the rapid development of this class of structure, and thousands of amateurs now spend many hours daily in the management of their own trees, but whether the orchard house has really

walls well furnished with established trees exist, the lean-to, a section of which we engrave, is not only the cheapest, but it is the best for early forcing, and for these reasons: The wall affords shelter from cutting winds and draughts, it saves a considerable item in the outlay, and facing full south or south-west it absorbs a great deal of sun-heat, which hastens the early maturity of fruit within a few months after the glass covering is finished. Variety being charming and the ability to test and compare the old and new sorts side by side a tower of strength, one, two, or more rows of trees in pots may be placed upon the border, where, under orthodox rules as to pinching and feeding, they will give a long succession and increase in fruitfulness as they increase in age. Where suitable walls do not exist I would not build specially for the sake of having a lean-to, but would erect a compact span-roof, with sides and ends of glass, liberal ventilation, and an abundance of piping to ensure the proper temperature, with plenty of air without overheating. Early and late houses being of most use to the private gardener—the first for saving the first permanent Peach house; the second, for extending the season with all sorts of stone fruits and Pears—the demand for a succession orchard house is of less consequence. Still, where it is considered requisite, the unequal span, with the longest side of the roof facing south or west and the shortest resting on a wall about 6 feet in height, will be found suitable. The finest varieties of Peaches, Figs,



Section of span-roofed orchard house.

brought down the price of stone fruit as monster vineries have reduced the price of Grapes is a matter which does not trouble the consumer. In my opinion the orchard house is beneficial to all classes of the community, and to none more so than the professional, who prophesied a short life for the bantling and a merry one for the nurseryman. Although Plums, Pears, Figs, Strawberries, Cherries, and Peaches are grown and grown well in the orchard house, the Peach and Nectarine stand at the head of the list. First, because there prevails an impression that they cannot be depended upon on open walls, and, second, because there is a good demand for all the surplus fruit that good cultivators can send into the market. To the private gardener the forcing orchard house is especially useful, as it saves the hard forcing of a permanently planted house. It gives him very early crops of ripe fruit, and enables him to test a great number of varieties on a small scale before he plants them out for training upon trellises.

HOUSES.

Air and light being two of the main factors in the production of good Peaches, the span roof, stands first on the list, and this is the structure I should always recommend to the gentleman who, having an open Grass field, is about to make a new garden, or whose old one does not offer facilities for attaching to existing heating apparatus. In old gardens where good

Pears, Plums, and Strawberries being grown in pots, the roof may be fixed, as the trees can easily be removed to the open air in the autumn; otherwise, planting out being preferred, the roof lights should be portable, for drawing off when full exposure of the trees to the elements is of paramount importance. A flow-and-return pipe along the back and front of a large house of this description will be ample; in fact, more than enough for fruit trees alone, which only require gentle fire-heat when the fruit is setting, and, again, for dispelling stagnant moisture when it is ripe, but with the view to filling it with flowering plants in the months of November and December, the addition of an extra 4-inch pipe is strongly recommended.

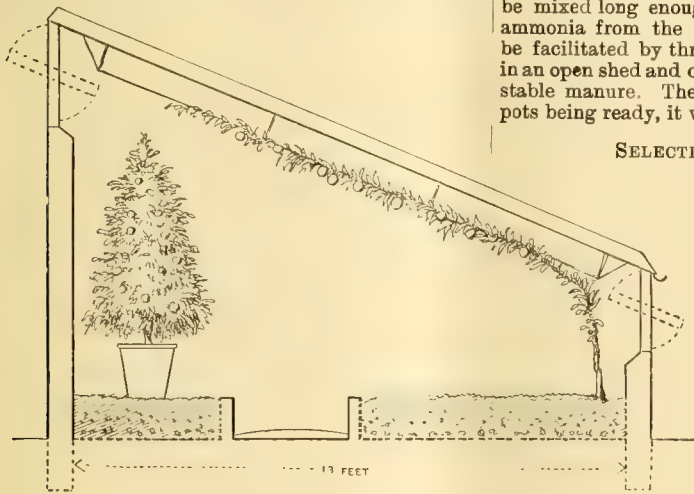
VENTILATION.

The fixed roof should have a roomy lantern ventilator running the whole length of the ridge, and the front lights, opening outwards, should be capable of letting in more fresh air than the top ventilator can let out. By this means any forcing house can be kept full of fresh air, and what are termed keen draughts, so hurtful to tender foliage, can be avoided. Where the roof lights are portable all the upper section should run downwards and the lower section upwards, as fruit trees, especially Plums, Pears and Cherries, cannot have too much air during the time they are in flower and setting, and again when the fruit is colouring and ripening. In fact, the cultivator should be able to reduce the temperature of any

house to that of the external air throughout the hottest day in summer. Efficiently heated and well ventilated, the orchard house should be considered complete; but there is another item of equal importance which must not be overlooked, and that is

WATER.

for without this element, soft if possible, certainly abundant, successful culture will be impossible. I have often urged the formation of tanks for catching every drop of soft water that falls on the roofs of houses and buildings, and last year taught us a lesson which will not soon be forgotten. Soft water answers best for all purposes, especially for syringing, as it does not leave a deposit of sediment on the fruit and foliage, and supplementary to this, water from tanks, ponds, or running streams, after it has been well warmed and softened by exposure to the atmosphere, should always be at command for root-watering and damping the walls and floors. It is usual to construct large tanks beneath the floors of hothouses, but the hose in the orchard house being so frequently in request, whilst this mode of watering so greatly economises labour, elevated tanks for this particular structure, if possible, should be provided in some part of the garden. Cold spring water is the worst of all, as it chills the tender foliage and washes out the stimulating matter contained in the



Section of lean-to orchard house.

compost and top-dressing; indeed, by the constant use of this water, plants of all kinds may be reduced to a state of starvation. Here, then, we have the choice of three qualities of water, good, indifferent and inferior, and yet all of these may be of great service in their way; the first for syringing, the second for watering, and the third for cleansing purposes. We often hear people say, give me a little and let it be good, but the orchardist should provide for an abundance of that which is good, and fall back on the inferior when the best fails, as too often it does in hot, dry seasons. Whatever kind of water is used the supply must be plentiful and regular, for once a pot tree becomes dry, ten to one it is ruined for the season. From water pure and simple we turn to

STIMULANTS,

without which pot culture will make but very little progress. For general feeding there is nothing better than the drainage from the frame ground, the manure heap, or from well-fed animals. This, as a matter of course, must always be used in a clear diluted state, and most liberally when the trees are growing and the fruit is swelling. Slops from the house and soapuds from the laundry also are good, but in gardens where none of these are within reach stimulants can be made by placing bags of animal manure, soot and guano in large casks or tanks, specially provided for feeding purposes only. These highly concentrated stimulants together make a liquid which cannot be too

carefully used, little and often, always in a clarified condition; but change of food being quite as acceptable to the fruit tree as to animals, each manure will produce the best result when mixed separately and supplied alternately. By adopting this plan, the soot-water, in a clear weak state, can be used once or twice a week for syringing purposes, and those who have never tried it will be astonished, not only on its effect upon the foliage, but also on its action as an insecticide.

COMPOST.

The staple for all pot trees is sound calcareous loam from an old pasture; if too light, it can be corrected with marl; if too heavy and clayey, old lime rubble and burnt earth will answer. The foundation formed and placed where it can be thoroughly pulverised and made free from wire-worm by exposure to the weather, correctives such as crushed bones, soot, or Thomson's vine manure can then be added and thoroughly incorporated a few weeks before it is wanted for use. Rough charcoal, old hair-plaster and powdered bricks or oyster-shells also may be used, both for mixing with the loam and for crocking purposes. But, unless the loam is very poor, animal manure should be avoided. The most suitable compost for stone fruits should also be fit for Roses and pot Strawberries, but for Pears and Figs a somewhat softer, but still a good fibry, loam answers best. For one and all it should be mixed long enough for the loam to absorb the ammonia from the manures, and this process can be facilitated by throwing the compost in a heap in an open shed and covering it over with fermenting stable manure. The house, the compost, and the pots being ready, it will be well to see about the

SELECTION OF THE TREES.

Time being of more value than money, fruit trees established in pots and ready for bearing can be obtained from any good nursery, but unless great care has been devoted to the selection of compost, they do not always succeed so well as home-grown trees, whilst the cost of carriage to any great distance is heavy. Early autumn is the best time to choose and to pot, but maidens, which are the best to start with, may be potted as late as the end of February. If well grown on healthy stocks that suit them, Peaches will average 3 feet in height; they will be as straight as arrows, well furnished with side shoots, clean, and free from blemish at the working. The grower, if possible, should choose his own trees, but where he cannot conveniently do so, he may safely leave the selection to the nurseryman, as it does not pay to keep or send out an inferior article. Peaches and Nectarines, two years from the bud and once cut back, can be obtained, but maidens beat them. All other varieties, Figs excepted, can be secured from the open ground in the form of fruit-bearing pyramids or bushes.

POTTING.

Provided with clean, dry pots 9 inches to 11 inches in diameter, and compost in the best possible condition, pottling should be proceeded with immediately upon the arrival of the trees. Having prepared them by shortening the strongest roots and trimming the fibres with a sharp knife, divide the trees into two sizes, the first for the largest, the others for the smallest-sized pots. Enlarge the apertures to ensure the free egress of water; crock carefully, finishing off with a little soot to keep back worms, and fill the pots one-third full with the roughest of the compost. If dry enough to bear ramming without becoming pasty, use the rammer freely, introduce the tree, fill in with compost, ram well as the work proceeds and finish off, leaving a space of $1\frac{1}{2}$ inches below the rims for the reception

of water and mulching. When all the trees are potted, place them in the house, attach neat labels, and give a moderate watering to settle the soil about the roots. If this work is performed before the leaves fall, it will be necessary to keep the house close, but not hot, and to damp the trees once or twice a day with a syringe, otherwise the trees, being bare of foliage and dormant, housing and watering will be necessary, whilst syringing may be dispensed with. Pears, Plums, and Cherries it is not absolutely necessary to place under glass, as they will winter very well on a dry, sheltered border where the pots can be protected from frost in the open garden. Peaches, too, may be left out, say from October to Christmas, but space being at command, the whole of them will not only be safe under glass, but being regularly supplied with water, the roots will at once set about recuperating and filling the compost with new fibres. Water, as a matter of course, should not be given immoderately, but just often enough to keep the compost in a nice growing condition, and although the house may be cool and airy, roots in quantity will be made by the time the buds commence swelling in the spring. As maiden trees cannot be expected to bear fruit until they have been a year in the pots, the house the first season will hold more trees than eventually it will accommodate, but duplicates being necessary and a rest advantageous, it is safe practice to start with a fair percentage above the number actually required to fill up the chapter of accidents. In due course it may be necessary to enlarge the existing house or provide a second for the surplus trees, but this being impracticable, the Peach, which is the king of orchard house fruits, must have full justice in the way of space; whilst Plums and Pears, after the fruit is set and safe from frost, may be plunged to the rims on warm borders in the open air.

STRAWBERRIES.

As all amateurs wish to grow Strawberries in the orchard house, and the preparation of the plants takes up much time, the first step must be taken in June. At that time choose 6-inch pots for late kinds, and 5-inch pots for early ones. Let them be clean, dry, and well crocked, and dust with soot to keep back worms. The compost recommended for Peaches will grow the plants well, but if this is not ready, to three-fourths of strong calcareous loam add one-fourth of rotten cow manure and old lime rubble in equal parts, and 12 per cent. of the whole of bone-dust. Mix well in a dry, airy shed, as for Peaches, a few weeks before the compost is wanted. Then fill the pots, ramming as the work proceeds until the balls are as hard as the top spit in an old pasture. Carry the pots to the Strawberry beds, fix them in rows or blocks, and peg one good runner down upon the centre of each ball. Water regularly and freely in dry weather always after sundown, and do not allow a second wire to start from the young plant. In three weeks, more or less, according to the weather and the strength of the parents, the roots of the young plants will touch the sides of the pots, when they must be detached and conveyed to their growing quarters. Worms being great pests when they get into the moist, rich soil, the station should be made proof against them by a thick layer of coal ashes or lime rubble at the outset. Having ranged the plants nearly close together and quite level, keep them well supplied with water, soft if possible, never wetting the foliage when the sun is upon it, and rearrange them from time to time to keep the roots out of the bed and to prevent the foliage from becoming drawn. As growth in good seasons and in such rich compost will be rapid, stimulants should be dispensed with, one fine well-ripened crown being always preferable to large ones, which split and ripen imperfectly. Towards the end of October it will be time to see about plunging the plants for the winter, not so much for the protection of the crowns as for the prevention of injury to the pots by frost. Where cold, shallow pits are not wanted, in these they may be plunged to the rims in leaves, old tan, or ashes, but not coddled, as the Strawberry is perfectly hardy and fruits well in proportion to its winter rest. Lacking this convenience, with 9-inch planks

on edge form stations in the open, plunge the pots where they will have full exposure to rain and snow, and never cover with aught save a few Fern fronds when the frost is unusually severe. About the end of January the first batch of plants may be cleansed and taken into the orchard house, where they must never feel the want of water, as neglect in this particular will be fatal. But why not, many will say, take all in at once, or winter them in the orchard house? Simply because exposure to frost and snow and fresh air suits them best, whilst storing them away a great distance from the glass, exposing them to cutting draughts, and withholding water when the roots require it gives a great deal of unnecessary trouble and anxiety, if it is not a sure stepping-stone to failure. W. C.

STOVE AND GREENHOUSE.

THE BEST LACHENALIAS.

THOSE of the tricolor and pendula groups are invaluable for the greenhouse in early spring, being so bright in colour, so elegant in growth, and last such a long time in beauty. There are a good many forms now, but those who want to grow only the very best may rely on the following four, viz.: *L. pendula*, *aurea* and *luteola* varieties of tricolor, which has also been called quadricolor. *L. Nelsoni* is, some think, an improvement on *L. aurea*, but the best form of this is difficult to beat in point of colour, which is a bright orange-yellow. All these have erect flower-spikes and tubular flowers, more or less pendulous, in contradistinction to those species having their flowers set on the spike erect or horizontally. These beautiful bulbs repay the best attention, and certainly one cannot have fine flowering plants of them if good care is not bestowed upon them from the time they are potted, which should be in early autumn, till the resting season comes round, which occurs after the current year's growth is ripened. Of late years *Lachenalias* have received a good deal more attention from gardeners than formerly, when it was the usual practice to let the plants take their chance, thrust out of sight as soon as out of flower and until spring. But well-grown *Lachenalias*, such, for instance, as are shown by one or two exhibitors at the Regent's Park spring shows, are a credit to any gardener, and are really beautiful. All the *Lachenalias* want liberal culture, good strong soil to grow in, abundance of water when in full leaf, and all the light and air practicable in order to prevent them becoming drawn. The potting time is August, when new bulbs may be purchased, and from that time till the foliage has died down they must have attention. The resting time is summer, when the bulbs should be dry and allowed to bake in the sun, and this will ripen them. When the potting is being done, three or four plump bulbs are sufficient for a 5-inch pot, and the soil should be half fibry loam, the other half of leaf-mould, cow manure, and sand. By potting the bulbs at intervals of three weeks or a month a long succession of flowering plants can be had; the earliest, if gently forced, may be had by Christmas or the new year. Some good growers prefer baskets or suspended pans for these bulbs. Both these plans are excellent, as the plants can be hung under the roof, and in baskets the bulbs if stuck in all round, top and bottom, look very pretty when in bloom. Of course, Moss or fibry loam must be used to keep the bulbs in position when planted in this way. They can be grown in a cool frame till the days get too cold in autumn, when a light greenhouse is their place. Of the four kinds mentioned, *L. pendula* is showiest, the flower-spikes being larger than in the others, and of a bright ruby red, tipped with black. *L. luteola* has greenish yellow flowers with the spike tipped with red; while tricolor has three distinct colours in its flowers, yellow, green, and purple. *L. aurea* is pure yellow, but in all four the foliage is prettily spotted and blotched. *L. tricolor* flowers from midwinter till late spring; *luteola* is generally at its best from February till April, as are also *aurea* and *pendula*. When in flower they have a fine effect if displayed

in groups of about a dozen, for which a single plant, unless it is very large, is not fitted. This grouping plan is well carried out at Kew, where three out of the four recommended may be seen in bloom, viz., *aurea*, *pendula*, and *luteola*. G.

Plumbago capensis.—This is generally grown as a greenhouse climber, and, being of free growth, it will, when left to itself, soon cover a considerable space. The lovely azure-blue flowers which are produced in such great profusion are always welcome, but it is not always convenient to give it the space it requires as a climber. With a little management it may be grown and flowered well in a comparatively small pot. When treated as a pot plant this *Plumbago* is one of the most distinct and useful subjects that can be grown. For this purpose, cuttings taken now will make good flowering specimens in the autumn; or if taken a little later, two or three plants may be grown in one pot. Young shoots will strike freely in an ordinary stove propagating pit if kept close, the chief thing being to prevent the cuttings getting withered. As soon as the cuttings are rooted they should be potted off. Shift the plants on as they require it, giving them every encouragement to make free growth. The plants may be grown in an intermediate temperature, and will require stopping several times to get them to form compact plants. They should only be allowed to make a short growth each time before being stopped. After good bushy plants are formed they should have a light airy position to prevent the growths running up too tall before flowering. If about six shoots start away evenly together they will form very effective plants when in flower. I have had plants about 18 inches in height with from four to six good trusses of bloom on each; these have been grown in 5-inch pots, and for decoration few plants are more effective.—A.

Camellia buds falling off.—Friendly criticism when confined to the elucidation of the subject at issue is always welcomed by me; I therefore beg to thank those correspondents who have replied to my notes on the above subject. I am well aware that there are many places where *Camellias* which are never placed out of doors during the summer do well, these, however, being treated in accordance with the nature of the plant, i.e., never subjected to a high temperature. But there are also hundreds of places where this cannot be done, simply because the conservatory has to be kept at too high a temperature, thus causing premature growth, and this very often while the plants are in flower. I hold that such structures are neither suitable places, nor conducive to the health of the plants for any length of time, because they are forced into growth beyond their rooting power, and thus bud-dropping results. I have several times seen the house at Chelsea spoken of by Mr. Burrell, and agree with what he says in the main. I, however, presume that it is kept as a *Camellia* house and the plants treated accordingly, and not, as I have been obliged to do, place them in a conservatory kept at stove-heat. In Mr. Cathbert's nursery at Southgate the *Camellias* are planted out in a house where the lights are taken off during a good part of the summer, and the plants exposed to all sorts of weather. I think it would be difficult to find healthier plants or any which flower better, and no bud-dropping is experienced. In this case the plants have a proper period of rest, growth, and flowering, and are never in a temperature out of character with the requirements of the plants. In the case referred to in my previous notes in THE GARDEN, Jan. 28 (p. 80), I am certain I could not have remedied the fault of bud-dropping in any other way than by subjecting the plants to a cooler and more regular course of treatment, thereby giving them more time in which to form their flower buds.—THOMAS RECORD.

Bauera rubioides.—Should hard-wooded plants ever return to the position they once held, we should see many very pretty things that have almost dropped out of cultivation. Among them must be included this native of New South Wales, which, though it cannot at any time be called showy, is easily cultivated, and will flower nearly throughout the year. The plant under notice forms

a small, much-branched bush, the slender shoots of which are studded with saucer-shaped blossoms. These flowers are about three-quarters of an inch in diameter and of a mauve-pink colour. Though it flowers most profusely during the spring months, yet good, healthy plants will often bloom throughout the whole winter, especially if they are kept at the warm end of the greenhouse. This *Bauera* will do well in a mixture of peat, loam, and sand, this last being very essential to its well-doing. Cuttings of the young shoots taken just as their most succulent stage is past will strike root readily if put into well-drained pots or pans of sandy peat and covered with a bell-glass. These cuttings will need very little heat; indeed, they will strike best in a greenhouse temperature.—H. P.

Lapageria alba.—Lovers of plants are sometimes surprised at the much higher prices charged for the white in comparison with the red *Lapageria*. The white form is expensive, and it is caused solely by the fact that while the red type can be raised from seed, the white, although it seeds freely, does not reproduce the white form, but only the red or pale red and pink types; therefore it is that the white variety has to be raised by layers. This operation can be seen carried out on a large scale at Messrs. James Veitch and Sons' nursery at Chelsea. Two or three strong plants can be seen growing on a bed in a greenhouse, and during the months of November and December the shoots made the previous season are brought down and laid on a bed of light, peaty, sandy soil. They are carefully pegged down in position and covered with a similar compost. About February and onwards the shoots break into growth at various points and root into the soil. The ascending shoots are attached to cords coming down from the roof, and in due course they are lifted from the beds and potted. I have often wondered how the large number of plants of *Lapageria* fared that the late Mr. G. T. Davey planted out at Colston Bassett, his residence in Nottinghamshire, some twenty years ago. They were planted just within the fringes of clumps of shrubbery, it being Mr. Davey's desire to imitate as far as possible the natural conditions under which the plants grew in their native habitat. I think that something like 100 were planted about the grounds, and Mr. Davey's desire was that they should send their shoots up about the outer branches of foliage and display their flowers to view. It would be interesting to know if any of these plants survived the severe winters which have occurred since they were planted.—R. D.

New Zealand Clematis (C. indivisa).—This lovely greenhouse climber would be welcome at any season of the year, and as it blooms at the present time, when so few climbing plants are in flower, it is additionally valuable. When grown successfully it produces long racemes of pure white star-like flowers, which show up well against the deep green foliage, and either for the roof or for pillars it is very effective. It may also be used as a pot plant if the stems are trained round a tall pyramidal trellis. It is a plant of easy culture, but requires a little management to flower it successfully; it is, perhaps, on this account that it is not so generally grown as it deserves to be. When planted out it is apt to grow away too freely, and does not ripen the wood sufficiently to flower well. I have seen the best results where the plants have been grown in pots. The plants should be encouraged to make as much growth as possible early in the season. The specimens may be grown in an intermediate temperature, using string for training the plants to while making their growth. A separate string should be used for each shoot, the strings being fixed to the pots by means of pegs and taken up to the roof of the house. These shoots can easily be cut down when the plants have made sufficient growth and it is desirable to remove them to an exposed position where growth will be checked and the wood will get well ripened. It is on ripening the wood properly in the autumn that success mainly depends. If the plants have a short rest and are ripened off early in the autumn, they will set their flowers, and as soon as the buds appear the plants may be placed in a warmer position and will come into bloom early

in January, or perhaps by Christmas. There are two varieties of this beautiful Clematis—*C. indivisa* and *C. indivisa lobata*. In the former the leaflets are smooth and sharply pointed, and in the latter the leaflets are broader, deeply lobed, and slightly undulating. I should give the preference to the last-mentioned, as it flowers more freely, though the flowers are not quite so large as those on the first-named variety.—A.

The Tasmanian Laurel (*Anopterus glandulosa*).—This is a handsome, cool greenhouse evergreen shrub, and one, too, that under ordinary conditions flowers during the early months of the year. It forms a stout-growing specimen, clothed with very dark green leathery leaves, and bears erect terminal racemes of white saucer-shaped flowers. The general appearance of the plant and its waxy blossoms suggest an affinity to some of the Ericaceæ, such as the *Andromedas* and *Arbutus*, instead of which it is a member of the Saxifrage family. It is a native of Tasmania, and its cultural requirements are very simple, as if potted in a mixture of peat, loam, and sand (this latter is very essential), it succeeds perfectly if just protected from frost during winter. The half-ripened shoots strike readily enough if taken early in the summer and put into well-drained pots of sandy peat. If covered with a bell-glass the cuttings may be placed in a frame, but it is essential that the lights be kept close and shaded during sunshine. Should any of the cuttings not be rooted by the time summer is well advanced, a little bottom-heat will soon cause them to strike.—H. P.

Alocasia Sanderiana.—This remarkable species will, in all probability, become a very popular plant; it is of recent introduction, and has not hitherto been seen in good condition; for instance, I have seldom seen plants bearing more than one or two leaves. I recently noted a specimen of this species, however, in the stove at Mr. Laing's nursery bearing numerous leaves, which give it quite an imposing and effective appearance. For the benefit of those who have not yet made the acquaintance of this beautiful *Arad*, I may add that the leaves are persistent, arrow-shaped, and deeply lobed at the edges; the ground colour is deep bright glossy green, over which there is a shade of metallic blue; the midrib and primary veins are white, bordered with ivory white, whilst the outer margin is narrowly margined with white. The plant is a native of the East Indian Islands, and requires strong heat and moisture to develop its beauties, which are entirely distinct from those of any other member of the family yet introduced.—H.

Greenhouse flowering plants.—The cool houses in Mr. Laing's nursery are specially brilliant for the time of year, the display mainly consisting of the Japanese *Azalea mollis* and *Epacris* and *Heaths* in variety. It may be remarked that Mr. Laing has a numerous and increasing demand for hard-wooded *Heaths*, so that before long we may possibly see these beautiful greenhouse plants restored to popularity. It is a matter of regret that so few gardeners of the present day understand their culture, which, like that of many other things, will have to be learnt again. The plants at Forest Hill are under the charge of Mr. Leach, one of the principal growers of the specimen *Ericas* which made the Messrs. Rollisson's nursery at Tooting so famous in its time. Besides the above were *Cyclamens*, *Cinerarias*, *Hyacinths*, *Lily of the Valley*, some good old New Holland plants, such as *Chorozemas*, *Boronias*, including the beautiful violet-scented *B. megastigma*, various *Polygalas*, *Genistas*, and the beautiful *Pleroma macrantha*, which is blooming in profusion. It is proved here to be one of the freest growing and continuous flowering plants yet introduced, if kept as cool as possible. In most gardens it is grown in a stove, and grows rapidly enough, but one is seldom rewarded with a crop of blooms. On the rafters are plants of *Lapageria rosea*, which appear when established to flower all the year round, and plants of the old and useful *Habrothamnus elegans*. Festooning the roof is a very fine specimen of *Clematis indivisa lobata*. It is bearing thousands of flowers, which are borne upon long foot-stalks, so that they are well suited

for cutting. They are about 2 inches or 3 inches across, pure white, and sweet-scented. It is not only very free-flowering, but continues blooming for a long time. It is just the plant for those amateurs requiring a climber for a cool house; whilst in the south and west portions of Ireland it would in all probability thrive luxuriantly in the open air. It is a native of New Zealand.—W. H. G.

GLADIOLUS COLVILLEI THE BRIDE.

THIS is commonly described as hardy, but I think that a great deal of disappointment will result from the attempt to treat it in the same way as *Daffodils*, *Hyacinths*, &c. I believe that the bulbs are perfectly hardy, but they exhibit an unfortunate tendency to push into growth during the autumn, so that they are often an inch or two above ground before winter sets in. In this respect they resemble *Ixias* and *Sparaxis*, and, like them, the young growths are incapable of successfully braving the alternate freezings and thawings to which they are subjected. In a fairly dry and not too severe a winter they often survive, thus leading many to put faith in their hardiness. In the course of time the bulbs disappear altogether, or only a few weak offsets push up. The right way with this very charming flower, so useful for supplying chaste white blooms in quantity, is to plant soon enough to enable the bulbs to get good root-hold, but so that they come above ground when there is no longer any danger of the young growths suffering. I should say that from the middle of February to the end of March would be a good time, as this is sufficiently early to admit of the plants getting good hold of the ground and enabling them to escape the perils to which they are exposed at an earlier period. This *Gladiolus*, like all other members of the family, loves good soil. Plenty of good, but rotten manure should be worked in to the depth of a foot, and in the case of heavy soils every care should be taken to render them friable. I do not know if giving a little protection in winter has been tried. Of course the earlier the plants start into growth the sooner they will bloom, and a crop of this chaste flower early in the season would be a valuable one. Were I growing this *Gladiolus* for market, I should try what a covering of Fern or something similar would do, putting it on at night and taking it off in the daytime, just as early *Radishes* are managed in market gardens. A great deal of shelter is not required to bring the leaf growths through safely, as at this time of the year the foliage is only a couple of inches above ground. I believe that with this, as with so many hardy flowers that are somewhat tender, the critical time is when hard frosts succeed heavy rains. Protection in ever so slight a degree would probably preserve the foliage from injury, as well as assist the plants.

As a pot plant, *Gladiolus The Bride* has much value in spring and early summer. Four good bulbs in a $4\frac{1}{2}$ -inch pot, and double that number in 6-inch pots will, when well developed, have a very nice appearance. As with all bulbous flowers that are grown for spring bloom, early potting is necessary. The natural habit of this *Gladiolus* is to start into growth quite early in the autumn. Last spring, when my plants had finished blooming, I put them in the open air, and when the foliage died off the pots were laid on their sides in a cool situation, and where water occasionally fell on them through sprinkling other things close by. When I thought of potting them up again, I was surprised to find that they had made shoots quite 2 inches long, and the pots were nearly filled with roots. The unusual heat, in combination with a certain amount of moisture, doubtless had something to do with this early start, but that, under any circumstances, they should by the middle of September be in full root and leaf-activity is a proof of the necessity for potting up the bulbs at a much earlier period than is usual with bulbous flowers generally. In the case of this *Gladiolus*, I think that the succession should not be regulated by the time of potting, but by any other means which may be at the command of the grower. Did I require any quantity

of white flowers during the spring months, I should certainly grow *The Bride* extensively, potting all the bulbs at the same early date, just as many do *Hyacinths*, and bringing them along in varying temperatures. In this way the greatest amount of bloom would be obtained from all the bulbs. It is as well to mention that this *Gladiolus* will not stand hard forcing—at least, that is my experience of it. It is a flower for late spring, say from April till the middle of June, and must at all times have abundance of light and air. Being tolerably strong-rooted, the pots are soon filled with fibres; consequently, feeding should begin at a comparatively early period of its growth. More especially when the flower-spikes appear is a stimulant needed. If from this time food fails, the spikes are not thrown up well, and if watering is neglected the tips of the foliage become brown, and the plant loses its fresh appearance. There is something more than usually attractive in the appearance of this *Gladiolus* when well grown. The fresh grass-green foliage, the exquisite purity of the flowers, and the very graceful habit combine to render it a most pleasing object, and there is no wonder that it should have attained to so high a degree of popularity. J. C. B.

Monochætum sericeum grandiflorum.—This old and beautiful greenhouse or, during the winter, intermediate house plant, belonging to the *Melastomads*, is now seldom seen. It is now flowering profusely in Mr. Laing's nursery at Forest Hill, where many of the old favourites seem to have found a congenial home. This is a dwarf, compact-growing plant, producing in abundance its rosy mauve flowers, and should receive the attention especially of those having but limited space. The soil for this *Monochætum* should consist of peat, loam, leaf-mould, and sand in about equal parts. Drain well and pot firmly. There are numerous pretty small-growing kinds belonging to this genus.—H.

Jasminum Sambac fl. pl.—This plant succeeds here fairly well in a warm greenhouse. It is potted in a mixture of peat, sand, and loam, and makes fair growth. When planted out it grows very strongly, and can be trained on a greenhouse wall with very good effect. The variety grown here is *Maid of Orleans*, and appears to be similar to Mr. Soper's plant, having ovate glabrous leaves and globose buds, which open with fleshy incurved petals very sweetly scented. The flowers are often fasciated, the stem for some distance below the flower showing the fasciation. Last autumn a flower of the same variety was sent from Kew to South Kensington, this bloom being fasciated similar to the flowers on the plant grown here. I may add that my plant came direct from a nurseryman in the Southern States of America, so that this condition of fasciation is evidently becoming fixed in *J. Sambac*. Since the Kew flower was exhibited I have heard of another plant having flowers of the same character. It would be interesting to know whether Mr. Soper's plant ever produces abnormal blooms. Is the variety with acuminate leaves, mentioned by Mr. Soper (p. 119) really a form of *Jasminum Sambac*, or is it a double form of *J. pubescens*?—JOHN W. ODELL, *Barrow Point, Pinner*.

Spot on Pelargoniums.—A note in THE GARDEN, February 25 (p. 161), would lead one to suppose that spot is caused by leaf-mould. This is undoubtedly an error, as I have always used leaf-mould in the potting soil, and cannot recollect any of our plants being the least injured by spot. We may have had one or two plants in a season show it, but in many seasons no plants have been affected. We always place them out of doors when they have finished flowering. If continued wet weather sets in, the plants are laid on their sides, and receive no water at all for about ten days before they are cut down, and none for a few days after. Treated in this way no sap exudes from the severed parts. Success or failure depends upon the subsequent treatment. The plants may be allowed to start into growth out of doors, as the time being August rain can-

not be injurious. In three or four weeks after they are cut over it will be time to shake them out and repot them. Reduce the ball of roots considerably, replanting in smaller sized pots. The compost used should be turfy loam four parts, one part leaf-mould, and one part of decayed cow manure. Place the plants in a light airy house after they are repotted. If no water is given for a week, the plants will do well and be free from spot.—J. DOUGLAS.

WORK IN PLANT HOUSES.

POTTING STOVE PLANTS.—**IXORAS.**—When *Ixoras* are kept constantly in the high temperature that is necessary to have them in the best condition, they may be repotted at any time of the year. But where the heat of the house in which they are located is allowed to fall so low in winter that the plants are reduced to a dormant state, the potting requires to be delayed until there is a sufficient rise to excite growth. As soon as top growth begins to move it is a sure sign that the roots are active; consequently any plants that need more room should then have a shift. There are no other flowering stove subjects that are so much benefited by a liberal amount of root room as *Ixoras*. The amount of growth they make and the size of the flower-heads is generally proportionate to the pot room the plants receive. The best examples of *I. coccinea* I ever had were put into 22-inch pots in less than three years from the time the cuttings were struck. None but the best brown turfy peat, with plenty of fibrous matter in it, should be used. The black, heavy peat on which Heather alone grows should be avoided, as in it the plants are never seen in their best form. A liberal quantity of sand should be added. Use the peat in what may be described as a rough, lumpy state rather than broken fine. Drain the pots well, and make the material moderately solid. Do not attempt to loosen the balls or disentangle the roots further than in getting the old drainage material away. Before potting the plants should be well cleaned, so as to free them from scale or mealy bug. Where they are affected with the last-named pest it is impossible to flower them well unless the insects are kept well down, without which they congregate on the half-matured trusses to such an extent that the blooms get injured in the operation of cleaning. Keep the plants at the hottest end of the house, giving them no shade unless the leaves are likely to get burnt.

STRIKING IXORAS.—*Ixora* cuttings should now be put in so as to give them the benefit of a lengthened season wherein to gain size and strength. The cuttings should be from 5 inches to 7 inches long, and select the strongest shoots, as plants raised from these will keep continually pushing up vigorous growth from the base, and in this way keep fully furnished as they get older. The cuttings should be struck singly in small pots two-thirds filled with a mixture of peat and sand, the top all sand. Keep them under propagating glasses close and moist. They will bear as high a temperature as the hottest stove plants will endure; shade from the sun when necessary. So managed they will strike in a few weeks, and as soon as the little pots are moderately stocked with roots move into others 4 inches larger.

GARDENIAS.—Now when the sun begins to have a good deal of power, the flowers will come on much more quickly than when fire-heat alone was available. The increased amount of heat will permit of more moisture overhead being used. Still, once a day is often enough to syringe the plants, and this should be done sufficiently early in the afternoon to allow the advancing flower-buds to get dry before nightfall. When too much water is given overhead even now, when there is more length of daylight, it often causes the buds to fall off.

STRIKING GARDENIAS.—In propagating *Gardenias*, it is not necessary to use cuttings of the young, half-matured shoots, such as alone will answer for many stove plants, for the older, fully-ripened wood produces roots readily. Branches 10 inches or 12 inches long that have several shoots each, if put in a brisk heat, will strike in a short time. They should be put separately in 5-inch or 6-inch pots, drained,

and three parts filled with a mixture of peat and sand, the rest all sand. Keep the material quite moist, and confine them in a propagating frame, admitting a little air for an hour or so daily. If a bottom-heat of 85° can be given, these branch cuttings will have made enough roots in three or four weeks to admit of their being gradually inured to the air of the house. Directly the soil is moderately full of roots, move the plants into pots 3 inches or 4 inches larger. Where there is any difficulty in getting good fibrous peat, turfy loam may be used instead. Where cuttings such as these are used and they are afterwards encouraged through the season with enough warmth and no stint of pot-room, the plants will make good-sized specimens before autumn, giving in the meanwhile a good supply of flowers, and being at the end of summer in a condition to bloom more or less in the winter. Cuttings of the ordinary description, consisting of the points of strong shoots about 5 inches or 6 inches long, may now be struck; treated as advised for those already named, they will quickly get established. As soon as top growth begins to move, pinch out the points of the shoots, for unless the plants are induced in their early stages to branch out freely at the bottom, they get bare and unsightly as they get older. Close attention to keeping down insects is even more necessary with *Gardenias* than the majority of stove species, as the peculiar sheathed condition of the shoots gives shelter to mealy bug, which, when present in quantity, renders the successful cultivation of the plants difficult.

TABERNÆMONTANAS.—There are few white flowers so pure in colour as these; the double variety is the best to grow. By having several specimens, and using the necessary care in varying the temperature, a succession of flowers over a considerable portion of the year may be had. Plants that require larger pots should be moved now. *Tabernæmontanas* do not need so much root room as some things; consequently, unless very large specimens are wanted, there is no necessity to give a large shift. Peat is the most suitable material to grow these plants in, using sand enough with it to ensure porosity. They bear cutting back well; any that were headed in after flowering last summer should now be turned out and have one half of the old soil shaken away, returning them to the same pots if these are large enough. In cases where the plants were pinched for room, however, a size or two larger may be given. In potting make the soil solid, so that it will not hold too much water, as when this occurs it frequently causes the buds to drop, a defect to which the plants are liable, either from being too wet at the roots or through much top moisture being present. Any old specimens that have got leggy and bare at the bottom may now be headed in; they will bear cutting back freely into the old, hard wood. When the tops are removed place the stools in a warm stove temperature, syringing them overhead daily, but do not give much water to the soil until the new growth has appeared and made a little progress. After this shake away a portion of the old soil, then repot, and treat as advised for the plants that were cut back in autumn. Cuttings should now be put in; of these also select the strongest shoots, as stock raised from such will always keep ahead of plants that are struck from weaker wood.

HOYAS.—The different varieties of *Hoya*, even those that are the strongest growers, such as *H. imperialis*, *H. Cunninghami*, and others of a like description, do not require so much root-room as the majority of stove climbers. When the specimens get large and are in pots as big as it is advisable to give them, much may be done to keep up the requisite vigour by the use of manure water, but whilst the plants are young and up to the time of their attaining something like the size required, it is best not to pinch them for room. In all cases where this occurs the wood gets into a prematurely hard, stunted condition, from which no subsequent treatment will induce the plants to move with the freedom that is desirable. *Hoyas* are not particular in the matter of soil, as they will thrive in either peat or loam, provided it is not sour and adhesive,

in which case the roots soon get into an unhealthy state, so that the plants are not able to flower as they should, the buds often dropping off before they open. Where good loam can be had I should give it the preference. Enough sand must be added to keep it in the right condition for a lengthened period, as the plants do not like their roots being disturbed to the extent that occurs when they have to be shaken out. In the case of young or medium-sized examples that will be likely to suffer for want of room they should be potted now. Do not disturb the roots more than is necessary in removing the old drainage. Pots about two sizes larger than those the plants have hitherto been in will, in most cases, be large enough. Pot firmly, as is necessary with all plants that are expected to remain long in the same soil. Water sparingly until the roots have had time to move freely. If the plants are trained on trellises, round sticks, or on wires under the roof, attention must be given to keeping the shoots in their allotted places, for if they are allowed to twine round anything within their reach or each other, they cannot be untwined without danger of their being injured. Older specimens, that happen to want more room, had better not be potted until after they have flowered, as if moved now it might interfere with their blooming. The same applies to the bushy-habited kinds, *H. bella* and *H. Paxtoni*, both of which are liable to drop their flowers if the roots are interfered with before the time of flowering.

SHADING STOVE PLANTS.—With the exception of a few kinds of stove plants, particularly such as are grown for their flowers, the thinner the material that is used for shading the better, the object being to prevent the leaves and flowers being injured by the direct influence of the solar rays, but not to exclude light. All the light that it is possible to give in our dull climate is not too much. For a like reason all permanent shading, such as smearing the glass with whitening, should, when possible, be avoided, as for several hours morning and evening, even in bright weather, and also in cloudy weather, it is injurious. The blinds should now be put on without delay, as the sun, with a cloudless sky, is usually sufficiently powerful during this month to do much harm if the means are not at hand to prevent it. T. B.

GARDEN FLORA.

PLATE 638.

PASSIFLORAS—PASSION FLOWERS.

(WITH A COLOURED PLATE OF *P. WATSONIANA*.)

THE Passion Flowers belong to the most useful and beautiful of indoor climbing plants, and one species is almost hardy enough to be grown out of doors in all parts of England. There is a host of kinds known, botanists say 120 species, and a large proportion of this number are remarkable either for the size, form and beauty of their flowers, or for their ornamental and even edible fruits. Only about half a dozen species are in general cultivation, their names being *P. cærulea*, *P. racemosa*, *P. kermesina*, *P. vitifolia*, *P. quadrangularis* and *P. macrocarpa*. Of these there are several varieties and hybrids, such as *Constance Elliot*, *Loudoni*, and *racemosa cærulea*. Every one of those named here are among the choicest of climbers, the best of all, perhaps, being the commonest and hardiest, viz., *P. cærulea*. If planted against the south side of a house, this Passion Flower blooms most freely, and in favourable autumns it ripens a good crop of fruits as large as *Magnum Bonum* Plums, but of the brightest apricot colour. On the front of my house this year a plant of this, covering a space of about 10 feet by 20 feet, bore over 200 ripe fruits at one time, and non-gardening friends asked if they were Apricots. These fruits hung

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, September 13, 1887, and printed by G. Severeys.



WATSON'S PASSION FL. WEE. PASSIFLORA WATSONIANA.

till the frost came. In a greenhouse this species is equally happy, and it thrives and flowers freely even in a stove. In my experience I have never met with a climbing plant, a beautiful one too, of which so much can be said.

The name Passion Flower has not a little to do with the popularity of *Passifloras* as garden plants, and as I do not remember to have seen in *THE GARDEN* any explanation of the term as applied to the flowers of these plants, I venture to give one now. The Spaniards are said to have seen a resemblance in the flowers and leaves to the instruments of Christ's crucifixion: thus the three nails, two for the hands and one for the feet, are represented by the stigmas; the five anthers indicate the five wounds; the crown of thorns is represented by the circle of filaments forming the corona; the ten sepals and petals represent the ten apostles, two being absent; and the hands of his persecutors are seen in the digitate leaves of the plant, and the scourges in the tendrils. Of course the resemblance is a very fanciful one, but the Spaniards were apt in this sort of thing.

The fruits of *P. macrocarpa* are as large as a child's head, the pulp being sweet and pleasant to the taste. The fruits of *P. quadrangularis*, the Granadilla, are sometimes offered for sale in the London markets under the name of Forbidden Fruit. *P. edulis* has purplish Plum-shaped fruits which are really delicious when ripe; *P. laurifolia* is the Water Melon; and *P. maliformis*, the Sweet-cup of the West Indies. With us, however, none of these come to such perfection in taste and odour as they do in tropical countries.

P. WATSONIANA.—This, represented in the coloured plate, is a new Passion Flower, which flowered for the first time in the Palm house at Kew in the autumn of 1886. Its origin is not known, but it was received as a young plant under the name of *P. kermesina* from a London nurseryman, and in habit and foliage it so closely resembles that species that when not in flower the difference is scarcely discernible. In floral characters, however, it is quite distinct from all other Passion Flowers, and if not so brilliant in colour as *P. kermesina*, it is a much more robust grower and flowers more profusely. The Kew plant is growing in the large tropical stove, where it is trained against the side glass on the south-west side, the long, thin, wiry branches hanging thickly from the older stems. The leaves are three-lobed, deep green above, violet coloured beneath, and about 3 inches across. The flowers spring from the axils of the leaves, on stalks about 3 inches long; each flower is 3 inches across, the tube short; sepals green with a white margin externally, white tinged with violet within; petals pale lilac; corona composed of two sets of filaments, the one set being 1 inch long, and coloured violet with bars of white, the other set half an inch long and deep violet in colour; column purple spotted. Every leaf axil produces a flower, so that a large plant when in full flower is really handsome. The chief attraction, however, in this species is the delicious and powerful fragrance of the flowers. It requires tropical treatment, and when in a healthy condition continues to develop flowers for about two months, usually September and October.

P. KERMESINA has recently re-appeared among stove climbers, for, notwithstanding its introduction over fifty years ago, it was almost unknown in gardens until a few years ago. As a graceful and bright-flowered climber it stands among the very best of stove *Passifloras*, flowering freely and for a long time when under proper treatment. The flowers are bright purplish rose.

P. RACEMOSA is another beautiful Passion Flower which may be cultivated either in a tropical house or an intermediate one. As the name denotes, it produces its flowers in racemes from the axils of the uppermost leaves, well-grown plants bearing as many as fifteen flowers on a raceme. The flowers are large, and bright rose-purple in colour.

P. MANICATA is sometimes known as a *Tacsonia*. It is the brightest-flowered of all Passion Flowers, being almost scarlet in colour. Unfortunately, it does not generally flower freely. It grows well in a warm greenhouse, and should be planted in a sunny position.

P. VITIFOLIA was well represented by a coloured plate in *THE GARDEN* in 1880, to which the reader is referred for an idea of the beauty of this plant, if he is unacquainted with it. The colour is red, almost scarlet, and the flowers are large and of good substance. The plant is a strong grower, producing stout shoots clothed with large vine-like leaves and flowers near the ends of the shoots. It requires an intermediate temperature or a greenhouse, where in winter the thermometer would not fall below 50°.

W. W.

ROSE GARDEN.

THE RETURN OF THE STANDARDS.

NOTWITHSTANDING all that has been said and written against these, there are sure and certain signs of their return into more favour, if not their past popularity. They lost caste and character through a series of mistakes; they will regain both if these mistakes are avoided in the future. The vital mistake was the assumption that all Roses alike were suitable for permanent standards. The very reverse of this is the truth, and hence the stunted ghosts of Roses on stilts scattered broadcast over thousands and tens of thousands of gardens.

Had not there been inherent merits in the standards, they never would have withstood the severe tests thus put upon them. And doubtless they have, as has been ably shown by such good authorities as Mr. Geo. Paul in the "*Rosarian's Year-Book*," and Mr. Girdlestone in *THE GARDEN*, p. 135. While I quite agree with all that is advanced by both gentlemen as to the great value of free-growing standards for landscape effects, standard Roses have other merits apart from these very special and valuable ones.

One of these is the rapid propagation of Roses. There are no stocks more readily available for conversion into Roses than those of the Dog Rose of various heights. These, like the fishes in the sea, may be had for the gathering or fetching out. And notwithstanding the thousands that have been collected, the Brier men's occupation has not gone—if indeed it is gone—for lack of material, but through lessened demands. Commercially, too, standard Roses have and still do pay. Perhaps there is no stock in which there is so much money made in so short a time as the Dog Rose. It has multiplied our Roses a million-fold in an amazingly short period.

And as to quality of bloom, Roses on the standard Brier hold their own against all comers. It was of these mainly that the inimitable excellencies of maiden blooms on the Brier were affirmed, and up till now a very large percentage of the finest flowers on our exhibition tables have been the produce of standards. Nor can there be any possible objection to their growth in this form. What potency for abnormal excellence there may be in the first-fruits of Briers may as well be gathered from standards as from dwarfs, and if perfect maidens may be had sooner or easier from standards than from dwarfs, then reason, logic, and common sense are all on the side of growing show Roses on standards. In this special connection it is not needful to discuss the future fate or career of the standards. Every day in the fierce race for the best Rose blooms, the life or longevity of individual Rose plants becomes of less moment, and if more general experience confirms the superiority of maiden blooms, doubtless our

Rose boxes will ultimately be filled with these to the exclusion of all others.

Exhibitors may find it needful to clear out their Roses annually or biennially at a cheap rate to make room for maidens, and it will be for the purchasers of these Roses to find out what they are worth to them. But were the Roses given away or destroyed so soon as they lost their pristine force, vigour, and beauty, it might still be worth the while of Rose exhibitors to grow standards largely for their first-fruits. Without doubt, this practice is responsible for the budding on standard Briers of many Roses with weakly constitutions that were never expected to grow into creditable specimens either singly or in groups. The worst of it is that such bad doers, as soon as they served their primary purpose, were not removed root and branch to make room for younger plants or more vigorous varieties. But, in order to form a just estimate of the value of standard Roses, it is most important to bear this double use of them in mind.

Doubtless at first standards were propagated and planted to form semi-permanent features of interest and beauty in gardens and landscapes, and almost of necessity they did both, because they grew freely, for at that period we had hardly any miffy Roses. Rose collections were poor in numbers, but they were rich and luxuriant in their powers of endurance, and most tenacious as to the durability of their plants. So much was this the case, that the common Moss, Maiden's Blush, and even velvet Damasks were looked upon as fixtures in gardens and heirlooms in families. With the introduction of finer blooms, the majority of our Roses seemed to have lost their vigour and their tenacious hold of life.

However, we have plenty of fairly long-lived and vigorous-growing Roses to form standards of abiding permanency and graceful beauty for the enrichment of our gardens and landscapes, as Mr. Paul and Mr. Girdlestone have shown. I would venture to add the most exquisitely beautiful of all pink Roses to their list, *Coupe de Hébé*. I have a plant of this now in my eye over thirty years of age, and still it is as vigorous and beautiful as ever, and has never once failed in that long period to yield a full and beautiful harvest of its most exquisite buds and blossoms. It has also the rare merit of being equally at home on its own roots and on all sorts and conditions or heights of stock, and never fails to command admiration, whether found in groups or hedges, or as dwarfs, short, medium or tall standards. Give it justice in the matter of its root-runs, and there is hardly any limit to the area that healthy standards of *Coupe de Hébé* will furnish with their exquisite verdure and beauty. D. T. F.

* * We hope standards will not return. Nothing ever did so much harm to the English flower garden as the wretched mop-sticks of standard Roses. Now and then only a good old standard is pretty.—Ed.

Two good Tea Roses for winter.—*Souvenir d'un Ami* is a good old Rose, which has no rival among the numerous new varieties that are annually brought forward. At the present time it is a general favourite among those who grow for market purposes. The peculiarly delicate shade of pink of its blossoms has brought it much into use for bouquet work. Bouquets are often made entirely of this variety, and what a lovely bouquet it makes! It is, undoubtedly, one of the best Roses for early forcing, being of a vigorous habit of growth and flowering freely. It may be grown successfully where many of the more tender sorts would fail entirely. *Isabella Sprunt* is another

good Tea Rose for winter flowering; although the flowers are small, they are very serviceable. Under favourable conditions this Rose may be had in flower at any season of the year; but it is during the winter that it is most valuable, as when the weather gets warmer the blooms open too quickly, and then other good Roses can be had.—A.

KITCHEN GARDEN.

PREPARING FOR DROUGHT.

It is now many years since the springs were so low in our district at this time of year, and on all sides, owing to the emptiness of the ditches and the failure of small springs, it has become necessary to cart water for the use of cattle. Not only is the surface soil exceptionally dry, but those who have had occasion to move trees have found the subsoil even drier. Last winter we did not have sufficient rain or snow to moisten the soil to the usual depth, nor did the springs hold out so long as they generally do. A comparatively dry autumn and still drier winter following on this bid fair to lead to a calamitous drought, and the question is, What are we to do by way of precautionary measures? As a rule, we can stand a hot and dry season better than a wet one, but, owing to the state of the ground and the threatened early scarcity of water, I shall prepare for a drought with greater zeal than heretofore, and strongly advise others to do the same. If our forebodings are happily not realised, so much the better, and in any case we shall have the satisfaction of knowing the worst has been prepared for.

Much may be done by a judicious arrangement of the crops, and still more by thoroughly good cultivation. The moisture-loving subjects ought to have the coolest sites assigned them, or, if this is impossible, they may yet be specially treated. Thus, all know that Peas require plenty of moisture at the roots, and these and Celery trenches ought to be located within easy distance of the water tanks. Celery-like trenches for Peas I do not believe in; at any rate, they do not answer on our heavy land, owing principally to the almost inevitable shrinkage of the sides. I prefer to sow either directly over the old Celery trenches or else to trench the ground wholly or in 3-feet widths where the rows will be sown. In wet seasons our best rows are grown on well-manured, ordinarily-dug ground, but we are now preparing for drought, which materially alters the case. It is also advisable to have fewer rows than usual, giving them more room and plenty of water, this being far better in most seasons than attempting to grow more than can be properly attended to or fairly treated. Some varieties, again, are more mildew and drought-resisting than others, and should therefore be sown in preference to others not so trustworthy. It is the mid-season and later crops that usually suffer most from drought, but I have found G. F. Wilson, Ne Plus Ultra, Emperor of the Marrows, and Sturdy hold out remarkably well, and these therefore I can recommend for a dry season. Runner Beans also need plenty of moisture, and I find they succeed better in a cool position or the lowest part of the garden than Peas do, and with a fair amount of manure, mulchings, and a thorough soaking occasionally, it must be a very dry time to cripple them. As these will run up stakes 20 feet high and crop to their whole length, one good row located near an outside roadway may be conveniently near the water-cart when drawn in and be sufficient to meet the wants of a moderate-sized establishment. I never attempt to water kidney

Beans—in fact, they thrive admirably on the hot raised spaces between the Celery trenches. Frequent small sowings ensure a good succession, and are therefore preferable to one or two large ones. Broad Beans require very different treatment, these delighting in a well-manured, deeply-worked soil. Few can afford to water these, and this attention ought rather to be bestowed on more valuable subjects. Our late rows will be sown among the fruit bushes in a cool, uncrowded quarter, and in this position as well as a north-west border, plenty of Turnips will be grown, let the weather be ever so dry. Cauliflowers generally require a deep, well-manured root-run, or they fail completely in dry, hot weather. Those that are watered should have a thorough soaking, a few plants thus treated sufficing in many instances. Cabbages I do not include with summer vegetables, and Lettuces will thrive equally as well as kidney Beans between the Celery rows. Globe Artichokes, if very dry at the roots, are of little service, and these therefore may well have a soaking of liquid manure soon, for it will be a very heavy rainfall that will again moisten the soil about their roots.

I have never found it of any advantage to water Onions, Carrots, Beet, Turnips, Potatoes, or any other root crop grown in the open. It is thoroughly good surface culture that these require, and this winter there has been a good opportunity for well working the ground. Not only should the surface be well pulverised, but the soil should be deeply stirred so as to break up all the lumps remaining. When, owing to the mildness prevailing and very frequent downfalls of either rain or snow during the winter, it has been almost impossible to get any heavy soils into good working order, such land is the first to feel the effects of dry, hot weather. No greater mistake can be made than to meddle with land of a clayey nature when in a wet state. It is certain to bind badly, cracking and rapid loss of both heat and moisture resulting. Hence the great necessity for good and intelligent surface culture, especially if the water supply is likely to be scarce or the subsoil much too dry. The cleanest, best-formed, deep-running roots are to be had from the finely-divided soils, surface hoeings and mulching, either of Grass from the mowing machine, fine fresh soil, peat, ashes, or other somewhat similar material further conserving the moisture. Last season our Potato ground was in good order and the drought did not badly affect the plants; this year it promises to work better than ever, and we shall not despair of securing good crops. The precautions ought in all cases to be timely. It is useless to apply a mulching after much of the moisture has evaporated, and excess of dryness at the roots, when this is to be remedied with the aid of a watering-pot, ought always to be anticipated, 1 gallon of water given to partially dry ground going farther than 3 gallons when it has become quite dry.

It may be we shall yet get sufficient water to thoroughly moisten the ground and to raise the springs, and there are those who anticipate a disastrously wet summer. Some prognosticate the very opposite; but, come what may, we shall yet be on the right side if we get our ground in excellent order, this being of the greatest importance in either case. Since writing the preceding we have had a heavy fall of snow; but many such will be needed before our subsoils are thoroughly moistened. W. I.

Somerset.

A marvellous Pea.—If Mr. Tonks had waited a little longer ere writing about a certain illustration of an extraordinary crop of Potatoes, he would

have seen on the back page of a contemporary an illustration of a Pea, which for absurd extravagance puts even the Potato picture into the shade. It is mild phraseology to refer to this as a "tendency to exaggerate" on the part of advertisers, as anything more utterly ridiculous and unnatural has rarely been seen in any previous illustration. Gardeners of repute whose names appear as testimonial-writers to this "wonder" may well ask how far they have been justified in their action when it is thus taken advantage of, for it is very obvious that the uninitiated would infer that these testimonials were intended to apply to the illustration given, and not to mere cultural experience. What is so readily penned in relation to this or any other kind can be, and indeed is, as readily written respecting a score or more of other Peas. In any case it is obvious that no praise can justify an illustration so utterly nonsensical as is the one in question.—A. D.

Early Lettuces.—The best Lettuce for an early supply is undoubtedly the Brown Cos, and I doubt if among the numerous kinds in cultivation there is a better flavoured one. It is a common practice to sow this to stand the winter, which it will do in a warm situation in ordinary seasons. It is, however, well to have two strings to one's bow, for we do not know what the winter may have in store for us, and few things are more vexing to the grower of vegetables than to be destitute of Lettuce plants in early spring. The safeguard lies in sowing a box of the White Cos at any time during the winter. There is no need for artificial warmth, as the seed comes up quite freely in a cool temperature, and thus raised the plants are much hardier. As soon as the seedlings are well up a cold frame is the best place for them. In this way nice little stocky plants can be had to put out at any time during April, and often they will overtake and outstrip the outdoor ones that have been much crippled by bad weather. The safest way, of course, is to winter the plants in cold frames, but the space for doing so is not often available. In all cases the young plants should never be allowed to crowd each other. Few things suffer more from standing too thickly together than Lettuces. One method of obtaining excellent results is to sow towards the end of the autumn thinly in shallow boxes, keeping them in a cold frame through the winter until the first frame of winter salad is cleared. The young plants are then pricked out 2 inches or so apart, and by the time that it is safe to plant them out they are as large as the Brown Cos in the open, and in much better condition to respond to the warm spring weather.—J. C. B.

Early Turnips.—Although early sowings of this vegetable are somewhat uncertain in their produce, owing principally to their tendency to run to seed, this should not deter anyone from trying to secure a few as early as possible. I, however, do not advise a great breadth to be sown thus early in the season, neither have I found it safe to trust to one variety only, because some sorts are more liable to run to seed than others. If one sort only is depended on, the greater chance there will be of failure, because as the seasons vary they have a corresponding influence on the crop, and a sort that will run to seed one season may not do so in a more favourable one. I once sowed a few rows of the Early Purple Top Munich with a few rows of Early White Dutch. The former produced some useful Turnips, while the latter entirely failed. On trying the same sorts the next season the results were reversed, and the White Dutch proved by far the better of the two, though not so early by a week or more, nor so large. Since then, in order to make myself secure, I added the strap-leaved variety, and made two sowings in two different places in the garden, one on a south border and the other on a border with an eastern aspect, where I had much the best crop, though not so early, while the others ran to seed very much. I think the last week in March quite early enough for the first sowing, and as a fortnight makes a lot of difference, I make another small sowing then. But as the summer advances and the temperature increases, it is safest to make

the other sowings on a north border until July, when a good breadth may be sown with greater safety in the open ground, adding a further sowing in about three weeks. A too rich soil for early Turnips should be avoided, neither is it safe to sow the seed too thinly. A heavy soil rather than a very light one is preferable. Thinning, which should be commenced as soon as the rough leaf shows itself, should not be done all at once, as it is much safer to do it at two or three different times. The hoe should be kept at work amongst the Turnips, and the summer crops should be more severely thinned than the early ones. The small white early sorts are as good as any for the later sowings, though in some large gardens the white field sorts are sown and prove satisfactory.—THOMAS RECORD.

KITCHEN GARDEN NOTES.

MANURING ASPARAGUS BEDS.—An autumn or early winter application of manure to the Asparagus beds, this being lightly covered with soil from the pathways, or where these do not exist with a little fresh soil, doubtless acts beneficially on light soils, but does more harm than good on heavy land—at least such is my experience. I have seen a whole series of beds completely spoilt by a heavy autumn dressing of solid manure and soil, this having the effect of keeping the ground, already too wet and cold to suit Asparagus, completely saturated, and thus causing the roots to rot wholesale. Since the discontinuation of these periodical autumn or early winter dressings of rich manure, our beds have improved in every way. Not having the surface loosened or disturbed in any way beyond being cleared of weeds, much of the rain falling during the winter passes into the alleys, or, in the case of those planted on the level, to a pathway at the lower end, and, as a consequence, the beds are not saturated and unduly cooled. Salt, again, although generally considered an indispensable manure for Asparagus, is by no means to be recommended in all cases. A free use of it on heavy clayey land really does more harm than good, causing the clay to "run," and the soil generally to retain more moisture than is good for Asparagus. A winter dressing of partially decayed stable or farmyard manure may be useful on light or gravelly soils, but I fail to see the good of raking much of this off again in March. Left on, it may cause a slightly later growth, but that is the principal drawback; whereas if merely lightly forked over, the Asparagus will get the full benefit of the manure, and be less likely to suffer for want of moisture at the roots during a dry summer. When the roots are nearly bared the shoots or "Grass," as it is termed, must either be cut when quite short, or otherwise the much-esteemed point will be run out, this, in good judges' estimation, quite spoiling it. In addition to this dressing of solid manure, a liberal sprinkling of manurial salt may well be given now, and more again in April. About a quarter of a hundredweight each time is ample for a bed 15 square yards in extent. For heavy or clayey land a dressing of guano, to which common salt has been added at the rate of one part in four, acts most beneficially. A quarter of a hundredweight of this should be sufficient for a bed equal to 30 square yards. It should be lightly forked in early in March, and another similar dressing given during showery weather in April. Sulphate of ammonia with a little salt added also suits Asparagus, a moderate sprinkling only being occasionally stirred into the surface. Nitrate of soda applied similarly to guano, and at the rate of 1 lb. to every square yard, now and again in April, has also been found an excellent manure for Asparagus.

PREPARING SITE FOR ASPARAGUS BEDS.—Some gardens or soils seem to need little or no preparation for Asparagus plants, while others have to be completely changed in character before they are fit for their reception. Medium to light sandy and naturally well-drained ground will, without much labour, grow Asparagus to perfection; while heavy, badly-drained land requires a considerable amount of preparation. The former, if the subsoil will permit it, ought to be bastard-trenched or double dug, both spits being freely manured, the

least decayed portions of the manure being most deeply buried. If the subsoil is of a rocky or gravelly nature, do not disturb this, but endeavour to increase the natural depth of soil by the addition of any kind of good matter procurable, plenty of manure being added to this. Raised beds are altogether a mistake on light, well-drained lands; therefore be content to trench the breadth of ground to be planted, leaving the surface in a rough state. Early in April the ground will have settled considerably, allowing the soil to be brought into good condition for the reception of the young plants. Where the subsoil is little better than solid clay, raised beds will generally be found the most profitable, and they may be 6 feet wide, with 2-feet alleys between them. First stake out the intended bed, and then throw out the top spit or all the good soil evenly on each side of the widths. Next dig and wheel away a good spit or more of the clayey subsoil, leaving the bottom slightly hollowed out in the centre—this for the reception of an ordinary pipe drain. Connect the outlet with one of the main drains in the garden, and place a layer of brick ends or stones over the bottom, or just sufficient to cover the pipes. All kinds of decayed and decaying vegetable matter, and all the best surface soil, road-trimmings, sand, mortar rubbish, burnt clay, charred rubbish, and surface parings from various unfrequented spots should take the place of the clayey subsoil, some of the poorest of the soil thrown out being added and all well turned and mixed. In some well-managed gardens these wide trenches are opened now, and during the following summer and autumn are gradually filled up with all kinds of accumulations, this plan being really preferable to the more rapid method just detailed. All, however, cannot afford either time or space for this style of preparing the beds, and in such cases they should complete the bed as follows: When sufficient rough material has been collected to quite fill the trench up to near the garden level return the top soil on to it, with this well mixing plenty of leaf-soil, sand, rotten tan, peat, or any other material that will lighten it considerably, and allow the whole to settle, planting being deferred till the middle of April. Such a well-prepared bed may easily be kept in a profitable state for at least ten years. Those in charge of heavy land, and who cannot adopt such an expensive method, must try another plan for rendering a site fit for Asparagus culture. They may proceed in this way: First mark out the bed, and throw out all the good surface soil right and left, and unless the garden is well drained the opportunity should then be taken of forming a tile or pipe drain 3 feet below the natural level, or as deep as the outlet will permit. Next collect as much old mortar rubbish, brick ends, rough stones, strawy manure and burnt rubbish as can be found, and thoroughly mix this with the sub-soil. Then return the top-soil, and fork into this plenty of sand, ashes, fine mortar rubbish, leaf soil, old Mushroom bed manure, or other decayed material. Altogether, this should bring the bed a foot or more above the natural level of the garden, and eventually prove most congenial to Asparagus roots. Rotten seaweed and plenty of sea sand are found to suit Asparagus, and where these can be had cheaply they ought to be freely mixed with both top and bottom spits.

PLANTING LATE POTATOES.—The heavy fall of snow will, in many districts, have put a stop to all outside work. It will leave the ground in a wet and cold state, and no planting ought to be attempted till the soil is drier. Towards the end of March and during April very many matters have to be attended to, and if the Potato planting has been pushed forward early in March, it will be a decided gain. The varieties late in forming haulm should first be planted, as they are least liable to be crippled by frosts. Delay planting the second early and Ashleaved varieties till April, and get in Magnum Bonum, Scotch Champion, Chiswick Favourite, Chancellor, Reading Hero, Abundance, Paterson's Victoria, Dunbar Regent, Wormleighton Seedling, or any other favourite late variety. I still find Scotch Champion very profitable. Magnum Bonum, Chiswick Favourite, Abundance, and Chancellor are all liked, these being disease-resisting, heavy cropping,

and good in quality. Either whole or cut sets may be planted, only one strong sprout or sound eye being left on each set. All those named are suitable for either farm or garden culture, but as they usually form a considerable amount of haulm, they are not the varieties to grow with the idea of planting any members of the Brassica family between them. The shorter-topped, more quickly-maturing, early and second early varieties are the best for this system of double cropping. The land having been freely manured and deeply dug, the rows of these late varieties may well be 3 feet apart, and the sets not less than 10 inches apart in the rows. On poor land, or any on which little besides Potatoes have been grown for several years in succession, the rows may safely be placed 30 inches and the sets 9 inches apart. The ground cannot well be too finely broken, and all large clods should be separated either with a hoe or fork. The quickest way to plant a piece of ground is to open the drills with a spade or fork, covering the sets and forking between the rows at the same time, the whole of the ground being thus left in a looser state. Artificial manure of any kind or soot always benefits the crop, and should be dusted along the drills prior to filling them in.

POTATOES ON HEAVY LAND.—Cold or clayey ground is not always suited to the growth of really good Potatoes—at any rate, not when these are planted in the ordinary style. Instead of burying the sets 6 inches below the level of the ground, plant on the surface and mould over. Thus treated, Potatoes will, if the soil has been got into fairly good working order, grow vigorously, and, being duly moulded up, no extremes of drought or wet will much affect them. Those which I planted on the surface invariably yielded heavy crops of tubers much superior in quality to others taken from heavy land and planted in drills. The Ashleaved section is greatly improved by this method of culture, the only fault being that the tubers obtained are, as a rule, rather too large.

W. I. M.

GERMINATION OF SEEDS.

CONFIRMING the good results in the germination of seeds of some hardy plants when exposed to the action of melting snow, alluded to in the interesting note of Mr. Cornhill (THE GARDEN, January 28), I have notes as to the action of seeds of *Scilla sibirica* under such treatment, which would seem to prove, in this case at least, that melting snow, even at a low temperature, has a quickening effect on germination.

In 1886 I had a large lot of *Scilla sibirica* seed, a portion of which as soon as ripe was sown around the old bulbs and slightly covered with earth—this was on the margin of a shaded cold border, which receives very little sunlight at any season. At the end of January, 1887, we had a prolonged thaw, lasting about a week, with the thermometer ranging say 35° to 45°. After a few days the margin of the snow and ice which covered the bed melted, and caused a trickling over the seed bed, when the seeds sprouted in the greatest profusion, all apparently germinating. Now this of itself may not prove that snow water was the entire quickening influence, but I think it is confirmed by the fact that a portion of the same lot of seed planted at the same time in a seed frame remained entirely dormant until the end of March, and never gave nearly the same crop. This seed frame was exposed to severe frosts and the soil was excessively damp, while of course the average temperature to which the seeds were exposed was considerably higher than that prevailing at the border. The only apparent material difference in the condition of the two lots was that one had no snow water, and the other was freely exposed to trickling water from melting snow for several days. One experiment, of course, is not conclusive, but I thought this record might be interesting to

those interested in hints as to the successful germination of seeds. It seems like tempting fate to treat valuable seed in seemingly rude ways, but often, no doubt, such ways are the roads to success.—JNO. N. GERARD, *Elizabeth, N.J., U.S.A.*

— A few remarks on this matter cannot fail to be useful at this season of seed-sowing. But for one seed lost through tardy germination, probably a hundred are lost through their germination at different periods. Cultivators can wait more patiently for whole batches of seedlings than for the loitering laggards that are far behind in the race for life and growth. Inexperienced cultivators often make grievous mistakes in regard to the latter. Hardly have the most procacious seedlings reached the pricking-out stage than the seed-beds are turned in, or the more portable pots and pans pitched bodily on to the rubbish-heap. By such summary processes enormous quantities of sound living seeds are annually destroyed. Gardeners who have studied the singular and very instructive phenomena of this curious department are not seldom startled by the sight of wholesale batches of seedlings struggling for existence in crowded and confused masses. On examination, these are often found to be the abortive products of our impatience with tardily or irregularly vegetating seeds.

The causes of tardy and irregular germination are doubtless various. "A." refers (p. 96) to newness and immaturity as the causes of both in the example of the Mignonette quoted. Some, however, hold exactly the opposite opinion, finding that fresh-gathered new seeds are the first to germinate. The mode and place of drying likewise affect the time of germinating. Seeds dried in the sun's broad glare probably take longer time to grow than those dried more gradually in the shade. Nature, in fact, in very many cases provides for them a rather imperfect drying, as pointed out by "A." With the earth more or less damp beneath and overshadowing vegetation over them, it is difficult to see how many seeds can ever get dried at all. Nor do they probably; and hence, possibly, the more regular germination of not a few seeds in a state of nature than under artificial conditions.

It is also possible that the fierce glare of the sun may so far affect, and as it were blunt, the natural germs of seeds as to enhance their non-germination. In such cases the light may prove as much a check to growth as the heat. But all these causes might be supposed to affect any given sample of seeds almost equally alike, and, while they might retard germination, could hardly account for great irregularities in the same samples. However, in drying seeds in direct sunlight and heat, the upper layers would necessarily be subjected to the more intense effects of both than the lower ones, and from these causes considerable disparities in regard alike to the energy and time of germination might be expected.

But doubtless the greatest causes of erratic germination originate in the mixing of seeds of different ages and very varied degrees of maturity and quality. For, granted that the older, and perhaps the drier, the seeds, the longer the period needful for their germination, and it becomes obvious that mixed seeds spring up at very different periods. That most seeds do so more or less, and some, such as *Primula japonica*, for example, very much more than less, is familiar to nearly all cultivators. Imported seeds of this *Primula* often come up at different times throughout the long period of two years or more; while home-grown seeds, sown as soon as ripe, vegetated, with few exceptions, within a period of three months.

Cyclamens, too, often vegetate erratically, probably from the same causes—disparities of age, dryness, and immaturity. The chief practical lesson from all this is the need of more patience with our seeds. Sow them so that they have a longer period of probation before proclaiming their hopeless or pitching them away. Provide before hand for some irregularities, and the removal of the first to make room for a second or a third crop of seedlings, and in all cases of doubt give the unspouted seeds the benefit of the doubt instead of hasting to write

off to the seedsmen to denounce the quality of their seeds. The drought of last summer furnished many object lessons of the retarding influence of physical surroundings on the germination of seeds. Not a few seeds of the Brassica tribe and other plants failed to vegetate freely or regularly owing to the fierceness of the long drought. Heavy waterings failed in many cases to secure a regular plant, and seed beds, where plants as a rule are thick as hail, showed mere patches, not because the seeds were bad, mixed, old, or overdried, but solely because the drought stopped their germination or withered their germs in the bud.—HORTUS.

TREES AND SHRUBS.

W. GOLDRING.

THE MAHONIAS, OR ASH BARBERRIES.

IN a strictly botanical sense the Mahonias are a section of the large genus *Berberis*, but they are so distinct from other Barberries that one is tempted, for convenience sake, to retain the old generic name *Mahonia* for all evergreen Barberries with long, pinnate leaves. They form,



Nepaul Ash Barberry (*M. nepalensis*), showing habit of growth in a conservatory.

moreover, such a natural group, that there is no likelihood of anyone mistaking a Mahonia for a true Barberry. The old writers on trees and shrubs always used the name *Mahonia*, which name is still in use on the Continent. Moreover, in our chief botanical gardens the shrubs are labelled as Mahonias, so that there is every reason why the pinnate evergreen Barberries should still be called Mahonias.

There are about half-a-dozen species hardy enough to be grown in the open air in this country, and a few Mexican species that would probably be hardy in the warmer parts of these islands. The best hardy kinds are *M. Aquifolium*, *fascicularis*, *repens*, *glumacea*, and *japonica*. Of these, unquestionably the most valuable is *M. Aquifolium*, a flowering shoot of which is represented in the engraving, now almost as common as the Laurel in gardens. A finer Evergreen does not exist than this. It is thoroughly hardy, thrives in almost any kind of soil, is beautiful in leaf, in flower, and in berry. The change of leaf tint in autumn and

winter from a deep lustrous green to coppery red almost a scarlet is one of its most beautiful phases, as I have before remarked when writing about this shrub. Its dense clusters of yellow flowers are less remarkable, as they appear when there are crowds of counter attractions among shrubs, but in autumn large bushes hung with a profusion of berry clusters form one of the chief features of the garden. The oval berries, about the size of small peas, are purple, and covered with bloom like Grapes. These are the characteristics of the typical or common form of the Holly-leaved Mahonia. There are now numerous varieties, presumably seedling variations from the original, that differ more or less widely from it and among themselves. Lavallée in his "*Arboretum Segrezianum*" enumerates no fewer than nine different named forms, while others besides these occur in trade catalogues, so that the number of named sorts amounts to a dozen or more. The names of these are *erecta*, *stricta*, *gracilis*, *anemonefolia*, *crassifolia*, *diversifolia*, *intermedia*, *rotundifolia*, *Wagneri*, *Herveyi*, *undulata nana*, *latifolia*, &c. The most distinct among these, so far as I have observed, are those named *rotundifolia* *Herveyi*, *diversifolia*, and *undulata nana*; the others, though they certainly differ from the type, cannot be intelligibly described. It is my impression that their counterparts could be found in every large batch of seedlings. That named *rotundifolia* *Herveyi* may be at once distinguished from the rest by the round, smooth leaflets with scarcely any prickles upon them, and when in bloom by the large dense clusters of rich yellow flowers. It is still a much prized variety, and is not by any means common. The form called *undulata nana* is very dwarf, and therefore forms an excellent subject for a low, carpet-like undergrowth. The other names, such as *latifolia*, *erecta*, *gracilis*, are sufficient to express the characteristics of the varieties. Little need be said of the uses of the Holly-leaved Mahonia, as it may be planted to produce a variety of beautiful effects, luxuriating in the shade as well as in the open, though when shaded it does not colour in autumn so beautifully. It is, moreover, one of the best covert plants, and now that it may be bought by the thousand at a low price it should

be in every ornamental covert. It is rather a difficult shrub to transplant successfully when large, but if properly prepared plants of a small size are obtained, the failures are very few. It may be planted in almost pure clay, in sandy soil, or in chalk; in short, there is scarcely any soil in which it does not flourish.

THE CREEPING MAHONIA (*M. repens*) is, I think, the next best Mahonia. It is a good deal like *M. Aquifolium*, but is altogether dwarfer, and, as may be seen by the accompanying illustration of a branch, the flowers are produced differently. Its usual height is about a foot, but in some soils it grows taller, but rarely exceeds 2 feet. It does not flower or fruit freely, so that it must be regarded from its foliage aspect alone. It is useful for the same purposes as the Holly-leaved Mahonia, and being so dwarf and spreading, is even more suitable for planting at the base of a specimen tree, or for a carpet to some fine deciduous shrub. It is not nearly so common as the Holly-leaved Mahonia, though it is grown in quantities in some nurseries, and not unfrequently under the name of

M. Aquifolium nana. In the Regent's Park Botanic Garden some pretty effects have been obtained by planting this trailing Evergreen as an undergrowth to tall evergreen trees.



Creeping Mahonia (*Mahonia repens*); flowering branch and detached flower.

M. NERVOSA, also called *M. glumacea*, is a charming little Evergreen, different from all the others. It is dwarf, usually under 1½ feet high in this country, but attaining a yard in height in a wild state. The engraving shows well the character of the foliage, so that it need not be described. The leaves are generally from 12 inches to 15 inches long, and are produced in a tuft which, from the shortness of the stem, appears to rise directly out of the ground. Like *M. Aquifolium*, the foliage turns in autumn and winter to a purplish shade, which makes it highly ornamental. The flowers, as is usual in the Mahonias, are yellow and produced in elongated clusters. It is by no means a common



The Nerve-leaved Mahonia (*Mahonia nervosa*); flowering branch cut close to the ground; detached flower natural size.

shrub in nurseries, though it is one of the choicest of dwarf Evergreens. There is no doubt about its hardiness, as it has withstood many severe winters. It grows wild in the shady Pine woods in the regions on the north-west coast of North America along the river Columbia, and was introduced over sixty years ago.

M. FASCICULARIS differs very much from the common *M. Aquifolium*, though they have several characters in common. It is altogether a larger and taller-growing shrub with longer leaves, with more leaflets, and beset with more numerous spiny teeth on their margins. This species may also be distinguished by the foliage, which is of a lighter green, and does not change so markedly in autumn. It is a showier-flowered shrub than any of the others, the clusters of yellow flowers being very dense and abundant. It is not, however, so valuable as *M. Aquifolium*, being more tender. It grows well on the warm soils in the southern counties, but northwards in cold districts it requires the protec-

tion of a wall. It makes a beautiful wall covering, as it grows so dense and flowers so profusely. Under such favoured circumstances it often grows 8 feet or 10 feet high. It is a native of the mountains of Mexico and California.



The Bundle-flowered Mahonia (*Mahonia fascicularis*); flowering branch and detached flower.

M. JAPONICA is a fifth species suitable for the open air in this country, although it cannot be looked upon as a very satisfactory hardy Evergreen. It is very seldom seen in a flourishing state except in the warmest localities. It generally has a sickly appearance, but this is owing in many cases to being too much exposed. The finest specimens I have ever seen of it were growing in a sheltered valley in a heavy loam on the south coast, and I have noticed that it always thrives best in partial shade; therefore, I consider that shade and shelter are necessary to its welfare. The form known as *M. Beali* is a variety of *M. japonica*, varying somewhat in leaf character, though the difference can hardly be described. Others called *intermedia*, *Sieboldi*, and *planifolia* are either identical with, or slight variations from *M. japonica*.



The Oregon Grape (*Mahonia Aquifolium*); flowering branch.

M. TRIFURCATA, a species of dwarf growth, from China, is a little-known variety. In some collections others may be found bearing the names of *Leschenaulti*, *pallida*, &c., but they are of less importance in a general way than the North American species.

B. FORTUNEI is an evergreen species with pinnate leaves, though I think it has never been called a

Mahonia. It is a good Evergreen when kept dwarf but when neglected it gets leggy. It is what I should call a botanic garden shrub.

M. NEPALENSIS (the Nepaul Ash Barberry) is that about which a few notes have appeared in THE GARDEN lately relative to its hardiness. Though it makes a capital wall shrub in most parts of this country, it is unfortunately too tender to plant without protection, except in mild localities, like the south coast and other warm coast districts. It is extremely handsome, one of the finest of open-air Evergreens, having leaves 1 foot to 2 feet long, with leathery, pale green leaflets armed with short teeth. Under favourable conditions it grows 10 feet or 12 feet high, and produces large clusters of golden blooms early in the year. Its greatest value is for large, cool conservatories, where it attains its best growth. Being perfectly evergreen and of stately growth, it is handsome throughout the year, and if planted out, requires no attention. The accompanying illustration shows the aspect of a small specimen of Nepaul Ash Barberry.

The great value of the Mahonias for the winter garden can scarcely be overrated, and the uses to which they can be put are many, but they are most suitable for undergrowth, while the dwarfer kinds, such as *repens* and *glumacea*, are very useful for planting on banks, rocky knolls, or even in the wilder parts of a rock garden. As all the Mahonias as well as the true Barberries are difficult to transplant in a large state, young plants and only those with good fibrous roots should be bought from nurseries.

The variegated Barren Privet (*Rhamnus Alaternus* var. *foliis argenteis*).—Of the many varieties of the Buckthorn, this may be considered one of the very best, and where an unlimited supply of foliage is in demand for vases, &c., I should say this and the dark *Berberis* are two of the most useful things that can be planted. This particular variety is seen at its best against a wall, and if a place can be found for it, say, on the side of a house or shed with a southern aspect, the colours will be found brighter and the shoots better ripened, an important feature when the plant is much in request for cutting. This variety does well in any good light soil, and when fairly established grows very quickly. It will soon cover a large space, and there are few brighter objects in the garden during the dull months of winter than a good specimen of this *Rhamnus*. A large plant on an old garden wall here is close to and mixing with an *Escallonia*, and the contrast between the dark glossy green of the latter and the bright variegation of the former is very pleasing. It is also one of the shrubs that may be safely planted in or near large towns, as smoke appears to have no effect on it. It can be readily propagated by means of cuttings, which should be taken in autumn, and inserted firmly in light, sandy soil under a handlight.—B.

Chionanthus virginicus.—

This, called also the Snow Flower and Fringe Tree, is, as its name implies, a native of North America, and was introduced from Virginia about 1800. I have never seen it

attain the dimensions of a tree. It makes, however, a handsome shrub, and may be employed either as a single specimen or as a background shrubby plant. The leaf, which is usually very late before attaining its full size, is not unlike that of *Magnolia Lenné*, but of rather a darker green. The pure white flowers are produced in great abundance, and when fully open are very showy. The individual blooms are very small, but the raceme of flower with its light, feathery appearance is almost unique among

hardy shrubs, suggesting, in fact, some of the inmates of the Orchid house. This shrub may be propagated either by seeds or layers, and, provided it has a sheltered situation, will thrive in any average garden soil.—E.

The Sassafras tree (*Laurus Sassafras*).—This, which might, perhaps, be more plainly styled a deciduous Bay, was introduced from South Carolina as far back as 1623, and makes a handsome, shapely tree well adapted for a small lawn. It is said to attain a height of from 40 feet to 50 feet in its native home, but does not appear to reach that size in England; at least, I have not met with any specimens larger than the one growing here, which is just over 30 feet high, 4 feet in girth, and with a spread of branches of 25 yards. The growth is very evenly distributed all over the tree; indeed, it forms a handsome pyramid, the young growth being thick and the foliage dense. The flowers are comparatively insignificant and are not produced very profusely; some specimens are said to berry freely, but I have not noticed any on our plant. The leaves, which emit, when rubbed, a pleasant odour, are either entire or lobed, and are in size and colour not unlike those of *Magnolia glauca*. The tree should be planted in a well-sheltered spot, and requires a little attention in the way of staking, mulching, watering, &c., until fairly established. It appears at home in any good garden soil.—E. BURRELL.

Growth of *Cupressus macrocarpa*.—In the gale of the night of October 31 and November 1 last a *C. macrocarpa*, which had been planted in the spring of 1859 by the then rector of Lympstone, Devonshire, at the back of the manor house in that village, was blown down, and on measuring it I found its length to be 67 feet; and as Veitch in his "Manual of the Conifers" gives 50 feet or 60 feet as the height of this variety of Cypress, the size of this Lympstone specimen, which was still young and thriving, is worth recording. Deducting 2 feet for its height when planted, and taking the broken months of 1887 as equivalent to a year as regards growth, the tree grew 65 feet in twenty-nine years, or at the average rate of 2 feet 3 inches a year. In form it was fastigiate, and its girth, at 3 feet from the ground, was about 7 feet 6 inches. It had been sheltered by the house, which was a high one, from the westerly winds, but the soil was shallow and rather dry. In California, its native habitat, it attains its largest size on the two horns of Carmel Bay, near Monterey, and it gives the name of Point Cypress to the northern horn, where, some eleven years since, I measured one specimen with a girth of 18 feet and an approximate height of 80 feet. A forest of *Pinus insignis*, the only one I met with in California, grows in the bight of the same bay, and it is remarkable that that Pine is far less flourishing there and of smaller size than in South Devon, where it has attained a girth of 14 feet.—WINSLOW JONES, *Ermouth*.

SHORT NOTES.—TREES AND SHRUBS.

Stock for Japanese Acers.—Will you kindly inform me what the stock is on which the Japanese Acers are grafted?—J. G. K.

***Pinus insignis*.**—The tallest I have seen is at Fleete, near Plymouth. A very beautiful tree.—WINSLOW JONES.

The Evergreen Oak at Wilton.—This is finer than our Devon trees, which I once thought the best in England.—WINSLOW JONES, *Ermouth*.

***Benthamia fragifera*.**—What does the writer (recently quoted from the *Field*) mean by describing the flower of this shrub as of a creamy white colour? Are there varieties of *B. fragifera*, or does the colour vary in different sorts? I have never seen it other than a decided yellow, even approaching a dark yellow; certainly there has been nothing white about it.—E. B.

***Berberis nepalensis*.**—This Barberry is perfectly hardy here, growing freely when not disturbed at the roots. I find in our cold, heavy, retentive soil, that this variety cannot be moved easily, as after the operation the plants become stunted and lose many of their lower leaves. At the present time, in spite of the keen frost, snow, and cold winds, one plant is flowering freely, and gives promise of growing

into a handsome bush, as it is well clothed with its large, handsome leaves right down to the ground.—SOUTH HANTS.

WINTER WORK IN THE PLEASURE GROUND.

THIS seems likely to prove the most favourable season for pleasure-ground work we have experienced for some years. The two months January and February that intervene between the close of the autumn cleaning and the commencement of Laurel cutting, sweeping Grass preparatory to mowing, &c., are generally devoted to renovating any old quarters of Rhododendron and Laurel that still exist, and the dry weather is very favourable to this work, a continuation of snow and rain rendering it well-nigh impracticable. It is difficult to realise until one takes these big, old brakes in hand what a wonderful difference the cutting and layering of them makes in the aspect of the pleasure-ground. The surroundings are opened up, and pretty peeps of wood, water, and shrubbery are disclosed that were completely hidden by the wall of foliage, and not only are surroundings blocked out by allowing the shrubs to attain exceptional size, but the plants themselves become merely a fringe of growth at top and sides, the greater part being nothing but naked stem, and if, as is often the case, a heavy fall of snow makes an opening, a large piece of the quarter will be broken down, leaving, after the remains are cleared, a bare, unsightly patch. Our method of dealing with these old quarters is to start at one side and commence cutting the stems about half through at a height of 2 feet or 3 feet from the ground, lowering the top carefully to prevent the wood splitting off. If this is carried through, and the heads of foliage brought well into any bare patches, the completion of the task leaves a nice even stretch of foliage about 3 feet high that furnishes the ground well until the plants break away. This they quickly do, not only below the cut, but all along the horizontal branch, so that in two or three seasons there will be sufficient young growth to allow the cutting away of portions of the old branches, if this be desirable, and they are rather objectionable to the keeper if they lie too thick on the ground. I find the young growth of Rhododendron and Laurel thus made is tender and very susceptible, not only to severe frost, but to a powerful sun in summer; it is therefore not advisable to touch this with the knife until the lower part gets fairly hardened, when it can be headed back to the required height and unsightly growth cut away. When the weather is of such a character as to prevent the continuance of this work, younger brakes of Laurel may be gone through and any gaps made good by bringing down the young shoots. Very few Evergreens take kindly at first to planting under a dense shade, and this layering is therefore preferable to planting fresh stuff, as the plants soon get hold and are able to shift for themselves. As the question of the relative merits of the different varieties of Laurel has lately been broached in THE GARDEN, I may mention that we find the Caucasian decidedly the best. *Rotundifolia* may be better so far as a purely ornamental shrub is concerned, that is, as individual specimens, but for combined hardiness, density of growth, and general usefulness, there is nothing to beat *causica*. E. BURRELL.

Claremont.

Ford's Evergreen Oak.—"W. G." in THE GARDEN (page 129) does good work in pointing out the superiority of this form as an ornamental plant over that of the normal *Quercus Ilex*. This is nowhere, perhaps, better exemplified than in the park at Holwood, where the two forms are growing side by side and in considerable numbers. The Ford Oak has altogether a better habit than the ordinary Evergreen Oak, the branches being horizontally arranged, while the foliage is massy, somewhat after particular forms of the common Sycamore. In preference to the ordinary form I would, along with "W. G.," strongly advise planters to use Ford's variety, and in the future results they will be far from disappointed.—A. D. WEBSTER.

TOP-DRESSING OF LAWNS.

"W.'s" query (page 139) implies that he has thought of, or someone has suggested, using London manure. A more dangerous, unsuitable, or unsavoury dressing cannot be conceived. No one can ever be sure what he may receive in London manure. Nothing is more likely to turn up in it than impure abominations that would render a lawn unfit for pleasurable use for a year or more. Besides, it varies in strength from miry road-washings at one end of the scale to sheer carrion and decomposing carcasses at the other. And this alone totally disqualifies London manure for top-dressing lawns. It would convert the lawn into a miry thing of shreds and patches; here an island of lush Grass, and there a barren desert of starveling turves, thus proving fatal to that uniformity of height and verdure which constitutes the chief charm of a perfect lawn.

It is hoped that this protest against London manure as a top-dressing for lawns will hinder "W." or any other person, from ever using it. Whatever else may or may not be used, that must be shunned as if it were poison, which it often would prove. But "W." doubtless looks for positive instructions more than negative warnings, and the three things he names include most of the more suitable top-dressings. Wood ashes is less offensive than soot, and is so far better in being more cleanly. Some mix the two in equal proportions and apply them together. Slight dressings of nitrate of soda in the early spring are at once potential and cleanly stimulants. But the best of all top-dressing for Grass lawns consists in fine mellow earth such as may be found in most kitchen gardens, used at the rate of twenty-five tons or even fifty tons to the acre; the Grass should be severely harrowed, torn to pieces with bush harrows a month or six weeks before the earth is used. If the lawn is very poor, a dozen bushels of soot or wood ashes to the acre given when in this rough state would prove a double stimulant, but in most cases it is not needful.

Harrow and cross-harrow the lawn once or several times before dressing and two or three times after dressing. Apply the dressing as evenly all over as practicable. The frequent harrowing or raking will complete the levelling, fining, and regular distribution of the soil. The best time to begin these operations is October or November, and the upspringing Grasses rushing through the dressings will compel their being finished early in April at the latest.

Should the plant of Grass prove thin on the lawn, a few pounds of choice lawn seeds and white Clover may be scattered over the surface before the final rolling, which completes the process of top-dressing. Before rolling, however, any stones that may have revealed themselves or other rough substances must be picked or raked off. Presuming that the dressings were of suitable soil and were properly worked in, little traces of them will be visible after the final rolling and the first growth of the Grass, though the effects of this treatment and dressings on lawns will be found to transform the most wretched, scrubby ones into velvety turf of superlative and uniform excellence. It is important, however, for "W." and any other readers of THE GARDEN who may be disposed to try this mode of renovating Grass lawns to bear in mind that the breaking and tearing up of the old Grass is as essential to success as the application of the fresh earth on the surface. The rough-and-ready root-disturbance by frequent harrowings quickens them into renewed energy and activity, as well as destroys Moss and weeds; while the additional and fresh food in the dressings comes in as a seasonable and powerful stimulant to perfect and complete the process of lawn renovation.—HORTUS.

—There can be no doubt but that one of the cheapest and best dressings for old lawns is found in the trimmings from roadsides, especially of rural roads and lanes. Large quantities of this material are invariably accumulated during the winter in most localities, and can be purchased cheaply. This is far better than the cleanings of ditches, because the latter invariably contain a quantity of weed seeds. Road trimmings, on the other hand, generally produce an

abundance of fine Grass. Of course, soot, wood ashes, and even lime, might be mixed with this material before applying it. It is also worthy of consideration whether, before thus dressing an old and possibly a mossy or exhausted lawn, it would not be well to run over it very fine-toothed harrows, so as to destroy some of the Moss and stir the hard impoverished surface. After the dressing is put on, and the best time for its application would be in February or March, a light dressing of guano might be given ere the entire dressing be well mixed and worked in with a bush harrow. Finally, the entire surface should be raked over, removing all coarse material or stones, and then rolled. April showers allied to the natural powers of the old Grasses will soon produce a rich green verdure. Of course where the dressing has to be applied thickly or the Grass is bare, some selected seed may be sown before the raking and rolling are completed. In the immediate neighbourhood of towns where road-trimmings are not so easily obtainable the sweepings of the streets would form a capital dressing without other manurial mixture, but this stuff should be screened before being applied. It would, however, need considerable seeding, as in the production of native Grasses it is very inferior to roadside trimmings.—A. D.

FLOWER GARDEN.

THE DOUBLE ZEPHYR FLOWER.

I WANT to ask those who are fond of rare, hardy bulbous flowers what has become of the double-blossomed *Zephyranthes candida*, or Parkinson's "double white Daffodil of Virginia!" I say Parkinson's, but in reality the plant was figured by Swertius in his "*Florilegium Ampleximum*," first published at Frankfort in 1612.

In the edition of 1647, now before me, the single *Zephyranthes candida* is figured on plate 28 as the "*Narcissus* of D. Gareto flore albo, exteriori parte rubicundus," and in turning over the book carefully in searching for old *Narcissi*, I came to plate 65, where, at figure 6, is depicted the double-flowered variety or form of *Zephyranthes candida* under the name of "*Narcissus totus albus de Virginea* of D. P. Gareto pleno-flore oblongo apice." At first sight the flower looks quite like that of *Narcissus Eystettensis*, the perianth segments being apparently superposed in six rows or divisions, and there is "a long point or horn," as Parkinson says, in the centre of the flower. Formerly I used to fancy Parkinson's "*Paradisi*" a truly original book, but a series of researches made during the past winter has convinced me that he copied largely from Lobel, Dodoens, Clusius, Swertius, "*Hortus Eystettensis*," Du Bry's and other "*Florilegia*" published anterior to the date of his own work in 1629.

The point now important, however, is to find out if the "double white Zephyr Flower" exists as a living plant in British or European gardens. Can Mr. Ewbank, Canon Ellacombe, Mr. Maw, or the authorities at Kew tell us of its existence to-day in gardens or in herbaria? If it has died out of cultivation in Europe, we must ask the collectors of Zephyr Flowers in the United States to search out for us in Virginia or elsewhere this rare old double-blossomed garden flower. Perhaps our good old friend, Mynheer Krelage, of Haarlem, may be able to assist in the search for this lost treasure. Judging from the illustration given by the quaint old rhizomatist, Emanuel Sweert, the flower is distinct and beautiful, and no doubt many lovers of hardy bulbous flowers beside myself would like to add it to their collections if it can be again discovered. Seeing that Mr. A. W. Tait's lovely little Portuguese *Narcissus cyclamineus* was re-discovered after a lapse of two centuries and a

half, we may hope some day to see this old double-Zephyranthes restored to our gardens.

VERONICA.

LENTEN ROSES.

HELLEBORES, especially those of the *H. niger* or Christmas Rose section, have always been great favourites in the garden. In most old gardens there are several clumps of the old types, such as *H. niger*, *atrorubens* (*Botanical Magazine*), *viridis*, &c., all of which have been handed down to us with little or no alteration until within the last twenty years or so. About *H. niger* and its varieties, which are highly spoken of by the older writers, I have nothing to add, and I intend at present to confine myself to those generally known as the Lenten Roses, a very appropriate name, and which include *H. colchicus*, *guttatus*, *orientalis*, *abchasicus*, *olympicus*, &c. Until about 1874 very little had been done in the way of improving these species and varieties, either by cross-fertilisation or selection, and I believe the first batch of any importance as florist flowers was raised and flowered by M. Heinemann, of Erfurt, about the time stated, and which certainly gave a great impetus to their cultivation. At the present time there are few good gardens in England that cannot boast of a selection of these Lenten Roses, many of which, and the *colchicus* forms in particular, have the exquisite colouring and bloom of a well-ripened purple Plum. Others with *guttatus* blood in them are spotted or blotched with varied and deeper tints. Indeed, they intercross so freely and are so easily raised, that it is strange they are not more plentiful than they appear to be. The seed, if scattered about on the beds or borders, will germinate freely, and in this way I have collected thousands of seedlings, many of them very interesting. Hellebore seeds, however, appear to lose their vitality sooner than those of most plants, and it is much safer in all cases to sow them as soon after they are gathered as possible. This may be done in boxes or pans, which should be placed in cold frames or else in beds in the open air. Their cultivation, though in most districts as comparatively easy as in the case of the *niger* section, is troublesome in low-lying counties and exposed positions, even so far south as London. The most favourable position for them is one sheltered from the east and north; indeed, unless this can be given, their cultivation in large quantities at least had better not be attempted. At the end of January these Lenten Roses begin to make a show, but, unfortunately, these are accompanied with leafy, tender bracts, which are invariably blackened by the biting east winds unless protected in some way. The flowers themselves rarely suffer, except, perhaps, those of *H. abchasicus* and *intermedius*, which are nipped when the weather proves unusually severe. If the plants can be watered liberally during the summer months, a sunny south or south-west aspect, well sheltered from the east and north with shrubs, &c., will be the best on which to plant them. The large boulders on the rockery will also serve as a protection to the flowers in spring. To grow them successfully, however, they require a good deep soil, and thoroughly drained, the latter being essential, as if the drainage is not perfect the continual mulching soon renders the soil sour. The mulching, the beneficial effects of which will soon be apparent, is given as soon as the leaves have attained full size, and consists of fresh manure given in the same way as in the *niger* section. When at last doing well, leave them alone, as no plants resent disturbing more than these Hellebores, and it always takes at least two, and often three, years for them to get the better of a shift,

even if this is done most carefully. What is called in gardens the *orientalis* group is divided into two sections by what I believe to be constant characters. The first is that in which the radical or root leaves are solitary, that is, one in a tuft with the flower-stem, as may be seen in *H. orientalis*, *caucasicus*, *colchicus*, &c.; and in the second the root leaves are many to a tuft, embracing *antiquorum*, *abchasicus*, *olympicus*, *guttatus*, &c. The following are those I consider best worth the attention of growers:—

THE ABCHASIAN HELLEBORE (*H. abchasicus*) has long been cultivated in gardens, and is in all probability synonymous with the *H. atrorubens* of the *Botanical Magazine*, though the figure and text are so vague in the most important characters as to render a decision doubtful, the chief affinity with the above being its pointed sepals. In the true Abchasian plant the lower leaves are quite glabrous, many in a tuft with the flower-stalk somewhat thick or leathery, and pedate, or nearly so. The divisions of the leaf are attenuated to the base, oblong, and pointed; the margins sharply serrated, and the veins on the underside prominent; flower-stems 2—3-flowered, not so tall as in *H. colchicus*; flowers small, the bracts 3—5, parted or divided at the apex; the sepals barely overlapping each other, obovate, and pointed, with the margins distinctly undulated. Flowers always nodding, most distinctly so in bud, with a distinct shoulder at the base, somewhat resembling the lower half of a Fritillary; purple-veined violet, and very freely produced. Native of Abchasia, in the Caucasus. This species differs from its nearest ally, *H. colchicus*, in having many leaves to a tuft, its smaller pointed sepals, and its tubular, open-mouthed, bright green sepals, which are shorter than the blunt anthers.

HELLEBORUS ANTIQUORUM.—This is a charming species when well grown, producing in the greatest abundance its large white, purple-tinted flowers. It is hardier than most of the others, and will stand a more open situation. Leaves glabrous, as in the above, leathery, with 5—7 oblong or lance-shaped divisions; margins sharply serrated, and the veins, though distinct, are not prominent; stems 3—4-flowered; the sepals broadly oval, pointed, and usually white, suffused with purple; anthers pointed at the apex. A native of Bithynia and Mount Olympus, and figured in the *Botanical Register*, 1842, tab. 34, as *H. orientalis*.

DARK PURPLE HELLEBORE (*H. atrorubens*).—The true *atrorubens*, about which so much confusion has existed in gardens, seems to me a connecting link between the *viridis* and *orientalis* groups, though its affinities are with the former. The leaves are glabrous, only one to a flower-stem, thin in texture, and much resembling those of *H. dumetorum*. The flowers are of medium size, greenish or livid purple. It is a native of Hungary, Austria, &c., and is not, I believe, in cultivation at the present time.

THE CAUCASIAN HELLEBORE (*H. caucasicus*).—A very distinct species, remarkable on account of its broad, glossy leaves and bright green purple-tinted flowers. It differs from *H. orientalis* chiefly in having glabrous foliage. Leaves leathery, digitate, divided into 5—7 divisions, the outside two generally parted, with the veins on the under side prominent. The flowers are small, three to four to a stem; sepals roundish oval, green, and usually tinged with purple; bracts narrow linear, divided at the apex. Native of the Caucasus, &c. Under this species Dr. Regel has placed *abchasicus*, *colchicus*, and others as varieties, but with the above division, which is that adopted by Boissier in the "*Flora Orientalis*," they are too distinct to bring together in this way.

THE COLCHICAN HELLEBORE (*H. colchicus*).—This is by far the most beautiful of the Lenten Roses, and the most useful for growing in large quantities. It is usually much later than the others, escaping a great deal of the rough weather in early spring. When the flowers first push up they are accompanied with bracts of a deep purple colour and are very beautiful. The leaves are glabrous, thick, and dark green, with 5—7 lance-shaped or elliptic divisions, margins sharply serrated. The

flowers are borne on forked stems carried well above the foliage; sepals broadly oval, blunt, the margins generally incurved; the bracts at the base of the flowers coloured and divided. Native of Northern Asia Minor. It differs from caucasicus chiefly in the colour of its flowers and its broad, blunt sepals, and from the common guttatus and abchasicus by only having one leaf in a bunch with the flower-stem. It has given rise to a great many good garden plants, many of them spotted in the most beautiful way, punctatissimus being exceedingly handsome, as also is Leichtlini, &c.

THE SPOTTED OR STREAKED HELLEBORE (*H. guttatus*).—This is also a native of the Caucasus, and one of the parents of the beautiful strain of hybrids now so popular in gardens. The leaves are two or more in a tuft, and the flowers are pure white, streaked or spotted with purple on the inside, and when well marked they are very handsome. It is nearly allied to *H. olympicus*.

H. OLYMPICUS.—The original illustration of this was published in the *Botanical Register* in 1841. It is an interesting plant and useful on account of its hardy nature; leaves, two in a tuft, thick, leathery, and in 5–7 divisions; the flower-stem is 2–3 flowered; sepals ovate, blunt, the two inner ones whitish towards the base, the three outer quite green, and only showing white towards the margins. The habit somewhat resembles that of *H. odorus*, is more robust, however, and the flowers are half as large again, drooping in bud, with the sepals much overlapping even when fully open. Native of Olympus and Bithynia.

THE ORIENTAL HELLEBORE (*H. orientalis*).—This is, perhaps, the most common, and certainly not the least beautiful of the Lenten Roses. It is very free-flowering, and most useful for cutting purposes, the flowers keeping a considerable time in a cool room. Leaves one to a tuft, with the flower-stem pedate, with 7–9 oblong divisions covered with short hairs; stem 3–5 flowered; sepals oval, pure white; suffused rose in the variety. The chief distinction is its hairy leaves. Native of Macedonia and Northern Asia Minor.

H. ODORUS is so near the above as to be inseparable, except as a variety, differing chiefly in having greenish, not white or rose flowers, as in the above species. Others equally desirable are *pallidus viridis* and its numerous forms, *purpurascens*, &c.

Amongst the most useful hybrids may be mentioned Apotheker Bogren, Gretchen Heinemann, Frau Irene Heinemann, Willie Schmidt, Commerzienrath Benary, &c. D.

FORM IN THE ENGLISH FLOWER GARDEN.

THE gardener can hardly do anything wiser than reconsider his ideas of the value of form. For many years carpet-bedding and similar styles have driven anything like beauty of form out of the best part of our flower gardens. Flower gardeners find it to their advantage to conform their ideas of beauty of form to those of the artist and educated men, so that all may enjoy the garden as much as they do any other true art. We propose to give a series of illustrations showing the beauty of form to be found in English-grown things. We hope to thus fix the attention of gardeners on the great value of plant form. It is quite possible to enjoy it without neglecting colour in any way. If any of our readers have photographs showing good points in this way, we should be pleased to have them, and also happy to engrave them if we have not previously done a similar subject. Our climate is a poor one for the vegetation of temperate countries; so to show how far we can

go in the matter, we will take nothing but English examples. The fact that we have such beautiful things in our gardens shows that they are cared for here and there; but it is quite by chance we find an example of beauty of form from garden plants in a place.

yearly growth during autumn and before winter sets in. My experience is that the best time to divide and transplant Hellebores is about the end of September, as then they very readily take hold of the soil and establish themselves before winter. If from any cause transplanting cannot be done in autumn, then let it be attended to as early as



Form in the flower garden: A Yucca in bloom.

When we do, it is often in some remote corner, while there may be several acres round the house without a single trace of it.

Christmas Roses.—As a rule, perennial plants form their best roots towards the end of their

possible after the soil is fit for working—say the middle of February.—MAX LEICHTLIN.

Christmas Rose Madame Fourcade.—This variety has not very large flowers, but it is very free-blooming, and the flowers are of a beautiful shape and outline, and the purity of colour leaves nothing to be desired. I find a German variety of niger,

called *angustifolius*, possessed of superior qualities, and *niger lacteus*, with its aurora-tinged very early flowers, is sure to become a standard variety.—MAX LEICHTLIN. *Baden-Baden*.

SEED-SOWING.

THE time for seed-sowing is at hand, and a few general remarks with reference to particular kinds may be useful. Many persons are under the erroneous impression that seeds cannot be successfully raised without the convenience of glass frames and hotbeds. These contrivances are, in a large number of instances, quite unnecessary, and almost entirely so in the case of all hardy plants. Many of these are much best sown in the open ground, and, as a rule, should be sown early in February or at the latest in March; in fact, I sow many seeds in the autumn and with the best results. Others, again, as the smaller *Silenes*, *Primulas*, *Androsaces*, the rarer *Dianthus*, and similar things, may be sown in pots of fine sandy soil and be placed under any temporary shelter, as, for instance, a turf pit, and be covered with canvas shades. These admit plenty of air, enough light, and ward off the heavy showers which might disturb small seeds which are usually sown on the surface of the soil and left uncovered. Each pot should be stood in a saucer of water, and as the season advances and the period of germination approaches, the pots should be exposed to the full sunshine, care being taken that the saucers do not become empty. Such treatment as this is far better than placing the seed in heated houses or frames, where, though it may germinate more quickly, causes the young plants to become much attenuated, and often many are lost in consequence. Some seeds require very special treatment. The *Gunneras*, for instance, I find, take time and always come best when the pots are placed to half their depth in water, and where they are exposed to every ray of sunlight. *Meconopsis*, again, requires similar treatment, so does *Primula involucrata*, the *Dodecatheons*, many of the *Gentians*, *Lobelia cardinalis*—in fact, all the herbaceous kinds, and *Mimulus cardinalis*. I sow several of the *Primulas* and *Gentians* in the autumn or any time during winter as the seed comes to hand, standing the pots in shallow water and putting a piece of glass or paper over them, and leave them exposed to all weathers. What all seeds want is uniform moisture, and, as a rule, in the case of hardy things no artificial heat is required.

It is most interesting to notice the full healthy growth, as soon as the spring arrives, of even the most delicate seeds that have lain exposed to cold and frost, and it also makes a good deal of difference to the seedlings whether they appear in February or March, or whether these two months have gone before the seeds are sown. It is astonishing how very hardy are some of the tiny seedlings of many hardy plants. I speak now of self-sown seedlings that come up around the parent plants, either in the autumn or during mild spells in the winter months. No amount of cold seems to affect them in the least. I have now thousands of seedlings of many things—*Dianthus*, *Linum*, *Iberis*, *Violas*, &c.—self-sown, which, though very small, are as healthy as they could be. No doubt soil and exposure have something to do in a case of this kind, as they are in free sandy loam on the top of a hill, where they enjoy every ray of sunlight and breath of air. Many seeds, however, are slow to germinate. Some of the *Irises* remain dormant in the ground for a year, as also many *Liliaceous* plants, the *Eremuri*, for instance. These are seeds I expect the average amateur would fail with. Many seeds again, as of bulbous plants, *Crocus*, *Narcissus*, &c., should be sown as soon as they ripen in the summer. *Crocus* seedlings are now coming up like fine Grass that were so treated. *Snowdrops*, on the other hand, take longer, and, as a rule, do not come up until the spring next but one after they are sown. Seeds of the hardy *Asparagus verticillatus*, for instance, should be sown where they are intended to grow in the open border. *Alstroemeria*, *Anthericum*, *Asphodelus*, *Baptisia*, *Dictamnus*, *Helleborus*, *Hemerocallis*, *Pæonia*, and *Orobis* should be sown in the summer or autumn, or as

soon as ripe, in the open ground. Several of these will make their appearance the following spring; others not until twelve months after. Seeds of *Hyacinthus candicans*, though its bulbs will not stand frost, should be sown as soon as ripe, as it does not get injured in the ground, no matter what the winter may be, but comes up like Wheat the following spring. *Anemones* of the alpina and *Pulsatilla* type should be sown as soon as possible after they are ripe in the open, and will generally make their appearance the following spring, though some will continue to come up for another year or so. The hardy *Eryngiums* are best sown in the autumn, and I think they do much better if sown on a moderately hard surface and remain uncovered. *Ferulas* should be sown in autumn or early winter. *Clematis*, *Corydalis*, and *Trollius* cannot be in the ground too soon after ripening, and the position should be constantly moist. Seeds of *Hepaticas* are very easy to raise, and should be sown as soon as they begin to fall, which is while they are still green, in a shady place and on a hard surface; sprinkle lightly with sand, and then cover up with a slate or board laid flat upon them. This should be removed in the January or February following. *Potentillas* and *Ranunculi* should be sown as soon as ripe on a firm surface and in an open position, and for the latter the ground should be moist. They may be covered similarly to *Hepaticas*. The seeds of all *Spiræas* should be sown upon wet surfaces and not covered. *Acanthus*, which comes from a warmer clime, should not be sown until March or April in the open, as the seeds come up quickly and may suffer from late frosts. All the encrusted *Saxifrages* should be sown in early spring upon hard surfaces, while the broad-leaved *Megasea* sections do better sown in a uniform half-shady situation under glass, and should be kept moist. Most of the true *Campanulas* are of easy and rapid germination, while the seeds of *Symphandra* and *Edraianthus* take a long time to start. Seed-raising is an art requiring long experience. The loss of good seeds over the country annually through the want of the requisite knowledge as to how to sow, or how long to wait, must be enormous, and the consequent disappointment equally great.

T. SMITH.

THE GLADIOLUS.

IN reference to the remarks on the raising of seedling *Gladioli* in THE GARDEN, Feb. 18 (p. 140), I find from my own experience that the hybridisation of the *Gladiolus* is quite easy, and in the whole range of floriculture there is no plant less difficult to raise from seed. "Delta" states in his article that the bulbs of the best varieties are cheap. This is so, and what I advise is this: Purchase a dozen of the best named varieties; plant them about the first week in March in an open, sunny position. The soil must be deep, moderately rich, and open. Here I would remark on the use of manure. I always succeeded best when the ground was prepared for *Gladioli* not later than September of the previous year. A good dressing of manure ought to be trenched into the soil at that time, and none of it to be placed nearer the surface than 6 inches. When the ground has been trenched and manured in the winter it is not in such good condition at planting time; consequently the plants do not grow so vigorously. No manure, even if well decayed, should come into contact with the corms. If the object is to obtain seeds, the flowers should be hybridised, and this operation will afford pleasant amusement for three or four weeks at flowering time. The flowers from which seeds are to be obtained should be watched, and as soon as they begin to expand the anthers must be pulled off with the fingers to prevent self-fertilisation. As the flowers become quite developed they must be hybridised with the pollen from a selected variety, and the process must be gone through daily until all the flowers are fertilised. Enough seeds could be obtained from a dozen strong plants to produce upwards of 2000 seedlings. If the seeds are sown early in April in pots over a hotbed, they will vegetate in two weeks, and by the end of the season produce bulbs from the size of a Pea to that of a

Hazel-nut. Those planted in the open ground if the weather is favourable from the middle to the end of February, will produce a gorgeous display. Many of the spikes will be strong enough for exhibition purposes. They, too, will be distinct from anything else in cultivation, and scores of them will be as good, and many better than those of the parents. This is the cheapest and best way to obtain a collection of *Gladioli*. J. DOUGLAS.

FLOWER GARDEN NOTES.

PROPAGATION.—In all gardens of any extent, no matter what the style of flower gardening may be, the time has now arrived when the preparation of the necessary plants must begin in earnest, and, by way of memoranda for others, I cannot do better than allude to our own doings in the matter.

TUBEROUS BEGONIAS.—These have recently become very popular, and, I think, justly so, because they do exceedingly well, grow satisfactorily, and flower profusely. They are also not readily damaged by heavy rains, and at least they are as hardy as *Pelargoniums*, and are less common; this fact counts for something, seeing that novelty-hunting is the order of the day. The most effective way is to plant them thinly, so that each plant stands clear of its neighbour. Necessarily, this thin planting leaves a good deal of ground bare, but this we cover with low-growing *Sedums*, *S. glaucum* being the favourite. The tubers are now being potted in light vegetable soil, and growth will be promoted as slowly as possible by keeping them in as low a temperature as is consistent with safety from frost.

DAHLIAS.—The varieties in greatest demand are the best of the single and *Cactus* varieties, and these were potted some weeks ago, and are now throwing up cuttings, which when some 3 inches long are taken off the parent plant with a slight bit of the old tuber attached. These cuttings are inserted singly in 2½-inch pots, plunged in the propagating bed—temperature 70°—and covered over with glass. Roots are formed in about a fortnight, then the plants are taken from the bed and stood on shelves near the glass in a temperature not less than 60°—5° or 10° higher would be better. Other old roots of the best varieties are being potted, and cuttings are not required of these; they will therefore be grown on slowly in a cool house preparatory to being planted out early in May at the back of mixed borders, where they come in handy for cut flowers.

CANNAS.—These are noble plants, but require far more attention to do them well than the labour at command in most gardens affords, and on this account I have reduced the stock. The old stools were lifted in the autumn and have been wintered in a frost-proof cellar, and are now to be brought out, the strongest crowns selected for potting, and to be grown on the same as tuberous *Begonias*. About the beginning of April they will be put into strong heat and, if necessary, will be given larger pots, so that they may be nearly full grown before they are placed in their beds at the end of May. The soil in which they are to be planted should be light and deeply trenched and enriched with plenty of well-decayed manure, as without this the foliage will be small and of a sickly hue of colour all the season, no matter how favourable the summer may be. Though *Cannas* are usually—nearly always—planted in masses in beds, they are best grown as lawn plants—say, three, five, or seven plants, according to space on the turf—in an angle of the subtropical garden, or in a sheltered recess such as is frequently reserved for *Musas* and *Tree Ferns*.

FUCHSIAS.—Old plants are of the greatest service for the flower garden, because they are effective as soon as planted, and they flower earlier and more freely than young plants. They have all been pruned into the desired form which is, as a rule, pyramidal, the soil shaken entirely off the roots, and some of the latter shortened, so that they could be potted into the smallest pots possible, light rich soil being the compost used. They are then placed on the floor of a Peach house, the trees in which are now being forced, the temperature ranging between 50° and 60°, syringing being done always

once and sometimes twice a day. The humidity thus generated is in every way as acceptable to the Fuchsias as to the Peach trees. Young plants that were struck last August and have been kept growing all through the winter make nice plants for forming the outer lines to the tall old plants, and are of still greater service for growing on as central plants for small vases, to be surrounded by trailing Pelargoniums of the Ivy-leaved section.

GREVILLEAS.—These Fern-like plants are invaluable for association with the dwarfier section of flowering bedding plants, as they prevent that bald appearance that, say, a mass of Pelargoniums presents if not broken by standard plants of some kind or other. They also deserve to be classed amongst the most telling of sub-tropicals, and being comparatively hardy, standing rough weather without injury, they should be used largely in preference to tender-foliaged plants. We have a large number of old plants from 3 feet to 4 feet high, some of which will be used in the manner mentioned for Cannas, and others in foliage beds, smaller plants, seedlings of the last and the current year, being sufficiently tall for intermixing with Pelargoniums and other flowering plants. The old specimens have all been repotted, and are now growing freely in the early vinery. The plants are obtained most easily from seeds sown in strong heat. Ours were sown a month ago, and will be very shortly potted off and grown on rapidly in strong heat and moisture.

DRACENA AUSTRALIS LINEATA.—This is another grand plant for a similar use as the last, and I am fortunate in having a fine stock from eyes through cutting up the stems of a couple of old plants. The stems were cut up into pieces about an inch long, the cuttings being then buried in shallow pans of vegetable soil and sand and plunged in strong bottom-heat. Here they soon pushed growth through the soil, roots quickly followed, and before the latter got entangled together the plants were potted singly into small pots and again plunged in bottom-heat till the roots began to work in the new soil. They are now on shelves in the Pine stove, growing away freely, promising at their present rate of growth to make plants from 12 inches to 18 inches high by the time it is safe to plant them in the open air.

SUCCULENTS.—Gardening fashions change often, as an illustration of which I well remember how a very few years since I assiduously cultivated succulents, as did most people, but there are comparatively few of them now. I have a nice stock of *Echeveria farinosa*, one of the handsomest and least formal of the section, and these, with a dozen variegated Agaves and the same number of *Echeveria metallica*, are intended for planting at least one bed. The smaller *Echeveria farinosa* will be used for edging, and the larger for the intersecting lines of the design, Agaves and *E. metallica* as standard plants in the centres of panels, which will have a groundwork of the variegated *Mesembryanthemum cordifolium* and of the mauve-flowered *Mesembryanthemum conspicuum* alternately. The propagation of *Echeveria farinosa* is most readily effected by inserting the leaves in sandy soil and placing the pots or pans in strong heat. As soon as the leaves are rooted and the young crowns, which spring from the base of the leaf, are from half an inch to 1 inch long, they require to be potted into small $2\frac{1}{2}$ -inch pots and grown on in a dry heat. *E. Peacockii* and *E. Gibbi*, two very beautiful varieties, strike in the same way, but not nearly so quickly or successfully; hence their scarcity.

LILIU AURATUM FOR AUTUMN FLOWERING.—By the express wish of my employer, I some three or four years ago made an attempt to retard the flowering of a number of pots of this Lily till September and October, and, being successful, the practice is still continued. Our way of accomplishing this is to pack the bulbs closely together in shallow boxes of Cocoa fibre refuse, and winter them in the coolest place possible short of actual frost, and as soon as there are indications of root activity (there is now) they are potted into their flowering pots, three bulbs in a 10-inch pot. The pots are then placed under the shelter of a north wall and the whole are covered over the same as is usual to cover over Hyacinths. In this way they

remain till roots are being freely made in their new quarters. The Cocoa fibre is removed, a little fresh dressing is given them, and they are then brought out and stood on cinder ashes (still in the north aspect), when, if a severe frost occurs, a double ply of tiffany is spread over. This screens them from injury; new top-dressing and more space is given as the plants require it, but they are constantly kept in this north aspect. Having little or no sunshine, the growth is, necessarily, sappy and unripe; but it is to this latter fact that I attribute the success we have had in flowering the bulbs as late as the third week in October. Some few will flower early, in spite of all that can be done, and these we draft out and grow on for flowering in August. The plants are required for standing about on the walks of terrace gardens, and also for placing under the windows of the mansion, where their perfume is highly appreciated, and that, too, at a time when there are few Lilies in flower.

W. WILDSMITH.

TRANSPLANTING CHRISTMAS ROSES.

THERE is undoubtedly a great difference of opinion even among the best growers of Hellebores as to the best time for dividing and planting them. In my opinion much depends on local circumstances, as what will ensure success in one part of the country simply means failure more or less in another. Few plants are more impatient of removal than these, and few plants remain inactive for so lengthened a period at the roots after removal; therefore, I think it would be more helpful if writers generally gave the locality from which their experience comes. Referring to the Austrian Hellebores, as mentioned by Mr. Burbidge (p. 162), I may say, after planting many thousands, that I consider the end of September the best time in the year, and for this reason: The new main roots are not then emitted from the base of the current year's growth, but they soon follow when planting is done; these, therefore, are saved and are of great importance, but exactly the reverse ensues if the importations are not received till February or March. If, as I imagine from observations, modest though they be, these main fleshy roots are formed in early autumn, a state of things accelerated by the rains usually experienced at that season, it cannot be other than a great sacrifice that these which I regard as of only annual occurrence should be cropped off short for importation in February, at which time the fibres from the main roots should themselves be active; therefore, I contend that if a season can be found for planting, ensuring the safety of main roots and fibres, it must be no mean advantage to all concerned. In our deep gravel-drained soil here in Middlesex, with the soil in summer dust dry several inches deep, Christmas Roses, unless well established, stand but a poor chance; indeed, I should regard it as little better than waste time to plant them at this season, particularly if the tropical heat of the past three years followed the operation. In September of last year I planted a batch then to hand from Lower Austria, and in an incredibly short time they had pushed forth new main roots, which are now about 8 inches long, and I think it only fair to assume that these, with their present attachment to the soil, will stand a much better chance of holding their own against drought than those planted at the present time. I am pleased to note Mr. Burbidge prefers to "break off the separate crowns" in dividing, as I consider a knife the worst possible instrument that can be used. In very large clumps I use a small hand-fork, or a pair of them back to back, by which means great numbers may readily be divided without sacrifice or loss.

E. JENKINS.

SHORT NOTES.—FLOWER.

Carnation Clarisse.—Will anyone kindly tell me who sent out *Clarisse* Carnation, and who has a stock of it?—X.

"St. Brigid's" Christmas Rose.—I believe this plant is not as yet in the trade. Its owner has given a few bits of it away to friends.—T. G.

Dianthus tricuspidatus.—Can you tell me

anything about *Dianthus tricuspidatus*, seeds of which were sent to me some time ago, but I cannot find the name anywhere?—T. SMITH, *Newry*.

ORCHIDS.

W. H. GOWER

ORCHIDS AT MR. BUCHAN'S.

THE numbers of species now flowering in the collection at Wilton House, Southampton, at the present time are quite marvellous, and whilst strolling through the plant houses at this establishment, it occurred to me, provided only one genus was available, which would be the favoured one. There are numbers of lovers of *Odontoglossums*, *Laelias*, *Cattleyas*, *Dendrobiums*, *Masdevallias* and many other genera, but it would be a difficult matter to decide upon one genus only, although to my mind, just at present, I think *Dendrobiums* are the most prominent in Mr. Buchan's collection, and foremost amongst these stand the old *D. nobile*, the plants being simply grand, quantities of examples bearing innumerable flowers in comparatively small pots, amongst them being several elegant varieties. Next in order comes the showy *D. Wardianum*, all the plants being in quite small pots, and having growths of some 2 feet and 3 feet long profusely flowered. The majority of these plants were imported some two years ago and cost about one shilling each, so that expense is not at the present time an objection to be raised against the culture of showy Orchids. Ranged beside these were several fine racemes of the richly-coloured *D. lituiflorum*, which is here grown in an erect form, but which, in my opinion, displays its charms in a more effective manner when planted in a hanging basket, and its growths allowed to assume their natural pendent habit. There was also blooming in a profuse manner that beautiful hybrid *D. Ainsworthii*, a plant which worthily commemorates a life's devotion to this class of plants by Dr. Ainsworth, of Manchester, and in whose garden it first originated. It and its varieties have proved themselves to be extremely good growers and profuse bloomers, enjoying strong moist heat when the bulbs are in course of formation, and a thorough rest afterwards. Next comes the lovely *D. crassinode* and its highly coloured form, *Barberranum*; this species is grown in quantity, both in pots and in hanging baskets. Of the two methods of treatment, the plants appear to thrive best when treated in the latter manner. The delicate *D. Pierardi*, grown as a basket plant, was very effective, so also was the yellow-flowered *D. aggregatum majus* and *D. primulinum*, which I also recently noted as being so fine at Burford Lodge; the long-lasting *D. superbiens* also had a couple of fine spikes, and is said to be nearly always in flower. The old *D. speciosum* and numerous other kinds contributed also to the general display.

Associated with these were several late-flowering kinds of *Calanthe*, which are only just in their prime; whilst the majority of the varieties have been at rest for a long time, conspicuous amongst them being the pure white *C. nivalis*, with large nodding racemes of flower. The noble *C. gigantea*, with grand flowers of a very high colour, *C. Regnieri*, and some spikes of *C. Veitchii* still lingered. Amongst these were grouped numerous plants of *Stenorhynchus maculatus*, its charming spikes of red flowers being very effective. It is treated here as a terrestrial plant, and grows vigorously. The Slipper Orchids (*Cypripediums*) are well represented, and are for the most part grown in the hottest house, many of the kinds being repre-

sented by large specimens; whilst the numbers of seedling hybrid Slippers, many of which are growing up into fair-sized plants, will doubtless cause a fresh stir amongst growers of these plants. One or two kinds have already flowered here and have passed into commerce. One form flowering just now very much resembles the Veitchian hybrid, *C. leucorrhodum*, if it is not identical, and others will shortly follow. The principal kinds now flowering are some excellent specimens and fine varieties of *C. villosum*, *Boxalli*, *Sedeni*, *Harrisianum*, *Dominianum*, *Roezli*, *pardinum*, *Argus*, and *Schlimi album*, &c. Amongst miscellaneous plants now flowering in this house may be noted *Brassavola glauca*, which, if it could be induced to bloom more freely, would soon become a favourite; the deliciously fragrant *Dendrochilum glumaceum*, *Angraecum Leoni*, *Saccabium ampullaceum*, *Vanda Bensoniae*, and others of minor importance.

Turning into the *Cattleya* house, numerous dark forms of *C. Trianae* were excellent, as well as *C. Trianae delicata*, *C. amethystoglossa*, which, although not so great a rarity as it was a few years ago, still maintains its position. Amongst *Laelias* were numerous forms of *L. anceps*, but none of the white varieties were flowering; here also were the charming bright-coloured *L. flava* and *L. harpophylla*, the flowers being very conspicuous; numbers of the small-growing, but large-flowered *L. pumila* were suspended from the roof, and struck me as somewhat out of season; whilst in *L. Pattini* I noted a plant which I had never before seen or heard of; the pseudo-bulbs are from 6 inches to a foot high, bearing a pair of bluntly oblong leaves, the whole plant much resembling *Epidendrum ciliare*. The flowers are somewhat smaller than those of *L. pumila*, the sepals and petals being clear rose colour, and the lip deep purple-rose. Whilst amongst the *Cattleyas* I noted that Mr. Osborne has been experimenting with Moss litter for these plants; one plant of *C. Trianae* which is now flowering has been in this material for a year and has filled it with roots, made good growth, and has produced flowers, so that growers of *Cattleyas* having difficulty in procuring good peat should make a trial of Moss litter. Growing with the collection of *Cattleyas* were plants of *Odontoglossum Kramerii* in flower and a very fine example of *O. Phalaenopsis*, which does not appear to thrive in every situation. The manner, however, in which this specimen is growing should convince the most sceptical that this variety enjoys a higher temperature than the majority of its tribe, and also that it enjoys light, as it was suspended near the roof. *O. pulchellum majus* was flowering profusely in this house, but I must confess to have seen this doing equally well in a cooler situation. In a house kept at about the same temperature, that is to say, from 55° to 60° by artificial heat, there were numbers of *Coelogyne cristata* and the variety *Lemoniana* bearing hundreds of flowers, also *C. flaccida* and others. Here also are grown the grand specimens of *Cymbidiums*, which are now showing flower, the varieties consisting of *Lowianum* with numerous spikes, bearing from twenty-eight to thirty flowers; *giganteum*, *eburneum*, and *Mastersi*; this latter was past, but had been literally smothered with snow-white flowers.

In a house which is kept at about 55° with artificial heat, the plants of *Lycaste Skinneri* are simply magnificent; the flowers are cut daily, but on the occasion of my visit between one and two hundred flowers were expanded, with many more to come, as many as seventeen

flowers being developed from a single bulb. There were some beautiful varieties, including the form with its lower sepals almost as deeply coloured as the lip, and also the pure white-flowered variety. In the same house, which is kept about 5° higher than the *Odontoglossum* house, I noted two beautiful forms of *Odontoglossum blandum*. One was an excellent variety and had four spikes of bloom, and the other was a small plant with large flowers heavily spotted with crimson and a yellow lip. Here also were flowering *O. Inseayi splendens* and *O. nebulosum*, *Cypripedium Schlimi album*, large specimens of *Oncidium unguiculatum*, *Masdevallia Chimera* and *M. triangularis*.

The *Odontoglossum* house is nearly 100 feet long, and is a lean-to under a north wall, containing some of the most magnificent specimens in the country, many of which will not be in bloom for another two months. Innumerable spikes are being pushed up, although some two or three dozen kinds are yet the only representatives. These plants are kept as nearly as possible in a temperature of from 45° to 50° in winter, the last figures being never exceeded by fire-heat. Of course, in the summer every means is adopted, by shading and ventilation, to keep them as cool as possible; the shingle is kept moist and the pots are moistened, but the plants themselves are never syringed. Blooming at the present time are quantities of *O. Pescatorei* and *O. Alexandrae*, many of the spikes of the latter being branched and the flowers large and of good form; *O. tripudians*, an excellent variety; *O. sceptrum*, and *O. cariniferum*. A plant of *O. constrictum* bearing a dozen long and much-branched spikes shows what a beautiful thing it is when large and fairly established; the same may be said of *O. gloriosum*. The beautiful *O. Erstedi majus* appears to thrive well here in the cool house in company with *Cervantesi*, *Rossi majus*, and many others. *O. Uro-Skinneri*, in fine variety, was also flowering, and by the way seedlings from this kind are growing, so we may soon hope to see their progeny flowering, but the grandest plants, to my mind, now are those of *O. ramosissimum*. The best form has a spike between 3 feet and 4 feet in length, with ten side branches bearing upwards of a hundred flowers; these are pure shining white, dotted and streaked with crimson, the sepals and petals being prettily undulated. *Oncidiums* are not yet in great force, the most notable being *O. tigrinum* with a spike bearing fifty flowers; whilst *Masdevallias*, which promise well for a show later on, are represented at present by only a few species. In a small house which is kept at about 70° I noted some nice examples of *Phalaenopsis*, which, notwithstanding that they are kept warmer than the grand collection of these plants at Cheshunt, are thriving admirably. There are numerous forms of *P. Schilleriana* and *amabile*, *Sanderiana*, *Stuartiana*, *grandiflora*, *Luddemanniana*, and *violacea* in flower. Last summer, when I visited this establishment, these plants were then recently imported, and since then they have grown amazingly, but I would advise Mr. Osborne, who has charge of this fine collection of plants, to be cautious in applying too high a temperature to the *Phalaenopsis*. With the management of the cooler Orchids he appears to be thoroughly conversant.

Phalaenopsids.—These plants appear to be thriving fairly well with Sir Trevor Lawrence, but the treatment here appears to be quite different from that practised by Mr. Partington's gardener at Cheshunt, where the plants are not allowed to flower if not sufficiently strong, and where, even

upon the large plants, the spikes of bloom are not allowed to remain long enough to exhaust the constitution of the plant. Judging, however, by the plants I saw at Dorking, the *Phalaenopsids* generally are allowed to suffer by exhaustion; the plants were well flowered for their size, but the energies of the plant would have been devoted to the formation of new leaves had the spikes been cut earlier. This is a common error with Orchid growers, but certainly a very dangerous, and often fatal one with delicate constitutioned plants. At the same time, however, it is a pardonable one, the flowers of Orchids being so exquisitely charming that one likes to retain them as long as possible. The chief kinds in bloom here just now are several excellent forms of *Schilleriana*, *Stuartiana*, *rosea*, *leucaspis* and *amabilis*.

ORCHIDS AT CHELTENHAM.

THERE has been a good display of Orchids in flower at Mr. Cypher's Queen's Road Nurseries for several weeks past, and many beautiful varieties are just now at their best; conspicuous among the latter is a fine pan of the Chatsworth variety of *Coelogyne cristata*, on which about 300 blooms are fully expanded. This variety is remarkable for the width and substance of the petals and sepals, and it also has a fine, bold, hirsute lip, a blotch of rich yellow in the throat being the only colour observable. The *Coelogyne*s generally, and of which there are many fine pans, are grown at the cool end of a *Cattleya* house and well syringed during hot weather. After the bulbs have finished swelling less water is needed, but enough is always given to prevent shrivelling. The plants are carefully watered just as the spikes are forming, as if water lodges on them at this stage much harm may result. They are principally grown in well-drained pans, a compost consisting of peat and *Sphagnum* being used, and the plants are not often disturbed. *Dendrobium bigibbum*, of which there are numerous exceptionally well-grown plants, is yet very attractive, one strong piece in a 4½-inch pan having as many as twelve fine spikes. This, I consider, may safely be termed the best midwinter Orchid in cultivation; the spikes of bloom freely produced are very elegant and showy, and retain their freshness in a warm house for many weeks. Mr. Cypher keeps them in surprisingly small perforated pans, and yet succeeds in growing the pseudo-bulbs to a length of 3 feet and proportionately stout. They receive good drainage and a compost of peat and *Sphagnum*. It is found they will not stand cool treatment at any time, but require to be suspended near the glass in strong heat, being well syringed during hot weather and freely exposed to a fair amount of sunshine.

DENDROBIUM AINSWORTHII, a hybrid obtained by crossing *D. nobile* with *D. heterocarpum*, must eventually become very popular; while still more beautiful is *D. Ainsworthii roseum*. This lovely variety appears to be as easily grown as either of its parents, and is very free flowering. For instance, one of Mr. Cypher's plants had last season only a small bulb 2 inches long. It first made a fresh growth in the spring 12 inches long, and then followed a double break, both of which are now 14 inches high, and one is bearing twenty-two flowers. This is in a 3½-inch perforated pan, this kind being found to thrive best when the roots are confined to quite small pots or pans. They are grown suspended near the glass in a rather strong heat, kept carefully watered and frequently syringed until the growths are matured, when they are suspended in a *Cattleya* house and kept dry until flower-buds show. In order to properly develop these the plants are returned to stronger heat, and carefully watered until the flowers are open. The blooms of both varieties are about the size of those of *D. nobile*, *D. Ainsworthii* having pearly white sepals and petals, the lip being blotched with a rich deep rose colour. *D. Ainsworthii roseum* has a broad and more richly coloured lip, and the sepals and petals are also tipped and tinged with rose.

DENDROBIUM NOBILE PULCHERRIMUM, of which Mr. Cypher also holds a good stock, is another charming variety; the sepals and petals of this

being white, tipped with rosy purple, and the lip yellowish white, with a rich rosy purple throat. It is now flowering alongside a capital lot of *D. nobile*, the plants receiving much the same treatment, with the slight difference that they are not rested in such cool quarters, an intermediate temperature better suiting them.

In addition to the foregoing, there are also several well-flowered plants of *D. heterocarpum*, *D. crassinode*, *D. Wardianum*, *D. Pierardi*, and *D. primulinum*. The best of the *Laelia anceps* are over, but the white variety, *Williamsi*, and *Laelia anceps Schröderæ* were still beautiful. *Cypripedium villosum aureum* is good, one plant carrying thirty-five blooms, and there are several grand plants of *C. insigne Maulei* and *C. insigne sylhetense*. In the East Indian house *Cypripedium Lowi* is flowering grandly, and with this the prettiest in the *C. barbatum* section, viz., *C. biflorum*. *Odontoglossum Roezli album* will soon be very beautiful, this class of plants being exceptionally well grown by Mr. Cypher, and a grand lot of *Cattleya Trianae* and *C. Skinneri* are just opening their blooms.

W. I.

Two rare Orchids, both of exceptional interest and beauty, are in flower in the Kew collection. They are *Sarcochilus Fitzgeraldi* and *S. usneoides*, the latter a native of India, while the former comes from Australia. *S. usneoides* is most peculiar in having no foliage, nor the rudiments of it, but develops an abnormal quantity of aerial roots, which, no doubt, do duty for true leaves. It is a little plant, grown in a basket, which is almost full of roots. The flower-spikes, produced from the crown or the point whence the roots spring, are about 3 inches high, and each carry about half a dozen flowers about the size of a fourpenny-piece. They have a yellow ground, heavily spotted with chocolate. There are numerous spikes on the plant, so that it is by no means inconspicuous. The other Orchid is less rare, and is, we believe, in commerce. It is in growth like a miniature *Vanda*, the thick leaves being in two rows. The growth is about 5 in. high and carries two spikes, each with about a dozen and a half flowers, about half an inch across. The sepals and petals are pure white, transversely marked with heavy bars of rich purple of various tints, and these colours, with a dash of yellow on the labellum, render it an extremely pretty plant. —W. G.

SHORT NOTES.—ORCHIDS.

Zygopetalum rostratum.—This is an old and well-known plant, although somewhat rare. It thrives well upon a stem of a Tree Fern, in which position I recently noted it flowering in Mr. Buchan's collection, where it is said to bloom two and three times a year. It loves a continuous supply of water and to be shaded from the sun, but, although a native of Demerara, it enjoys the heat of the East India house all the year round. The flowers are large, the chief point of attraction being the ovate lip, which is white, tinged with yellow behind the disc, the frill being of a dull purple. The flowers last several weeks in full beauty, and are said to be fragrant. —G.

Dendrobium Brymerianum.—I enclose for your inspection a bulb of *Dendrobium Brymerianum* with seed-pod attached. I have succeeded the last two years in flowering the plant, but could never get it to properly open. As soon as the colour of the petals was visible, they shrivelled and withered up, the seed-pod commencing at once to swell. The plant was well exposed to the light, and no insects at the time it was in flower came near it. I should be pleased if you could give me the reason of the flowers not expanding, also the cause of the fertilisation. —A. CHAPMAN.

* I have seen this occur upon several occasions, but chiefly upon the short-bulbed form of *D. Brymerianum*, which is a very poor variety. I imagine the flowers are deformed in some way, and that they fertilise themselves. —W. H. G.

Vanda Parishii Marriottiana.—This is a handsome dwarf *Vanda*, which still remains scarce in cultivation. It differs from the typical plant in the colour of its flowers, and also in being devoid of fragrance. The leaves are two-ranked and closely set; they are broadly strap-shaped and obtuse, thick and

fleshy in texture, and deep green. The scape is erect, bearing about six flowers, which are round and full, the sepals and petals being rich bronzy brown, suffused with magenta-purple; lip small and bright magenta. I recently observed this plant in Mr. Buchan's collection, Wilton House, Southampton, where it is treated as a basket plant and kept in a house in which other species of *Vandas* are grown. It is said to love shade. —G. H.

ARPOPHYLLUMS AT BURFORD LODGE.

This is a small genus of Mexican Orchids rarely met with in cultivation, and quite distinct both in growth and style of flowering to most of the other members of the Order. A fine specimen of *A. giganteum* used to form a conspicuous feature in the collection of the late Mr. Day, and Mr. Williams, of Holloway, used to exhibit a specimen of the same species bearing numbers of its erect cylindrical spikes of bloom. A short time since I noted two species growing in Sir Trevor Lawrence's collection at Dorking, one of which was flowering. I have only seen three species of this genus, and, as far as I am aware, these are all that have been introduced to cultivation, and all of them are rare. Another kind named *alpinum* is said "to grow wild on Mount Totanicapan, in Mexico, at an elevation of 10,000 feet, where it grows as an epiphyte upon the branches of the Mexican Alder, in a temperature too severe to allow Oak trees to exist." Here, then, is a clue to the proper treatment of the various species; they require the coolest treatment we can give them, such as that of a Masdevallia house, but at the same time as much light as possible. I have seen *Arpophyllums* grown in the *Cattleya* house, in which situation they succeed well enough, but they seldom flower, and hence they have obtained the reputation of being shy bloomers. When grown under cold treatment there does not appear to be any difficulty in blooming them regularly. *Arpophyllums* should be grown in pots, as they form graceful specimens and display their beauties in this way to the best advantage; the pots should be well drained and contain plenty of soil, as the plants make long and stout, fleshy roots. Rough fibrous peat intermixed with nodules of charcoal and broken potsherds is the best potting material. The stem-like growths proceed from a hard creeping rhizome, which should be kept upon the surface and not buried in the soil. *Arpophyllums* enjoy a fair supply of water when growing, and I think should never be allowed to get thoroughly dry.

A. SPICATUM.—This species is now flowering in Sir Trevor Lawrence's collection. It is a rare plant, and its native habitat proves that it requires cool treatment, as it grows in the forests of Oak and Pine about Oaxaca at an elevation of 8500 feet, and also in other parts of Mexico. The rhizome is hard and creeping, from which are produced slender stem-like pseudo-bulbs, which are some 6 inches high, and bear a solitary thick, hard leaf, which is narrow and about a foot long. The scape is terminal, bearing a dense cylindrical raceme about 6 inches long, composed of small rosy purple flowers, which last some two or three weeks in perfection.

A. GIGANTEUM.—This is the finest species in cultivation, and is also to be found in the collection at Burford Lodge, but was not flowering at the time of my visit. It is a much larger-growing plant than *A. spicatum*, and makes a noble and distinct appearance either in the Orchid house or on the exhibition table. The stem is a foot high, bearing a solitary hard and leathery leaf some 2 feet in length and about 2 inches in breadth, and curiously mottled with a deeper shade of green. The flowers are small, but so densely packed together as to produce a great show of colour, the sepals and petals being rosy lilac, and the lip deep purplish rose and fringed. It is a spring bloomer.

A. CARDINALE.—I have never seen this in any

English collection. The only plant I ever saw in flower was in the famous collection of Herr Consul Schiller at Ovelgönne, near Hamburg. It is a plant of noble port, and of about the same dimensions as the preceding. The flowers in this species, however, are of a light rose colour, and the lip is deep rosy red and not fringed. The flowers, moreover, do not appear until quite the end of spring or the beginning of summer. H. G.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the council was held on Tuesday, at which power was given to the president, Sir Trevor Lawrence, Bart., M.P., to sign the agreement for the occupation of the society's new premises at 111, Victoria Street, S.W., for offices, &c., and the Drill Hall of the London Scottish R.V. in James Street, Westminster, for exhibitions and shows, the society to enter into possession on March 25. Both premises are conveniently situated midway between Victoria and St. James's Park Stations on the Underground Railway. The council also drew up and adopted a scheme for the admission of Fellows paying £1 ls. subscription, and determined to admit as Associates *bonâ fide* gardeners or employés at any nursery, market garden, or seed establishment at a subscription of 10s. 6d. a year. The following committees were appointed:—

Finance.—Baron Schröder, Messrs. T. B. Haywood, E. G. Loder, H. J. Veitch, with the president; secretary (Rev. W. Wilks), and treasurer (Mr. D. Morris).

Chiswick Gardens.—Col. Beddome, Dr. Hogg, Mr. George Paul, Mr. Woodbridge, with the president, secretary, and treasurer.

For revising the bye-laws.—Messrs. T. B. Haywood, A. H. Smee, G. F. Wilson, with the president, secretary, and treasurer, coupled with a request that Messrs. Deal, Pearson, and Marshall, members of the Fellows' committee, would be kind enough to confer with them.

The trustees of the Lindley library had an interview with the council, and it was determined to remove their library to the society's new rooms at 111, Victoria Street, Westminster. The next meeting of the council is fixed for Tuesday, March 6.

Professor L. Baillie Balfour has been elected to the chair of botany in the Edinburgh University vacant through the death of Dr. A. Dickson.

Evergreen Clematis (*Clematis cirrhosa*).—Would any reader of THE GARDEN tell me where to obtain this plant? It has often been mentioned in your paper, and also illustrated, but I cannot obtain it from any grower I have sent to as yet. —O. S. S.

Gardeners, please copy.—Another old friend has been re-christened at Kew. The well-known New Zealand Palm, *Areca sapida* (an easy name to remember and pronounce), has been labelled *Rhopalostylis sapida*. *A. Baueri* enjoys the same name. —X.

Sulphide of potassium.—Some time ago I ordered the above from three different firms, and each have sent me (so far as appearance goes) a different article. No. 1 consists of a dark substance in a bottle; No. 2, a white powder; No. 3, something like small lumps of soda. Would any reader kindly say if these are one and the same thing, and how to use this insecticide for the destruction of spider?—FIX.

Names of plants.—In cardboard box.—*Lonicera* sp.—*McKenna*.—*Acacia dealbata*.—*Dr. Paterson*.—*Oncidium heteranthum*.—*F. Potter*.—*Dendrobium speciosum*.—*Twelve Years' Subscriber*.—*Arisæma* species, spathe too shrivelled.—*F. King*.—1, *Thuja Lobbi (gigantea)*; 2, *Abies ajanensis*; 3, not recognised; 4, *Cupressus nukaensis*; 5, *Cedrus atlantica* or *Libani*; 6, *Cupressus Lawsoniana* var.; 7, *Fuchsia procumbens*. Coning branches should in all cases be sent, if possible, with specimens for name.

Names of fruit.—*Subscriber*.—Your other specimens were too much bruised for identification. Send specimens (not more than four at a time) when the trees again bear fruit.—*W. Boulton*.—Apples: 4, King of the Pippins; others next week.

WOODS & FORESTS.

SELLING STANDING TIMBER.

VAST quantities of timber are being sold on estates at the present time—in most cases a great deal more than is being put back in the shape of young plantations—and, whether sold by auction or private bargain, very unequal prices are realised, according to the method of setting out the lots and general arrangements and conditions of the sale. If the lots are judiciously set out and offered, and the auctioneer who is employed knows his business and gets a good attendance, fair prices are obtained as a rule, but much depends on these things. At present prices are very low, and have been so for years, and I am sure anything tending to promote better prices and better trade will be welcomed by owners of woods, in whose hands, to a great extent, the matter rests.

I am of opinion that the most profitable way of selling timber is to sell it standing; and, provided it be first valued in a fairly accurate manner, there need never be any difficulty. You may get a price for the exact quantity of feet measured when the timber is felled and lotted, but my experience is that you have greater difficulty in getting a better price for such timber than you could have got for it standing, and the expense of felling and lotting is always considerable. In selling standing timber of much value, however, I consider the practice of setting out the trees in large lots, good, bad, and indifferent together, a bad one, although it is generally adopted. I observe in mostly all the large sales that come under my notice that the lots are usually in proportion to the size of the wood, one lot perhaps comprising the whole. In one sale lately over 10,000 trees were sold in a few lots, to as few purchasers, because only few could offer for such large lots; and at the present time I see even larger quantities advertised in the same way. The common plan is to make one "lot" of all the trees in a wood—large and small, good and bad, and sell them in that way. No doubt the forester or agent has appraised the value of the different sizes and qualities in the lot, but if secrets were revealed it would be found that the difference between the valuation and the realisation was very great, not to say unaccountable, except in one way. When the lots are large and mixed, as I have described, only the few wealthy buyers can offer. It is only the good stuff that attracts them—the large Oak and Ash, perhaps; all the rest they have little or no use for probably, or, at least, would rather be without it, and offer correspondingly little for it. Instead of the good helping to sell the bad they really kill one another, and depreciate the total value of the lot, and loss is sustained by the vendor. How is this to be avoided? it may well be asked, seeing, as no doubt many foresters think, you cannot have two, or three, or more lots mixed when the timber with "top, lop, bark" are sold together. My answer is that this has been done, however, and with the very best results. About three weeks ago a sale of between 20,000 feet and 30,000 feet of good and middling Oak timber was advertised, and as I knew the owner had employed a competent London auctioneer to come down and set the lots out (discarding all local assistance with a view to breaking the ring of local buyers and getting better prices for his timber), I determined to value the lots myself and attend the sale. The number of trees, mostly large, amounted to about 600, and they were set out in fifteen lots. The biggest lot included about

eighty trees, and the least seventeen. All the lots were set out according to the size and quality of the trees, and quite irrespective of their position.

The trees were not numbered consecutively in the usual way, but the first lot was marked 1 in white paint on every tree in the lot. The next lot were all marked 2, the next 3, and so on, while the lots were mixed promiscuously, so that the trees of perhaps three different purchasers would all be together on the same ground. Seventeen trees averaged each about 80 feet, forty averaged over 50 feet; one lot consisted of dead trees exclusively, another of smaller and rougher trees, and so on, to the end. The sale was widely advertised by the auctioneer, who is extensively acquainted with purchasers, and there was a good attendance, with the result that some of the best lots passed out of the hands of local buyers the first time for years, going from Yorkshire to Suffolk and to other neighbouring counties, while the prices were the highest that have been realised for some years, the best Oak being sold at about 1s. 9d. per foot, and the remainder at figures between that and 1s. 6d., the lots being four miles from the nearest station. These are not such prices as prime Oak used to fetch generally, but they are a great advance on prices that have been obtained in Yorkshire for some years, and created quite a commotion among local vendors and purchasers, the latter resenting the idea of strangers coming into their preserves. Purchasers may talk as they like, but if the fact that at the same sales the same set of purchasers put in an appearance year after year and buy the same lots, while others stay as conscientiously away, while as regularly monopolising the bidding on perhaps the next estate, does not indicate a species of boycotting and a tacit understanding amongst themselves, I do not know what it does mean. The moral to be derived from experience of this kind is that vendors should first sort their timber out carefully according to quality, to suit the wants of buyers of all degrees great and small, and so ensure a good attendance at the sale or plenty of tenders. There are small timber "jobbers" in all localities, and it is neither fair to the trade to exclude them by putting the lots beyond their reach by making them too large, nor advantageous to the vendor. The small lot system is the only way to gauge the market value of the different kinds and qualities of timber.

Yorkshire.

FORESTER.

THE BEAUTY AND USE OF THE SILVER FIR.

CONSIDERING these two merits of this fine tree, it is really astonishing that it is not more generally cultivated. It is also one of the fastest-growing trees that we have, and it continues to add to its girth when most other trees have ceased to increase in size. Unlike the common or other Spruces, it also makes a clean bole almost wholly free from knots, especially where it has been grown fairly closely together in groups or plantations. For specimens, groups, or avenues, its ornamental merits are quite equal to those of the Douglas Fir. It withstands most of the contingencies of our climate, as, unlike some other Silver Firs, notably the Cephalonian, it is not prone to start so early in the spring as to have its shoots destroyed by late frosts. It will grow on almost any soil, and I have met with it in robust health on the driest and poorest, and also on rich soil, and so moist as to approach to that of a swamp. The latter, however, has been in some of the most arid parts of England, and doubtless Mr. M'Corquodale—the very learned and experienced head forester of the Earl of Mansfield, Scone Palace, Scotland, than whom there is no higher authority—is right

in recommending it to be planted in Scotland on dryish soil. Some of the noblest trees ever seen by the writer are growing also on lightish soil at Gunton Park, Norfolk. Concerning these, your all too infrequent contributor, Mr. W. Allan, may have something to say as to their age and size.

It is pleasing to be assured on Mr. M'Corquodale's authority that the Silver Fir, so long admired for its beauty and grandeur in landscapes, furnishes timber of greater durability than foreign deal or home-grown Larch. Possibly, as Mr. M'Corquodale's experience of the Douglas Fir becomes more extensive, he will furnish the public with tests of the comparative durability of the timber of the Douglas and Silver Firs, as doubtless they are at once the finest, cleanest, and fastest-growing of all our Spruces.

It has been too readily taken for granted that the relative softness and absence of resin in Silver Fir as contrasted with Pines, and even the common Spruce, told against its durability. The interesting tests of railway sleepers recorded in THE GARDEN, Feb. 11 (p. 134), prove the contrary. It would be interesting if the age of the wood of the Silver Fir subjected to these tests could be given, as probably the older the wood the more durable it might prove.

Those about to plant light lands could hardly do better than try the Silver and Douglas Firs as a permanent crop, placing them from 10 feet to 15 feet asunder, filling in with common Laurel, Spruce, or Scotch Fir a yard apart as nurses. Now that we are assured on such high authority of the good qualities and durable character of Silver Fir, and may probably reckon that the Douglas Spruce will prove equally so, there can be little risk of loss in such experiments. Should either tree fail to thrive, the nurses may be selected for a permanent crop and the Spruces cleared off. The only extra cost would then be in the enhanced price of the Spruces. But should the Silver and Douglas Firs do well, the gain might prove very substantial and a handsome profit be realised.

CALEDONICUS.

PLANTING BOG GROUND.

PLANTING and improving waste land in Great Britain and Ireland are subjects that require to be kept well to the front, as they are not only of importance to landed proprietors, but also to the community at large. Government seems wisely imbued with a desire to act upon these lines, and we trust that the report of the late commission, recommending the planting of barren ground in the West Highlands of Scotland and Ireland will not be lost sight of. I see that the Royal Commission on Irish Arterial Drainage and other Public Works, which has been taking evidence in that country during the past year, has now concluded its labours. It appears the report is now printed and will be laid before Parliament without delay. The draining of barren and bog land and planting should be carried on at the same time, or nearly so, especially in a country like Ireland, where the extension of plantations is so much needed. In the case, however, of peat bog land, such ground should be drained and allowed time to subside and become somewhat dry before planting operations are commenced. This refers principally to Moss of a rank fibrous texture and brown colour that has undergone no great changes. Such ground naturally attracts and retains water like a sponge, and until this superfluous moisture is got rid of, decomposition is retarded, and the Moss kept in a state incapable of supplying food for trees. This brown fibrous Moss is always found at the surface, and the black firm Moss underneath. It is always on the latter, and where the top land had been cut away for fuel or other purposes where I have found the best timber trees. It will, therefore, be seen that it is an advantage to get rid of a portion of the rank Moss at the top before planting operations are commenced, and owners of such land should not be slow to take advantage of every facility within their reach to turn such to account, and as a preliminary step in preparing the ground for planting. In connection with this subject I may remark that of late there has sprung up a considerable trade between this country and Germany

for Moss litter, or bedding for horses and cattle. The Moss is dried and manufactured in the latter country and packed into hampers, when it is then sent off, not only to England and Scotland, but actually to Ireland, where there is almost any amount of first-class fibrous Moss suitable for the same purpose. I think we are rather wanting in energy and enterprise to allow such a fertile source of income to lie dormant when we can supply our own wants without the assistance of the foreigner. We have abundant proofs on every side that new methods and altered systems are rapidly supplanting the old, and if we are to compete successfully with the foreigner in the production of timber, or any other commodity, we must act accordingly.

In carrying out arterial drainage in marshy ground the clay raised from the bottom of the drains should be mixed with the Moss in the places where the trees are to be planted, this being the more necessary in cases where the Moss has never been cut over, and where the surface consists of a light fibrous texture. By mixing a little clay with the Moss, solidity is added, and the ground is rendered more fertile. I have used clay extensively for this purpose, and although it entails extra expense at the time of planting, yet the superior growth of the trees thus treated warrants me in using the clay, more especially when it can be had in the immediate vicinity of the plantation. In some parts of Ireland as well as other countries there is a variety of clay to be found of a pale yellow character and containing iron. It is soft and plastic to the touch, having a strong resemblance to putty, and being of little use as plant food should not be used. The best clay for mixing with the Moss is generally of a brown colour, feels greasy to the touch after a shower of rain, and by exposure to frost breaks down like a piece of lime. In planting this class of ground my practice is to open the pits for the plants during autumn or winter, when the clay is then brought and a shovelful left on the surface of the ground at each pit. The stuff excavated as well as the clay is then allowed to lie exposed to the weather till March or April, when planting is commenced. In performing this operation the planter mixes the clay and Moss, fills the hole about half full with the stuff thus prepared; a boy then places the plant in the centre and spreads out the roots to their full length in all directions, the planter placing the remaining stuff over the roots and treading the ground firmly. Care should be taken, especially in Moss planting, not to insert the plants too deeply. Nothing but the hardiest species of trees should be planted on this class of ground. The Scotch Fir and the common Spruce are both very suitable, and may be planted at a distance apart of from 3 feet to 4 feet. In many cases I have likewise planted a mixture of Larch with the above, in the proportion of one Larch to every two Pines or Spruces. Although the Larch does not form timber of a large size on rank Moss, yet it attains a useful size, and is largely used in both town and country, and therefore gives a good return. The Larch should never be planted on this class of ground by itself, even although it gives the quickest and best return, as it requires the Pine for a nurse to afford shelter. In cases where the trees are to be grown as spars and where no thinning is to be practised, the trees should be planted 6 feet apart, this being ample space for growing this class of timber with advantage and profit. Long, clean, drawn-up spars with little taper are used in quantity for mining and a variety of other purposes, and generally command a ready sale at fairly remunerative prices; in fact, I have never been able to supply the demand for this class of timber, thus inducing me to recommend the extension of its culture, more especially as it can be grown to a proper size on the poorest class of soil. This exceptionally dry season has been very favourable for preparing marsh ground for planting.

J. B. WEBSTER.

Pruning Fir trees.—The best way to remove the long bolt-like insertions which the dead branches of Fir trees leave upon their trunks is to select a

frosty day early in the winter, and go through the plantations armed with a short stout bludgeon, first gently loosening the stumps of these dead branches, and afterwards dealing them a sharp blow sufficient to break them off inside the bole, when they can be easily withdrawn. But when the lower branches are dying back, and decay has not yet reached the trunk, they may be pruned off close in the same way as hard-wooded trees. As the branches of these trees grow in whorls or tiers, the weakness arising from dead or cork knots being more concentrated or localised than in hard-wooded trees, it becomes the more necessary to attend to the early removal of dying branches, so that as the trees increase in diameter the wounds may heal over, and the continuity of the grain be restored.—B.

FORMING NEW PLANTATIONS.

MANY practical foresters are now of opinion that in forming new plantations the old system of planting a mixture of several kinds of trees on the same ground, in the hope that if one fails another will succeed, ought to be abandoned, and that each variety of soil, aspect, and exposure should be planted with the kind of tree it is most likely to produce in the greatest perfection. Much can be said in support of this opinion, and no doubt it is a safe one to follow, provided we can with any certainty predict which tree will grow best on each kind of soil, but such predictions are sometimes most disappointing and disastrous in their results, and too often prove the necessity of entrusting the formation of plantations only to those who have a thorough practical knowledge of the subject, and who will carefully investigate every circumstance likely to affect their calculations. But even were we satisfied which kind of tree is most likely to flourish on the ground, the system of planting with that tree alone may be carried too far.

For instance, in districts where little or no demand exists for the early thinnings of an Oak plantation, but where a market is likely at all times to be found for good-sized Oak, it would certainly be unwise to plant the ground most suitable for growing Oak with Oak alone. Oak is slow in its growth, and some other kinds of wood of faster growth, the early thinnings of which would be more valuable, might be mixed with it. In such a case the Oak trees might be planted 18 feet apart, with an Ash between each two, and the ground filled up with Larch to 3 feet apart, which would make two Larches between each Oak and Ash tree. The Larch would be gradually thinned out at such times and in such a way as would best encourage the proper growth and development of the hardwood, and more especially of the Oak. That cut at the first thinning would make stakes for sheep nets, which, in arable districts where Turnips are eaten off by sheep, are always in demand at about 15s. per 100, or if in the Hop country it would make Hop poles. That cut at the second and third thinnings would be suitable for fencing, coal-pit, and other purposes, and would be much more valuable than hard-wood of the same age.

After thinning out all the Larch, the hard-wooded trees, viz., the Oak and Ash, would be left in equal numbers at 9 feet apart, and before the Oak required to be relieved of the Ash the latter would be of a suitable size for shaft-wood, for which there is generally a good demand in most districts. When all the Ash has been thinned out, the Oak would be of sufficient size to admit of the plantation being pastured by sheep or cattle without much risk of their doing it damage, and as it is gradually cleared off the ground the pasture would every year become of more value; in fact, the fertility of the land would be improved by the crop of timber taken off it, and the pasture would be much better after the removal of the timber than it could have been made before the land was planted. On land suitable for growing good Oak, and situated in England or the Lowlands of Scotland, such a system of making permanent pasture succeed timber would, in all probability, be more profitable than the French one of natural reproduction.

Where, again, we find ground best adapted for growing Scotch Pine it would not be advisable to plant that ground with Scotch Pine alone, the early and immature thinnings of which would in some districts not be worth the labour of drawing them out of the plantation. Nearly all ground that will grow Scotch Pine to maturity will grow Larch for a certain period, and wherever Scotch Pine has to be the permanent crop, Larch, the young trees of which are of more value, should be mixed with it to come out in the early thinnings. X. Y.

Influence of soil on trees.—In plantations intended mainly for profit, grouping according to soil and situation will be found the surest method. It is often asserted that the finest Oak, Ash, Elm, and Beech are to be seen as single specimens in the midst of, or upon the margins of, other plantations. But wherever such an instance occurs the particular tree is generally upon its own soil, and is found to be flourishing at the expense of all around it. An Oak in a deep loamy soil resting upon clay; an Ash or an Elm in loamy gravel; a Beech upon a calcareous gravel resting upon a bed of chalk; a Scotch Pine at a considerable elevation, and in a gravelly soil which affords it complete drainage; a Horse Chestnut in a deep loam, with a dry bottom; a Mountain Ash in a high situation where it meets with light sandy land; a Birch in a light black loam with a gravelly substratum; and a Spanish Chestnut in a dry loamy soil upon gravel, afford at once the finest specimen trees and the most serviceable timber.—B.

Heart-rot or dry-rot in Larch.—The outward indications of fully-established heart-rot are the tree becoming perceptibly thickened about 2 feet from its base; the bark of both stem and branches assuming an unhealthy, dried, and more or less Moss or Lichen-covered appearance, the length and abundance of such covering being in proportion to the atmospheric dampness of the situation; and the stunted, decreasing growth of the annual shoots and foliage till the tree first becomes partly, and then ultimately wholly dead. When cut down the internal appearances are, first unhealthy, darkish discolorations of portions of the red or heart-wood, which spread and change to dry rotteness, followed by the heart of the tree becoming hollow and finally decaying; the decrease in the width of the annual wood-layers being proportionate to the increase of rotteness, till arrested by death. These symptoms occur at all ages, but are most frequent between ten and thirty-five to forty years, and are attributable to occasional droughts, as well as to occasional over-saturation, to fungoid attacks on the roots, such as emanate from decaying remains in ground previously occupied by Scotch Fir, and to lopping or otherwise destroying the roots; in fact, to anything that thoroughly checks or materially weakens the root action. The correctness of these remarks being assumed, it follows that the only prevention of dry-rot is to avoid planting Larch in places likely to produce it. The only remedial measures that can be adopted—for cure there is none—are cutting down the trees when the disease first appears, and re-planting the ground with other more suitable kinds.—G.

Hazel catkins.—Few prettier sights are to be seen in early spring than good specimens of the Hazel when laden with male catkins. The weeping variety is remarkably effective; and a Hazel that is worthy the attention of planters is the Constantinople Hazel (*Corylus Columna*), which is of tree-like habit, and bears catkins longer than those of the common kind. They are quite as numerous as those of the ordinary Hazel, and a fair-sized tree when laden with them is admired by everyone. When it is in fruit, the peculiarly cut-and-slashed calyx with which the nut is almost covered is very different from that of the common kind.—T.

Planting on the notch system.—Would any reader explain how planting on the notch principle is carried out? I should be very grateful to know a little about this plan.—Fix.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

COPYRIGHT OF SEEDLING FRUITS.

MR. T. F. RIVERS makes me two-fold his debtor by the courteous way in which he reminds me of an omission, which I beg to assure him was an oversight, when recommending his new Plums, the Czar and the Sultan, for extensive planting. The fact is, I was intent upon making a selection of varieties for a special purpose, and knowing that we have but one Czar, one Sultan, and one Rivers, it did not occur to me that the omission—I cannot accept "withholding"—of the raiser's name might be considered a slight or an injustice. If Mr. Rivers will take the trouble to turn to back pages, he will find that I am not given to touting, neither do I pass fruits or their raisers lightly when I meet with anything really worthy of notice. Also he will find that Early and Late Rivers, as well as his late father's methods of growing them, have come in for a share of my approval. In this case (p. 146), the two Plums having been so lately exhibited and advertised, I really thought everyone who reads knew as well as I do that they originated at Sawbridgeworth. With these remarks I trust Mr. Rivers will be satisfied, as no one less willingly than myself would do him or any other member of the trade an injustice. As to copyright in new fruits, I do not consider myself competent or called upon to express an opinion. Indeed, to me, the idea is as new as it is novel, and at first sight appears to be one expressly for the consideration of the trade, but whether it will ever gain favour with horticulturists or pomologists generally is extremely doubtful. In years anterior to the repeal of the Corn Laws, it is just possible that a government might have succeeded in tackling the nurseryman's apparent interest upon some other bill, but surely the raiser of new fruits and new plants, who can manufacture to any extent and then charge his own price, is better without this grandmotherly protection. Horticulturists of all classes, when the fever is on, are ready and willing to pay high prices for fruits and plants which do not always come up to their expectations; but once in their possession, in accordance with the custom handed down from Adam, they immediately commence multiplying them by propagation. If Mr. Rivers or any other nurseryman feel disposed to fill half a county with any new fruits before they commence sending out, there is no law to prevent them; neither, provided it is good, will the British fruit grower refuse to pay copyright prices; but once fetter free and open trade, the masses will learn to dispense with novelties, and the trade will be the first to complain, as they are now doing, of *Phylloxera* laws so stupidly put in force on the Continent.—W. COLEMAN.

— Mr. Rivers, at p. 146, has touched upon one of the most urgent matters in connection with the raising of all kinds of new plants, fruits, and vegetables. As it is, the raiser has no rights whatever in his productions after he sells them, for, as I imagine, he cannot register nor secure a patent for the raising of new fruit as one may in mechanical inventions. As it is, a man may spend half his lifetime in hybridising, and then the produce of his brain is a harvest not securely his own. He is in a far worse position than the author, the painter, or even the photographer, all of whom have some aid from the law in the matter of copyright. In a word, there is no protection extended to the raisers and introducers of new plants, so that, as Parkinson expresses it, the hybridiser may "beat the bush, while another catcheth and eateth the bird." I consider that Mr. Rivers has ventilated what is a real and substantial grievance to himself and many other nurserymen, and not a few of those amateurs who raise new fruits, flowers, and vegetables. To originate such a fine Orchid as *Cattleya exoniensis* or *Calanthe Veitchii*, such a fine fruit as Cox's Orange Pippin Apple, or such a vegetable as Ne Plus Ultra Pea, is to confer as great a benefit upon mankind as to write a book or to paint a picture. Yet here we have the anomaly of the one being totally unprotected after it is published or "sent out," while the book and the picture are protected by law during the author's lifetime and for some time afterwards. In the case of such slow-growing and not very easily propagated plants like most seedling Orchids the existing state of things may not so much matter; but in the case of quick-growing plants, easy of increase, the reverse is the case. Take Cox's Orange Pippin Apple, for example. This noble fruit is perhaps the best and most popular Apple raised in England during recent years, more valuable than most books and pictures; and [such a fruit would have been a small fortune to its raiser if his production could have been secured to him by a system of registration or copyright, as in the case of any mere mechanical invention. It seems to me high time that the Legislature should secure to the raiser of new plants the enjoyment and profit of his productions. As it is, if a new fruit is raised and the raiser sells a single plant from his stock, anyone may propagate and sell that variety without let or hindrance in any way. It ought not to be so very difficult to frame a short bill meeting the case of those who raise and send out new plants, just as has been done on behalf of the writers and publishers of new books. Or the difficulties and drawbacks of which Mr. Rivers complains might be met and obviated by some simple plan of registration, or by a form of patent to be granted to the raisers of new plants. As matters are at present, nurserymen are obliged to preserve their new products by a system of secrecy more suggestive of smuggling than of open, free, and honourable methods of business, and the sooner due protection is obtained the better.—F. W. BURBRIDGE.

— Whilst everyone must feel sympathy with Mr. Rivers in his complaint that the raisers of good fruits, &c., by the general dropping of their names when these fruits are mentioned, get none of the posthumous honours to which they are entitled, yet he fails to make it clear in what way any copyright in nomenclature would give him pecuniary profit. In the case of literary or musical copyrights, no one can publish, and thus make profit out of the article copyrighted, without the author's or composer's consent. But in the case of fruits, for instance, when Mr. Rivers disposes of a portion of his stock of one of his new things to any other trader, under no circumstances can he claim any royalty upon the sales made by the trader, who, in purchasing the stock originally from Mr. Rivers at the vendor's own price, acquires absolute right to dispose of that or what he can produce from it as he may think fit, and without further responsibility to the raiser. Even if it were a part of the original conditions of sale that the prefix "Rivers" should be always used in naming such fruits, it would not bind any second purchaser, and certainly in no case pecuniarily benefit Mr. Rivers. That it would, if universally adopted, give honour where honour was due no one

can doubt, and all may desire. I am constrained to say, however, that in this busy age the chief reason why prefixes of this kind are dropped is that they take time to write, and time in the very plentiful and now far too verbose nomenclature found in plants, fruits, vegetables, &c., is a matter of the greatest moment. I have raised fine Potatoes, but not one grower in fifty perchance knows who is the raiser, and the same may be said of Peas and myriads of other things. I venture to hope that Mr. Rivers, whose great practical knowledge we, by the way, too seldom see manifested in print, will kindly make his grievance more clear, and especially show in what way copyright in fruit-naming can be made pecuniarily profitable after stock has passed out of his hands.—A. D.

FRUIT GARDEN.

W. COLEMAN.

MODERN PLANTING AND TRAINING.

THE interesting and instructive discussion now going on in THE GARDEN will doubtless lead to the extensive planting of fruit trees, especially of Apples and Pears. Many already are preparing their ground, and, in order to save a season, will select some of the standard varieties so repeatedly recommended for planting as soon as the weather breaks. Others, lacking confidence and experience, will await the editor's decision as to sorts; but then their path will not be quite clear, as they will have to determine for themselves the best and most suitable form of tree for their soil and situation. For orchard planting upon grass or tillage land, the only form is the full standard Apple on the Crab and Pear on the Quince; but many of the best varieties of Pears and a few of Apples being too tender for standard culture, a safer and quicker mode must be thought of. Standard trees of Cox's Orange Pippin, one of our best Apples, Doyenné du Comice and Winter Nelis Pears may do very well in the south and west, but these are small districts in which the favoured residents cannot go far wrong. In the midlands nearly all the leading varieties will do as pyramids and bushes, the best and most convenient of all forms, whilst further north and upon cold soils generally the same sorts will require the assistance of south or west walls to carry their fruit to maturity. As all cannot grow the very best sorts, although no one will blame them for trying on a small scale, their selection must be regulated by the mean temperature, shelter, and soil of the district; and here it may be well to say, better plant the hardiest and best Apples and Pears, especially late keepers, than rush into choice and tender varieties which require the shelter of a garden, if not a wall, in warmer localities. If the anxious planter is ready and willing to break up new ground of the most suitable quality and in a sheltered situation, the class of trees I should then advise him to plant are the pyramid and bush forms of Pear on the Quince and Apple on the English Paradise stocks. As these grow moderately, and soon become marvels of fertility, a small piece of ground, well drained and trenched, will grow a great number of trees for many years before they become crowded, and then, provided they have been once root-lifted, the mass of fibres found close at home will ensure the removal of every alternate tree, or every other row to fresh quarters with perfect safety, and most likely without sacrificing a crop of fruit.

Pyramidal Apples and Pears on these stocks may be planted 8 feet apart in the rows and 4 feet from the edgings, bushes a foot or so closer, but nothing is gained by overcrowding, and believing, as I do, that these stocks do not

require lifting a second time, I prefer a free growth which furnishes with flower-buds as it goes, liberal thinning in preference to hard spur-pruning and shortening, and transplanting when more room is absolutely necessary. As the ground must be kept clean and well cultivated, crops of Strawberries or dwarf-growing vegetables may be planted in lines between the rows of trees, but not too close, as the soil about the roots cannot be too solid, provided it is well filled with roots, mulched, and watered in dry weather. The cost of furnished trees for this kind of planting, unfortunately, in this country is heavy, otherwise I should advise the amateur to obtain well-formed pyramids and bushes not less than two nor more than three years from the bud or graft. Under any circumstances he should obtain a few not only for a start, but also as patterns, as much care and skill must be brought to bear upon the training and manipulation of maidens.

PRUNING AND TRAINING.

If pyramids from a well-managed nursery are planted in the autumn, the little pruning they may require should be deferred until the buds commence swelling in the spring, when any shoots that are unnecessarily long must be shortened back to maintain the proper form and induce more breaks if needed nearer home. From this time until the end of June, beyond mulching and watering, the trees must be left alone, all the growth they make being needed for the encouragement of the roots just finding their way into the new compost. From the end of June to the end of July each tree should be looked over occasionally, and if any of the side shoots, especially those near the top, are taking the lead, they must be pinched to throw strength into those near the base; the leader also should be checked when it has made a clear foot of growth. Early in the autumn, that is immediately after the leaves have fallen, the leader must be shortened to a sound bud just below the point at which it was pinched, and side growths in like manner to get rid of second breaks that may not be properly ripened. But there will be many very short growths not more than a few inches in length, and as most of these will have terminated with a flower-bud, they must be left intact unless several shoots at that particular place are wanted to fill up a weak part of the tree. As most of the Apples and many of the Pears will bear fruit the second year after planting, they must be cleansed with soap and water, staked (if necessary) to keep the leaders upright, and wayward side shoots drawn into the course they should take with threads of twine or matting. Some trainers shorten each shoot to half its length, but, furnishing so abundantly as these trees do, I prefer allowing them more freedom until they have attained a large size, when heavy cropping and ordinary thinning will keep them in condition and within bounds for a great number of years.

If birds are troublesome, the Pear buds must be watched and protected; otherwise they will soon spoil the crop. Thin twine drawn backwards and forwards over the trees has been recommended for deterring birds, but the bullfinch fears no foe—sees no danger when the dainty buds upon his favourite trees are in condition. When the fruit is set and swelling freely, thinning must not be neglected, as these fertile trees are often crippled past recovery long before they get thoroughly established. Although a full crop of fruit produces a most decided check upon the growth of the young wood, it does not balance the flow of sap; therefore, towards the end of June it will be necessary to pinch the points of all the prominent shoots,

weak ones being allowed to go as far as they can extend in every direction. Winter pruning will then be simply reduced to thinning out crowded and faulty shoots, also old spurs; otherwise, no matter how well they are fed, the trees will become exhausted by over-cropping.

CORDONS.

The grower who has garden walls proper, gables, and outbuildings, if only a few feet in height, should indulge in these toys which have brought a derisive smile into the face of many a sage and filled many a basket with as fine Apples and Pears as have yet been grown in England. With the orthodox lists now in course of formation, all readers will soon be able to select for themselves; therefore, whilst reminding the amateur that Pears of the highest class require and deserve a south or west wall, the majority will do fairly, if not equally, well upon borders within reach of the wall's sheltering and heat-absorbing influence. Given a warm, sunny bank or border well sheltered from wind by hedge or wall, the wall itself might be furnished with one or more sorts like Bergamotte d'Esperen, Easter Beurré, or the old Brown Beurré—first-rate varieties which require an abundance of conserved heat; whilst Winter Nelis and Josephine de Malines would do equally well on wires running in parallel lines 3 feet apart, and not less than 2 feet from the ground. Upon this principle a south or west wall, say 10 feet in height, with border in front 10 feet in width, might be furnished—the first with varieties requiring most heat, the border with three, if not four, lines of horizontal cordons. Single or double vertical cordons for furnishing walls can be obtained, and so can double or single horizontals, but maidens do not run so fast into money, and the majority of experienced planters prefer them. Autumn is the best time to plant, but I have planted as late as the end of March, and the trees have not suffered. The trees in the spring should be cut back to within 2 feet of the working for upright cordons, and to a little below the wires for horizontal training. In the latter case the growths from the two top buds can be trained at will, and there will be no bursting or checking of the sap vessels, as often happens when older and more costly trees are planted upright and bent down to a horizontal position. The loss of a year is a saving in money, and trees so formed with plenty of established roots beneath them soon redeem the time and push free leaders where the bent trees become too fertile and stunted. Beyond pinching any side shoots taking an immoderate share of sap or robbing the base buds, growth should be unrestricted until July, when simply stopping the points will induce a few flower-buds on the main stems without checking the roots, as yet barely established. Pruning back to two or three eyes in the autumn will convert these buds into small spurs the following season. The main object being one continuous cord of spurs, all robbers in the form of gross side shoots should be pinched, but beyond this keeping of the sap in the proper channel, the less these trees are deprived of their leaves during active growth the better. Old fruit growers know how the strongest fan-trained Peach tree can be reduced to weakness by incessant pinching or defoliating. Bunglers have put the same screw upon cordons, not when too strong, but when too weak and struggling to gain foothold. Thousands of innocents in this way have been murdered; hence the outcry against the toy system.

Damsons and Bullaces.—I agree with "J.G.'s" appeal in THE GARDEN, Feb. 25 (p. 173), for more of the former; but as for the latter—well, almost as

well go back to Sloes, which are hardly more acid and acrid. Besides, there is such an enormous percentage of stone. But Damsons are delightful for tarts, puddings, jams, and also for eating when dead ripe. But as to Damsons, how is it that their flavour and even their size are superior in the north to what they are in the south, west, or east? I have never tasted Damsons really worth eating out of Scotland. They never reach this high standard till dead ripe, and then I have found them equal, if not superior, to many Plums. Fences and breakwinds of Damsons are charming ideas in theory, but sadly marred in practice through the boys and the birds. The birds come first, and make great raids on the buds, often leaving no fruit for the boys and other bigger pickers and stealers of ripe Damsons. Some years ago I planted an avenue of Plums on one side and Damsons on the other to furnish a road through a wood. But the birds and the boys have proved almost fatal to their beauty and profit. Last year strenuous efforts were made to put down the bullfinches and chaffinches, with the result that we had a magnificent show of blossom, which set a good crop that, notwithstanding a few boy raids, yielded a valuable supply of fruit. But what may be called the semi-wild culture of common Plums, Damsons, Bullaces in hedgerows, woods, plantations, is sadly hindered by the two foes to success here named. Have any readers of THE GARDEN experience of Sloe decoys to draw off the birds from Damsons and other superior fruits? or does the increased supply of buds create an increased demand for and supply of birds to consume them? Where Sloes abounded, we seldom had our Plum buds showered off as in our present locality, where Sloe bushes are few and far between. —HORTUS.

PLANTING FRUIT TREES.

"Is it too late to plant fruit trees?" I was asked a few days ago, and my reply was, "No, if it is not deferred later than the end of the present month." I do not mean that fruit trees cannot be planted with safety after that time, but the month of March is often a very drying time, and newly-planted fruit trees must be mulched and kept watered if they are to live through the summer. I am strongly in favour of autumn planting for this reason. Then, who can over-estimate the value of a vigorous start in the case of fruit trees, and this cannot be looked for unless the roots have a good hold upon the soil. It is not enough that a newly-planted fruit tree should develop only sufficient leaves to carry on the operations of life the first season after planting, as in such an enfeebled condition the bark becomes bound, and unless extra attention is given, such trees will not attain to a proper condition for some time afterwards.

Fruit trees are sometimes badly treated when they are received from the nursery and before they are planted. I have known a quantity of trees laid on one side in consequence of frost having set in between the time they were despatched and received. They were placed against a building, and some rough litter put over the roots. The spell of frost lasted some time, and when the thaw came and they could be planted, a great many of the fibrous roots were destroyed. Had they been placed under cover, some damp litter placed about the roots, and then covered up with straw, mats, &c., so that the frost could not have reached them, they would have succeeded much better than they ultimately did. The sooner trees and shrubs of all kinds are planted after they are received from the nursery the better, and if a short interval does occur, as a matter of precaution it is not difficult to dispose of them as above recommended.

Deep planting is an evil to be avoided. Some persons appear to interpret a direction to place trees "well in the ground" to mean placing them at a much greater depth than is actually required. Instead of planting the trees 6 inches to 9 inches below the surface, as I saw done a few days ago, the roots should be almost placed on the ground. After opening the soil and removing a little of the surface, the roots should be carefully spread out to

their full extent and some nice light soil laid over them, some of that removed returned, and the surface well trodden down. A young tree will far quicker become established if planted near the surface than if the roots are placed deep enough for the bark to be injured and the healthy action of the roots impaired. R. D.

STANDARD PEARS FOR BRITAIN.

THE thanks of all Pear growers are due to THE GARDEN for its endeavour to curtail the bewildering list of different sorts, and to emphasise the best twelve for general culture. To the six already chosen I only take exception to the first. I have grown Jargonelle only in Kent and Surrey, where possibly its friends may say the climate is too warm for it, for though a delicious fruit when taken at the exact moment, it would be difficult for one household to consume the fruit of even a single good bearing tree whilst it was in condition; so rapidly does it decay, that it will sometimes even rot upon the tree. I would suggest that Jargonelle should be added to and not included in the twelve, with a rider, "If an earlier Pear for August be desired—Jargonelle."

Putting aside Jargonelle, which at best could not be said to last for more than ten days in August, you have not as yet named a single Pear in season before Marie Louise in late October or, as Mr. Barron gives it, November. For Nos. 7, 8, and 9, it would be well to seek for September and early October fruits. And here I may appeal to you to reconsider your decision as to Williams' Bon Chrétien. It is (but to a far slighter extent) open to the same defect of not keeping as Jargonelle is, but by gathering at intervals its season may be prolonged three weeks at least, and its flavour improved thereby; whereas Jargonelle is comparatively tasteless if gathered before quite ripe. It may be, as I think you said a week or two back, a vulgar taste to like the musky flavour of Bon Chrétien, but ninety-nine people out of every hundred do like it, and not only like it, but like it exceedingly [We think not.—Ed.]—so much so, that if any skillful hybridiser could only obtain a late-keeping Pear with the flavour and size and fertility of Bon Chrétien, his fortune would be assured. Beurré d'Amanlis, Mme. Treve, and Beurré Superfin are all thoroughly good Pears in their way, but they cannot touch Bon Chrétien; indeed, if you allow us a September Pear at all, you really cannot pass by Bon Chrétien.

For early October the choice must lie, I think, between Louise Bonne, Fondante d'Automne, and Beurré Hardy. Of these, Louise Bonne is sometimes a little gritty towards the core, but it is a marvel of fertility, very juicy, piquant, of good medium size, and very beautiful. Beurré Hardy is with me one of the most exquisitely melting Pears I know, with most delicate and refined flavour, large, and handsome, and all that can be said against it is that, as a rule, it does not bear on very young trees, and the blossom is somewhat tender. If you would let us have these three, Bon Chrétien, Louise Bonne, and Beurré Hardy, they might perhaps carry us on till Marie Louise was ripe; but whether you can adopt this course or not, certain it is that if your list is to be in any true sense a guide to planters, you must give us at least three sorts before Marie Louise besides Jargonelle, which, I think, hardly counts as one at all. W. WILKS.

Shirley Vicarage, Croydon.

* * We have said as clearly as we could that no Pear offensive to anyone in flavour could obtain a staying place in our "Standard Pears for Britain." We are much obliged to Mr. Wilks for his suggestions, but Williams' and Louise Bonne must remain out. Williams' and Jargonelle would perhaps finally go in the separate short list of early Pears for those who like them. What may be usefully done is to go over the enormous list of Pears and find those of high quality, and hardy and fertile in Britain. Gaps as to season can be filled up. Beurré Superfin we have found a very poor Pear as sent from several places this year.—ED.

— In this locality I do not know any Pear that is really fit for dessert that carries on the Pear sea-

son so late as Easter Beurré. I think if half the attention were given to Pears that is lavished on other fruits, we should be able to grow this variety quite equal to the imported samples. As a pyramid on the Quince it succeeds well here, but in some seasons it is liable to cracking, which I believe can be overcome by really good culture, being certainly aggravated, if not caused, by checks from drought and other causes. As a cordon on south or west walls it is certainly a very satisfactory Pear, both as regards appearance and flavour, and I do not know of any variety to equal it. As it comes into use at a time when home-grown fruit is at its lowest ebb, even a small crop is more valuable to many a gardener than a large crop of kinds that ripen when there are plenty of others to select from. I should not put this variety forward as equal to the five varieties already selected in every respect, but the question is, where are we to look for a variety to surpass this in its season, which is the most difficult for gardeners to cater for? I hope your many valuable contributors from less favoured districts will give their opinion on this and other late varieties, as some that are so good in one place are very erratic and uncertain in others; thus far, I feel assured, much valuable information has been collected for future guidance.—J. GROOM, Gosport.

Winter Nelis Pear.—Though generally small in size, the fruits of this variety ripen at such a late and useful season, and have such fine melting flesh and so aromatic a flavour, that it may well be classed as one of the best and most useful. Though forming habitually thin wood, it grows and bears well trained in either pyramid or espalier form. The peculiarity of its wood and somewhat small leaves imply that a warm, sunny site should always be chosen, and along with these a thoroughly drained and not too stiff soil. Finely-developed fruits of it are, indeed, as handsome as any of roundish-ovate form can possibly be. Trees planted in poor, clay-like, cold soils produce quite a lower quality fruit, wanting in size, unchangingly green and deficient in flavour, and are often attacked with a black fungus in the form of large, unsightly patches.—WILLIAM EARLEY.

SHORT NOTES.—FRUIT.

Apple Reinette Grise.—This is a grand Apple, and I hope you will think well before you pass it by.—W. C.

Apple Reinette du Canada.—In the pursuit of science—not for personal gratification—I gave a franc for one of these in a Paris restaurant the other day (February 28)—a big showy fruit, but the flavour was poor and the flesh spotty and spongy. Not so good for us as the Reinette Grise, I think. This is a case which we often see in England—people showing Apples late in the season which have completely lost flavour and quality.—V.

Sparrows destroying fruit-buds.—In THE GARDEN, March 3 (p. 190), Mr. G. Payne asks how to prevent sparrows and other birds from destroying fruit-buds. There is a simple and easy method which I have used with great success for several years, viz., by putting in the middle of the trees a thin, long stick, to which is attached a string, at the end of which is fastened a piece of paper, which, when moved by the motion of the air, frightens the birds.—JEAN SISLEY.

— In gardens which are close to farm buildings, or buildings covered with Ivy, sparrows are sure to be found troublesome and destructive. G. Payne should procure some lumps of unslaked lime, and on the evening before it is required for use pour enough water over the lumps to thoroughly slake them by the following morning. Procure a very fine sieve, and on a damp, dewy morning when the trees are thoroughly moist, put a little lime into the sieve, and shake carefully over each tree, so that the wood and fruit-buds will be covered with the fine dusty lime. If the sun happens to shine during the day, so much the better, as it makes the lime adhere more closely to the buds. I prune my Gooseberry and Currant trees late in November and December, covering them with the coating of lime at the same time. This I find a perfect preventive against sparrows and bullfinches destroying the

buds. The lime will adhere to the buds until they burst into flower and leaf. Standard Plum trees may be dusted by syringing the trees. Procure a high pair of span steps, place them by the side of the tree, and put some lime into a wooden basket. Getting up to the top of the steps, dust the lime over the branches carefully, moving the steps round the tree until finished, when the buds will be preserved from the ravages of the sparrows.—WM. CHRISTISON.

FRUITS UNDER GLASS.

MELONS.

WINTER having at last set in with a heavy fall of snow, followed by severe frost, forcing operations for the time being will be carried on under difficulties, not the least being a heavy consumption of fuel absolutely necessary to the maintenance of a proper temperature in the pits and houses now generally at work. The effect, fortunately, is not altogether against the forcing gardener, as frosty nights are followed by bright sunny days; consequently, the apparent loss during the hours of darkness, by judicious management, can generally be redeemed by shutting up very early with sun-heat and a fair amount of atmospheric moisture. As yet the weather I have predicted is not quite so satisfactory as I could wish, but when the snow is down, with full command of top and bottom-heat from the boilers and fermenting material to aid and soften its drying influence, plants now working their way up to the trellis will make satisfactory progress. Once there, the young vines will gather strength as they go, that is, always provided the glass is kept clean and free from accumulations calculated to check the sun's rays, as Melons always do best under full exposure to solar influence. Having always advised the liberal use of fermenting material, not as a substitute, but as an aid to and an economiser of dry fire-heat, those who have adopted it, whilst escaping disastrous checks from sudden depressions, will experience very little difficulty in maintaining 65° to 70° on the coldest nights, especially when some light, non-conducting material is used for keeping in its genial warmth and moisture. If started from the seed in a bottom-heat of 80° and a night temperature of 65°, Melons will make very good progress; but whenever a low figure is fixed upon, it should be maintained, an extra 5° being laid on when the weather is mild. The day heat in like manner should rise, say 10°, as the result of firing, but 15° or even 20°, so far from doing harm, will be productive of the greatest amount of good when the midday sun favours early closing. The Melon being a great lover of moisture this must be gradually increased as the days become longer and brighter, not by direct and incessant syringing, but by damping every available space save the hot-water pipes, and by turning up a few of the warm leaves composing the bed daily. Some varieties of Melons will stand daily syringing, especially in summer, but direct syringing at this early season when ventilation at best is meagre is one of the most common causes of canker, and for this reason alone some other method should be resorted to for keeping them free from spider.

Watering.—When thoroughly established and growing freely, the Melon takes, and requires, an abundant supply of water, and the better to favour its free passage the pots or hills should be well drained, the compost very firm, to prevent its being held in suspension, and, as often advised, each plant should be elevated on a little mound to throw it away from the collar. Water pure and simple at a temperature of 80° to 85°, unless a plant is decidedly weak, is most suitable until after the fruit is set, and during the fertilising period this should be reduced and regulated to an extent that will just prevent it from flagging. The crop secured, and of the size of pigeons' eggs, feeding with warm diluted liquid guano and soot water alternately may be commenced and continued until full size is attained, when pure water in moderation must be resumed until the most forward show signs of changing for ripening. All liquids should be used in a clarified state and on the weak side, otherwise

more harm than good follows the application of powerful stimulants. Soot water being also an excellent insecticide, forcing houses should never be without a supply for watering and syringing purposes. The proper mode of preparation simply consists in placing half a peck of soot in a bag and sinking it in the soft-water cistern containing, say, 100 gallons. The strength being given off by degrees, its daily use will not injure the most tender root or foliage.

Top-dressing.—Melons, as a rule, like Pines, are treated to a great deal more soil than is absolutely necessary. The more compost, the greater the liability to mishap; the smaller the quantity in reason, top-dressing and feeding being properly attended to, the firmer the growth and the better the quality. In pots 12 inches to 14 inches in diameter the best of fruit can be grown. Rough boxes containing a cubic foot of compost also answer very well, and troughs 18 inches in width and the same in depth are large enough for plants under extension training. If the compost in any of these is raised up in the form of a cone for the tiny plant to stand upon, top-dressing little and often can be supplied as the roots creep through the surface. I have used stiff loam and rotten manure in equal parts, but now give preference to bone dust in lieu of the manure. If this mixture—80 parts of loam and 20 of bone dust—is made up and kept in barrels or in a bin in the potting shed, it will not only keep good, but improve in quality up to the end of the Melon season. One or two dressings will carry the plants over the setting stage, thence forward, the most important period, an inch at a time may be added as often as the old is washed in, or the white roots weave it into a mat of hungry feeders.

Manipulation.—When Melons once take to the trellis, heat and moisture being right, their growth is very rapid; hence the necessity for daily attention to the leaders and laterals. The leaders should be allowed to climb two-thirds of their allotted space before they are checked, all laterals, on the other hand, being closely pinched to a single leaf until they show fruit. Pinching out the leader induces the growth of a number of strong laterals which generally show at the first leaf where some growers take out the point as soon as the fruit is perceptible, when another lateral or sub-lateral starts before the female flower opens. Others allow the first lateral to continue its growth until the fruit is set and swelling. They then shorten back to a leaf in advance, and whilst carefully preserving each main leaf they pinch out every bit of lateral as it appears. When plants are plunged as close as the pots will stand, the first method economises space, but the latter being available, an extra number of leaves increases the size of the fruit. When two or three fruits of equal size and age commence an even race to maturity they will require supports consisting of small squares of board or aviary netting suspended from the trellis by means of threads of wire, otherwise they will lose the flavour-producing influence of the sun; their weight will injure the vines, and there will be danger of dropping when they begin to crack at the stalk for ripening. A very important point in good culture is the retention of every main leaf from the surface of the pot or bed to the summit, as healthy stem leaves keep up a brisk circulation of the sap, whilst their removal very often leads to canker.

Insects.—Green and black fly, thrips, and red spider are the most troublesome insects, but cleanliness and generous culture are a most wholesome check upon their progress. Fly and thrips are easily destroyed by light smokings with tobacco-paper when the foliage is dry; better still, they can be prevented from putting in an appearance by running through the houses with Bloxham's handy wheel fumigator once in ten days or so. The cost in material is a trifle, and plants treated upon the preventive principle never suffer from an overdose, as often happens when debilitated by insects. Although I am opposed to incessant syringing, the appearance or spread of spider renders its use absolutely necessary. The best time to syringe for the destruction of spider is immediately after closing time and again two hours later, care being taken

that every web is broken by the force of the water. A piece of soft soap the size of a Walnut, dissolved in a large can of water, makes a wash which greatly impedes the movements of the insects.

Frame Melons.—Where the earliest Melons of the season are obtained from manure frames, those who are not afraid of encountering many difficulties may now make a start, otherwise the middle of March is quite early enough to prepare for planting out in April. Manure and good tree leaves being plentiful, these should be well worked and fermented separately at first, then mixed together to get rid of all dangerous gases before the formation of the bed is thought of. Meantime, a smaller bed, large enough to hold a single-light frame, must be well built and lined at the outset, to serve as a nursery for the young plants. Lacking the aid of a flow-and-return hot-water pipe, the best frame for Melons and Cucumbers is the old-fashioned McPhail, made of good 2-inch deals lined with three-quarter-inch boards well tongued together to make this inner shell steam-proof. The cavity formed by nailing 1-inch battens to the inside of the outer shell should be closely capped at the top, but open at the bottom, the object being the free admission and circulation of warmth from the bed and linings, which will keep the interior dry and comparatively free from fluctuations so long as the linings are properly renovated. These frames are now seldom met with, but having seen spring Cucumbers cut from them early in March and Melons in June, I can strongly recommend them to all growers whose chance of securing hot water is hopeless. The next essential is good covering for placing over the lights, which should be well glazed with stout English glass and scrupulously clean, but very little, if any, larger than the light or lights, as overlapping covers very often draw in rank steam from the linings. When the nursing-bed is ready, a thick layer of leaf-mould or Cocoa-nut fibre placed over the inner surface of fermenting material will raise the pots or sods in which the seeds are sown to within a foot or so of the glass, a position at once favourable to stocky growth and full exposure to the sun and light. When properly stocked, this frame will contain a few nice clean pots, a little light, rich compost, a few small cubes of sandy turf, and sundry bottles of soft water partly plunged in the leaf-mould for use when the young plants require moisture. Hardy, free-setting varieties of Melons are best adapted for early or late frame culture, and these should be sown singly in small pots or cubes, the latter being the best, as the roots then extend in every direction, and large, healthy plants can always be moved with a hand-fork. Anyone who has not tried the cube system should do so, as plants so raised are not only stronger and earlier than others from seeds sown at the same time in pots, but free from restraint; starvation and red spider do not attack them in their infancy. When the young plants have made three or four leaves, the points must be pinched out of them to induce side breaks; but, sowing being well timed to meet the fitness of the fruiting bed, I prefer planting out first and pinching when they have taken hold of the soil composing the ridges.

CUCUMBERS.

If the roots and stems of old plants are sound and good, and the bottom-heat, 75° to 80°, is satisfactory, the growth of young fruit-bearing vines will now be rapid, pinching may be more freely indulged in, and the removal of old leaves closely followed up as space is required by the fresh, healthy foliage. If spider or mildew have taken possession, now is the time to obliterate them by the application of the usual remedies, including good syringing with soap, sulphur, and soot water, by frequent additions of fermenting leaves and renovation of the bottom-heat; by light top-dressings with sweet, fresh loam and lime rubble; by the liberal use of warm diluted liquid; and last, but not least, by scrupulous cleanliness. As days increase in length and the sun gains power, the trellis may be lowered a little to give the foliage a clear sweep of the glass, which cannot be kept too clean. More atmospheric moisture may be produced, and the

temperature when the sun aids may be raised to 85° or 90°. A continuous supply of clean, quickly-grown fruit being the aim, remove all superfluous fruits and male blossoms, leaving just sufficient of the latter for fertilising purposes. Avoid overcrowding, but lay in sufficient wood to ensure an even shade for the fruit, as the latter, Telegraph especially, sometimes scalds when excessive moisture condenses under a rapid rise of temperature.

Spring plants.—If old plants are not likely to pay for the time and labour expended upon them, the sooner they are removed and replaced with young ones the better. Where a good stock of seedlings is kept on hand, and a few lights or a compartment are properly cleansed and prepared, they grow very quickly into a fruit-bearing condition, and give, as a matter of course, the finest quality for special purposes. One great mistake which many make is planting in close proximity to the hot-water pipes, a position in which they cannot syringe without producing scalding steam, in which the foliage and stems are always parched and infested with spider, and from which dislodgment is extremely difficult, as fleeing vapour only aggravates the evil. Another drawback is the introduction of too many plants, for no sooner do the vines commence throwing out side shoots than the use of the knife becomes necessary, bleeding and gumming follow, and the fate of the strongest and best is sealed before they come into full bearing. The best position for Cucumber plants is in the centre of the pit, the distance apart being regulated by the depth of the trellis, which should afford at least 30 square feet for the growths from each plant to occupy. Crowded plants tax the skill of the most experienced grower, as he is afraid to top-dress and feed; but give them plenty of room for extension, and their management is as simple as it is profitable.

Pits and frames.—Young plants in these structures will require constant attention to ventilation, the most subtle enemy being rank steam which sometimes draws in from the external linings. Well-made frames as recommended for Melons, if set upon studs of Oaks let into the ground to convert them into fixtures, answer better than brick pits, as they are drier and warmer; there is no settling with the decaying bed, and the heat from newly renovated linings is almost instantaneous in its effect upon the interior. Although the Cucumber will stand more constant moisture than would be good for Melons; it is possible to overdo it, especially in dark, cold, sunless weather; therefore to guard against this an abundant supply of well-worked manure and leaves should be kept constantly on hand for use the moment the heat in either lining begins to decline, when dry non-conducting covering will favour night ventilation. If this does not produce the desired effect, frequent additions of very dry loam and rough charcoal to the surface of the bed and hills will not only absorb a great deal of moisture, but, containing all the food the plants require, they will keep them in vigorous health until brighter and warmer days render frame culture less difficult. Where the formation of more beds for summer use is anticipated, a few seeds of the much-neglected spined varieties may soon be sown for putting out towards the end of the month or early in April. Nine-tenths of the Cucumber growers now cultivate Telegraph, but many good judges old enough to recall the time when spotless fruits were placed on the table whole to be admired as well as eaten would willingly pay double price for Cuthill's Black Spine or Smith's Frame if only they could obtain them. W. C.

Yellow Crocus.—Can anyone explain how it is that these always open in the morning before those of any other colour? I have been watching and admiring these things for a good many years and it never struck me before that they do so, but so it is.—T. SMITH.

Where to find alpine flowers.—Will anyone kindly suggest a "happy hunting ground" for alpine flowers in bloom in North Italy or South Switzerland, and a good route to take with this end in view? Time of year, from second week of April to first week in May.—H. M.

FLOWER GARDEN.

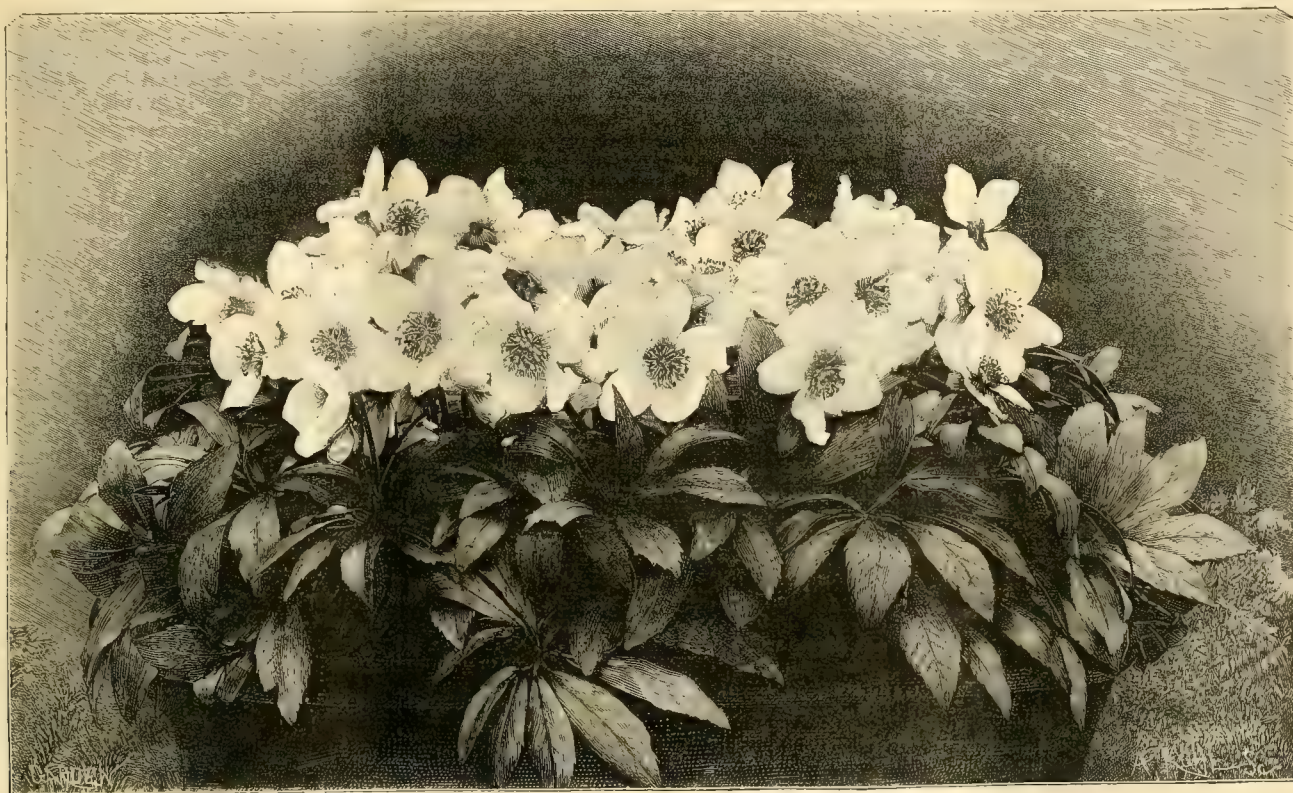
THE CHRISTMAS ROSE IN TUBS.

HAVING read and studied all that has been written on the subject of the Christmas Rose for the last few years, and particularly since the great demand for white flowers for Christmas decorations has set in, I think most of the writers are wrong as to how we should grow them, and this as much from a decorative as a useful point of view. Look at the unsightly appearance of a cold house after the Chrysanthemums are over. Why should we not have their places at once filled with Christmas Roses and Megaseas, in conjunction with Camellias, Daffodils, &c.? I write from practical experience, and I do not at all agree with the forcing system, as it spoils the plants and weakens the bloom. Then it is recommended not to force,

simply this: I grow in tubs 3 feet in diameter, all the trouble necessary being to pay attention to the watering in summer, and a glorious display of blooms equal to those of any Eucharis will be the result.

First of all, secure good clumps, and if such are not to be had, place five of the ordinary size, but of a good sort, in a tub 2 feet to 3 feet in diameter. I do not mean scraps of plants such as those imported from Austria and Italy, but strong pieces. The tubs may stand on a gravel walk or bed during summer and in partial shade, and with the wane of the Chrysanthemum season can be removed to the cold house; indeed, the position outdoors occupied by Azaleas and Camellias during the summer months will suit these Hellebores well. I have had a grand display since November, but it is now (Feb. 20) over, and but for a very fine late form of the common type quite distinct in foliage and flower from

same manner and filled with Megaseas, both cordifolia and crassifolia and their hybrid forms. Some of them now in large pots are most beautiful, indeed magnificent, with noble trusses of pink, resembling huge spikes of Hyacinths, bursting from such excellent foliage and perfumed as of Hawthorn, and which even without the bloom are as decorative as Ficus elastica, and under tub cultivation will be yet finer. The tubs are paraffin barrels cut in two, well hooped, drained, and have iron handles, and before being used are well charred or burned out. The drainage is composed of clinkers and large lumps of charcoal, and immediately above these we place inverted sods of peat or turf to ensure good drainage. The compost is made of equal parts of rich loam, peat, coarse sand, well-rotted cow manure, spent mortar, leaf-mould, and a bag of fine charcoal, with about 28 lbs. of half-inch bones, all being mixed together.



Christmas Rose (*Helleborus niger*, Riverston variety) in a tub. Engraved for THE GARDEN.

but to grow in the open, and lift the clumps in autumn to bloom in pots during the winter. This I also condemn, for the simple reason that the constant shifting also spoils the plants, and prevents their ever forming clumps of any size, and unless the clumps are of good dimensions we cannot expect bloom in quantity. Other writers will say plant out of doors permanently, and protect with hand-lights in winter, and the blooms will be perfect. This is certainly the best plan, but then it is out of doors, and plant enemies, both large and small, have to be guarded against. Again, it may be said, plant out permanently in a frame fixed in partial shade, and if attended to during the summer as to watering, &c., you will have a grand harvest of bloom. This may sometimes answer, but if the plants are grown in the frame for any length of time, the small black and brown slugs developed during the previous summer will perhaps destroy every bloom. Now my plan is

the early sorts, we should be done with Christmas Roses for another season. This last has been retarded out of doors in the shelter of a Yew hedge. I have no doubt, when the variety caucasicus becomes established and large enough to fill the tubs, that the season of cutting even under glass will be prolonged well into February. The bloom of the common *H. niger* mentioned is of a blush or French white, noticed more particularly if held to the light, and, as in the case of tuberous Begonias, is of a drooping habit, so that rain water does not seem to affect the blooms in the least. All the tubs are out of doors for about ten months. Probably blooms of the major class that generally open at Christmas could be retarded by not housing the plants until the first week in December, while *altifolius* should be in shelter in October. I do not intend to divide my clumps, and I shall not rest until the present 80 tubs, as per specimen, reach 100, the balance of 10 to be treated after the

During the month of August, when the buds are swelling, liquid manure is given twice weekly, finishing up with soot water to free the soil from worms and small slugs. The order of blooming is as follows:—

	Under glass.	Out of doors.
<i>Altifolius</i> ...	Oct. and Nov. ...	November.
<i>St. Brigid</i> ...	November ...	December.
<i>Riverston variety</i> ...	November ...	December.
Major varieties ...	December ...	January.
<i>Caucasicus</i> ...	January... ..	February.
<i>Irish niger</i> , very fine, late ...	January... ..	February.

Temple Hill, Cork.

W. B. HARTLAND.

Transplanting hardy plants.—The discussion which has taken place in THE GARDEN respecting the transplanting of Hellebores only tends to show how any particular plan or practice may vary in its results when applied to other gardens. This

has been my experience in dealing with hardy plants generally. Any particular treatment of one class of plants is not always suitable in other cases. Few private gardens contain a better collection of useful hardy plants than the one under my charge. I have therefore had opportunities of observing the behaviour of the plants under various kinds of treatment, and I have no doubt that I shall surprise some growers when I say that I always find the double and single varieties of *Hepatica* flower best when they are taken up and replanted every second or third year. They will even do well if they are moved every year, provided in every case they are transplanted as soon as the flowers begin to fade. But to be thoroughly successful with *Hepaticas* it is necessary to take them up and replant every third year, otherwise the crown of the plant rises so much out of the ground that the latter becomes weak and consequently does not produce many flowers. The same remarks apply to the lovely *Gentianella* (*Gentiana acaulis*). This blooms much more freely and produces larger individual flowers if the plants are taken up and replanted in a fresh position every third or fourth year. The change of soil is evidently beneficial to them, as a stronger growth is the result. In moving the *Gentians* it is not necessary to pull them into small pieces. I never make the pieces smaller than half the size of a man's hand, and then I get plenty of flowers the following year if the transplanting is done in September.—J. C. C.

NOTES ON HARDY PLANTS.

Aristolochia rotunda.—This is not only perfectly hardy, but the long wire-like roots have continued to grow all the winter, and the young tubers are quite sound, though near the surface. This free-growing and large berry-bearing species may be used effectively in the pleasure garden, and it cannot fail to be of interest owing to its curious flowers.

Sedum hirsutum.—This free-growing variety proves quite hardy, and being so, should have a place among the choicest of the dwarf alpine. It is distinct, and might easily be taken for some of the smaller *Sempervivums*, such as *flagelliforme* or *Pittoni*. The pure white star-shaped flowers are large for the size of the plant, and the big black anthers are a novel feature.

Corydalis Ledebouriana.—How very unseasonable this seems! It is, perhaps, the earliest of the whole genus to flower. The succulent and glaucous stalks and leaves would lead one to suppose that the plant is tender; on the contrary, it attracts notice throughout the winter, when the whole of its foliage and flowers are developed, and ere spring flowers are well out in the open, this peculiar and pretty *Fumitory* has nearly finished its annual course. The flowers somewhat resemble those of *C. bulbosa*, but are darker. It thrives in light gritty soil and a well exposed position.

Draba Mawearna.—Though a rare and winter-flowering kind, this is, to my mind, disappointing. Such a compact grey plant, almost Moss-like, will not strike most people as very charming, even when freely dotted over with white flowers, which certainly are not a clean-looking white. No doubt it is worth a place among good alpine, but it has been overpraised. The yellow-flowered species which bloom somewhat later are vastly superior. *D. bruniaefolia* is perhaps the best of all. Its little clusters of bright yellow flowers come in in February and March, and springing from bright green cushions of compact herbage and enduring for a long time render the plant of the greatest value for the rock garden.

Perennial Forget-me-nots.—These in the milder winters are never without a few green leaves, either old ones or new, and it is very difficult to keep them clear of green-fly. I believe I am correct in saying, that to use tobacco powder on such open-air plants when in a dormant state and when wet or foggy weather prevails is a great mistake; it causes fungus, and that very quickly, on hairy or downy foliage, so that at such a period of plant dormancy the remedy is the greater evil. I prefer to give a smart syringing on suitable dry days, and

try to reach the under side of the leaves. Tobacco powder used on plants, cuttings, and seedlings in cold frames is simply ruinous.

Snowdrops.—Well may we, in spite of the big and beautiful new varieties, cling to our dear old native *Galanthus nivalis*. This morning the glass showed 13° of frost here, and but few flowers held up their heads, all the white and coloured *Hellebores* being laid flat on the ground, and no other Snowdrops than the common single sort braved the keen cold after four or five mild days.

Spring Satin Flower (*Sisyrinchium grandiflorum*).—Owing to the way in which this and its varieties grow, or, perhaps, become lifted by the frost above the surface, I find the better way is to have the plants in pots and plunge them in the open ground. I do not think that the splitting of pots plunged out of doors in winter would occur nearly so much if only seasoned or old pots were employed just before frosty weather sets in. New pots take up too much moisture, and when plunged frost breaks them at once. Just as such plants as this *Sisyrinchium* are commencing to flower, and when one would like to take them out of the plunging sand and place them under glass, it is very annoying to find so many pots split.

Winter-flowering Crocuses.—Three very reliable and robust kinds are Sieberi, bannaticus, and Imperati, and perhaps we may add a fourth, minimus, by no means a small flower. These have been well tried and found to thrive equally well in various soils. They make a good display in clumps during the month of February, and as they will doubtless be a little earlier in the south, they may be described as true midwinter flowers. We have not yet bestirred ourselves as we ought in the matter of planting the earlier flowering species of Croci, but after looking over a few kinds that have opened in the first six weeks of the year, one cannot but feel that such flowers will soon win the favour they so richly deserve. For a true royal purple give me bannaticus; Sieberi, so gay, pales by its side. Imperati is showy, owing to its feathery outside markings. Minimus also sports in its many hues, the black lines giving it a solid effect. The rarer alatavicus is simply charming, the outside of the perianth being creamy white dashed or feathered with bluish black, the flower being also of good form, long, and not inflated. J. WOOD.

Woodville, Kirkstall.

Doronicum Columnæ.—Unlike most of the other Dog-banes, this plant rarely ever exceeds 1 inch or 1½ inches in height. It is a most charming dwarf alpine, and its value is increased by its flowering at the present season, notwithstanding the ungenial weather. Being, as it is, close-growing, it makes a useful plant for the rockery, on which a place should be found for it a little sheltered from the cold winds. The stems are one-flowered, the individual flowers bright yellow and almost 2 inches across, the narrow rays numbering about thirty-six. The leaves are kidney-shaped and about the size of a shilling. Grown as a pot plant, under which condition I have no doubt it would do well, it would be found most useful for early spring flowering, its compact, dwarf habit being all in its favour. It is a native of the Tyrol, Styria, &c. *Arnica cordata* is a synonym.—K.

Elwes' Snowdrop (*Galanthus Elwesi major*).—If my memory serves me right, I first selected this from a batch of imported bulbs, and sent one or two to Mr. Burbidge. There is no doubt at all about the globular shape of the flower, but the prefix major fully expresses all it is, viz., a big form of the type. This species, as imported, varies much more than any other known to me, and I do not think that any kind of cultivation would convert a bad or poor form into a good one; a dwarf would never become a giant, nor would a narrow-sepalled form become broad. If *G. Elwesi major* is identical with *G. globosus*, and Mr. Wilks has typical *Elwesi*, which grows bigger than *globosus*, as he says it does, why then his garden is rich indeed, and he possesses at least two Snowdrops that Snowdrop lovers will be most anxious to have, namely, *globosus*, which bears two flowers on a

scape, and another that is larger. But perhaps when the snow has melted he will send a bunch of twin-flowered *globosus* to THE GARDEN office (it will be a novelty there), and, at least, establish this one peculiarity of his *protégé*.—T. SMITH, *Newry*.

HARDY PERENNIAL BORDERS.

CONTEMPLATED alterations to these borders, including lifting, dividing, and re-planting, ought to be completed before the middle of March; therefore, every favourable opportunity should be seized, as it is desirable to have the ground in good order, so that it will bear treading on, and not clog the tools as the work proceeds. I do not advocate the annual nor biennial lifting and transplanting of all the occupants of these borders, as I consider such labour quite unnecessary, and whilst some things will be the better for it, many are injured by such oft-repeated disturbance. Small choice plants are also apt to be lost. Much can be done to maintain the fertility of the borders by surface-dressings of new soil, leaf-mould, and manure. The latter should be short and easily broken down when it has laid for a time, and be applied when the plants are not actively growing.

In the case of plants whose tendency is to travel outwards in search of fresh pastures, whereby the centres become exhausted and bare, an effective means of renovating them is to remove the weak parts, soil and all, bodily, replacing it with new compost. The plants by this treatment will soon become as vigorous as before.

Piecemeal renovation is much to be preferred to a general removal of all the plants at one time, and if those which require frequent division are gathered together in positions somewhat to themselves, they can be attended to without disturbing their neighbours, that is if room cannot be found for such things on a separate border or piece of ground. These subjects include *Phloxes*, *Delphiniums*, *Carnations*, and *Pentstemons*.

Borders which contain a mixed collection of hardy plants too often present a confused appearance, from the practice being usually adopted of singling the plants out too much, and constantly curtailing their size. If more freedom were allowed and a bolder arrangement chosen and carried out, not paying too particular attention to heights, much better and more pleasing results would be produced. By forming colonies, for instance, of different families which contain several desirable species or varieties, a group of six or more species of *Campanula* and the same of the best *Asters*, *Ranunculus*, *Oenotheras*, will always look better than the same number scattered over the border. *Lilies* and *Narcissi* may be planted together, as both will flourish under the same treatment, and the *Narcissi* flowering early will be replaced by the *Lilies* later in the season. Again, species of similar habit and character may be arranged together, such as the dwarf *Rudbeckias*, *Coreopsis*, *Heleniums*, or *Eryngiums*, *Echinops*, &c., not to mention *Spiræas*, *Saxifrages*, *Iris*, and others.

Opinions vary as to the best time for dividing and transplanting, some preferring spring, others autumn. If a general overhauling is desired, I should prefer doing it in October, as the soil of the borders at that time is generally good, and the work is not so liable to be interrupted by adverse conditions of the weather as it is in the spring. But when performing it at this period of the year, I should advise, first of all, lifting and either potting or laying in some snug place all the more choice and tender things, to be divided and replanted in spring.

Speaking generally, I think the spring is the best for dividing those with roots of a soft and fleshy nature just as growth is commencing to push. Flame Flowers (Kniphofias), Day Lilies, Plantain Lilies (Funkias), Hellebores, and Japanese Anemones will represent this class; whilst for bulbous plants, as Lilies, Narcissi, &c., autumn is a more suitable time, and those whose roots are of a fibrous character can be treated at any time during winter.

Time and care should be given to the work if the after well-being of the plants is considered. It is not sufficient to make a hole with the trowel and stick in the plants indiscriminately. The roots must be spread out, adding a little fresh soil of a sandy nature for those things which require it. In dividing a clump it should be done thoroughly, pulling it apart, with the help of a hand-fork, into several pieces, which may be planted pretty close together to form a good-sized clump, in preference to chopping it in two with a spade and replanting the halves. Such plants generally fail to re-establish themselves quickly, and are invariably burnt up by the first spell of dry weather.

Hindlip.

A. BARKER.

Hardy-foliaged plants.—I have seldom seen the robust crimson-foliaged Sweet William in such fine form as during the present winter. It is seldom met with except on costermongers' barrows, or in those few places where grown especially for sale. Near here there has been all the winter a breadth of a thousand plants, which are not only unusually strong, but also very highly coloured. Most of the plants have such stout, robust leafage, being some 8 inches to 9 inches in height, that they might be mistaken for small Dracenas. I think the variety is known as *Dianthus barbatus atro-purpureus*. The flowers are deep crimson in colour, but small, and in that respect of no value. Associated with light, hardy-foliaged plants, this Sweet William proves very effective. Its most striking compeer is found in the Golden Valerian, which is also colouring up richly just now, and clumps of the young foliage will presently make a pleasing show of colour in borders. This plant is so hardy that it will thrive anywhere, and the wonder is that it should be so seldom met with. Cats are rather partial to the Valerian root, but they do not trouble young plants, and it is wise to break up the clumps occasionally to keep the roots buried. For a silvery-leaved hardy plant, none seem more useful than good flowering forms of *Auriculas*. They are very hardy, and in dry weather the powder which so freely covers the leaves glistens in the sunlight and renders the plants as effective as if lime-whitened. I have recently noted how very prominent is a sort of Dusty Miller in a bed of green-leaved border *Auriculas*. Quality of flowers is of little consequence with these white-foliaged *Auriculas*, as they are most useful as foliage plants.—A. D.

Gladioli planting—*gandavensis* hybrids.

—I have my planting all but completed. If, however, in cold districts the bulbs are planted now and near the surface, the foliage would possibly be destroyed by the late frosts, and a serious check might be sustained. In such cases it might be judicious to wait a while. I cannot quite agree with "Delta" that "Gladioli thrive best on a calcareous soil, and worst on that containing much humus." If I remember rightly, Mr. Kelway, Langport, in writing to me some years ago, described his soil as a sandy loam containing much humus, either naturally or added, by way of manure. Messrs. Sanders, Cork, and Dickson, Newtownards, obtain magnificent spikes, with an average of twenty blooms, in dark, rich, rather sandy loam. I think Mr. Campbell, of Gourrock, N.B., described his soil somewhat similarly. I have grown Gladioli for twenty years in rather heavy, rich loam, plenty of manure being buried beneath the corms, and a handful of clean, sharp river sand above and below them. With this treatment they do admirably, and increase from

year to year. I do not mean merely scarlet varieties, which, as a rule, are the hardiest, but such magnificent forms as Duchess of Edinburgh, Marquis of Lothian, James Douglas, Caliphon (immense size), Rev. H. H. D'Ombraïn, Jessica, or Applanus. As I have so often pointed out, I consider it very desirable that Gladioli should have a warm, sunny aspect, no stagnant moisture, and yet never want water. Thus success is certain. " . . . Where thousands of varieties are grown, as at Langport, cross-fertilisation is probable, and the variety wanted to be reproduced may come from seed quite different." "Delta," referring to this, asks, What does it mean? Reproduction by seed was the point I was discussing, and, knowing how easily Gladioli flowers can be fertilised by insect or other agency, I wished to convey that if one wanted to reproduce, say, Rev. H. H. D'Ombraïn from seed collected off the spikes of that variety, you have no guarantee that the seedlings will be that variety—they may be quite different—except the flowers are encased in muslin bags, and then the seed may not perfect at all.—W. J. MURPHY, *Clonmel*.

CHRISTMAS ROSES.

MR. WOODALL'S assertion that the beauty and worth of the Christmas Rose are known to comparatively few is undoubtedly true. There was a time when I thought but little of this fine hardy flower, simply because the few plants I had seen never produced anything more than poor greenish white blooms that did not rise more than 3 inches from the crown. The best of culture will not give good results from bad varieties, and very often failures are laid to soil and situation when the fault is in the plants. For some years I thought that my soil did not suit them, but eventually having procured a fresh lot of plants, I found that I was quite mistaken. I have destroyed all the weakly growers and I advise this to be done with all inferior varieties. It is, however, by no means necessary to discard the typical form, but simply to select from it plants having the desirable properties of vigour, freedom of flowering, size, and purity of bloom, and to propagate exclusively from them.

Large quantities of roots are annually imported from the home of this flower, and these kinds exhibit a great amount of variety. Amongst them are many that ought not to be retained. They frequently eventually fall into the hands of those who do not know the difference between good and bad varieties, and this is, I think, one reason why the Christmas Rose has never become so popular as one would have supposed. Imported roots cost so little, that they are sure to find purchasers, and there is always the chance of something really good cropping up among them. There is sure to be a sufficient percentage of good flowers to allow of the weeding out of such as do not possess the requisite qualities. Those who only require a limited quantity of plants will do better to pay a higher price and obtain from a trustworthy source the improved forms. It would be interesting to know with certainty whether *H. maximus*, *H. angustifolius*, and other choice kinds were raised in this country or imported with the type. I believe that in a former number of THE GARDEN a writer said that he had found both the major and maximus forms growing naturally with the typical variety, the great difference of vigour and size of bloom exhibited generally showing unmistakably that maximus is really only the highest development of niger. It is evident that too many seedlings cannot be raised. We have every reason to suppose that in time we may obtain improvement even on the most valued of cultivated forms, either by selection or by hybridisation.

J. C. B.

GARDEN MIMULUSES.

THE existing race of garden Mimuluses seems to have more of the dwarf habit of *M. cupreus* than of the more erect form of *M. luteus* or *cardinalis*. At least that is more the character of the strain grown here, which chiefly came from Mr. Clapham, whose cross between *M. maculosus* and *M. cupreus* produced such a very beautiful race. Evidence of the latter parentage specially is found in the rich crimson self form, some time since certificated under the name of Brilliant, as no other form has shown so much depth of colour. The flowers of the spotted forms also give some wondrously beautiful colours, not only in huge blotches, but also in speckled markings, like as is now frequently seen in the *Gloxinia*. The very fine flowers of the Jubilee strain are indeed of great size and grandly marked, but I find that they have very broad throats also. I think that flowers of rich colours and markings, even if not so large, but have smaller throats, are the more beautiful. Mr. Douglas is quite right in asserting that there is no necessity for wintering old plants in pots. I may go further and say, that there is no need to retain these at all. It is far preferable to raise them from seed every year, especially as seed is so freely produced and germinates so readily. A pinch sown in fine sandy soil in a shallow pan and covered with a piece of glass gives scores of seedlings in a very short time. I would, however, advise the sowing of the seed early in October, as the seedling plants will then become strong enough to enable their being pricked into pans or be potted, and by the month of April the plants, if singly in 3-inch pots, will be strong and ready to plant into beds in the open, and will bloom immediately. It is, however, not indispensable that the seedlings be potted, for if a stout frame is at disposal, they may for convenience sake be dibbled into that some 2 inches or 3 inches apart, and whilst the glass will suffice to protect from ordinary frost, a little additional covering may be advantageous when the weather is severe. It must not be imagined that Mimuluses are hardy in the ordinary acceptance of that term. Out of hundreds of plants grown in the open yearly, I have rarely found any that have survived even the mildest of winters, as, without doubt, excessive moisture proves as harmful to the roots as dry frost. The roots are of a creeping habit, remaining just under the surface of the soil, and thus are in no way sheltered from the continuous attacks of light frosts alternating with thaws, perhaps the worst conditions under which such plants could exist. Strong seedling plants now may be seen with their white roots running on the surface of the soil, showing that the tendency of the plants is to find nutriment on shallow, yet moist ground. The moisture ordinarily found in soil at this time of the year, such as results from occasional waterings, is ample for ordinary growth. A little later when flowers are being produced greater moisture is desirable, but it need not be excessive, as the plants being soft-wooded are subject to rot. Generally shallow broad-mouthed pots are preferable for ordinary pot culture, and a porous yet moist soil, dressed with hotbed manure, makes the best material in which plants will thrive out of doors, especially if enjoying a little natural shade.—A. D.

— Mr. Douglas in THE GARDEN, February 25 (p. 164), says:—

I have looked through numerous books published during the last century and have found many coloured illustrations, but none of them give the species from which the spotted garden varieties have been produced.

Now, if he will refer to vols. i. and ii. of the *Flori-cultural Cabinet*, he will find an abundance of information concerning these plants. On plate 9 is figured *Mimulus variegatus*, with this note appended:—

Mimulus variegatus (Variegated-flowered Monkey Flower).—The drawing was taken from a plant in the collection of plants at Earl Fitzwilliam's, Wentworth House, Yorkshire. It is a very pretty species. A native of Chile (Chili) and lately introduced into France.

Mr. Douglas also says:—

Coming down to the early volumes of the *Horticultural Cabinet* (I presume he means the above publi-

cation; I have never heard of a *Horticultural Cabinet*) and the *Florist*, we find the *Mimulus* frequently figured, some of them being merely improved forms of *M. luteus*. In the year 1835 David Douglas sent from California a deep rich red species named *M. cardinalis*.

In the *Floricultural Cabinet* (page 107) he will find an extract from Edwards' *Botanical Register* as follows:—

Mimulus roseus (Rosy Monkey Flower). . . . This beautiful species was sent by Mr. Douglas from Northern California in 1831. He says it is extremely rare, and the most striking object he met in that country. It is found difficult to manage, for the plants that were kept in the open border during summer did not answer the expectations entertained of them.

Mimulus rivularis var. *Youngii* is also figured in the same volume. Sweet's "British Flower Garden," *The Botanical Cabinet*, and Curtis's *Botanical Magazine* for 1833-34 contain plates and interesting references to the forms of *Mimulus*, probably one or other of which was the progenitor of "the spotted garden varieties."—RICHARD VESEY, 16, *Rectory Grove, Clapham*.

HEPATICAS.

HEPATICAS are amongst those plants which we are often told no garden should be without, and yet it is about as rare to see a garden well stocked with healthy Hepaticas as it is to see a good show of *Gentianella* or Christmas Roses. Similar soil and atmospheric conditions, though not exactly the same situations, suit all three. In some districts these conditions prevail so generally, that those who grow these cannot understand the difficulty some of us have in cultivating these plants. I have done my best to grow all three for twenty years, and it is only with Hepaticas that I have succeeded tolerably. In the natural soil of my garden they perish miserably, but they are quite worth the trouble it has taken to grow them well.

Few plants send their roots so deep in proportion to their size, and they must not be able to reach either soil sodden with stagnant moisture or dry gravel. Perfect drainage beneath is more important than the particular kind of soil in which they are planted, but the soil must be sufficiently retentive to prevent the plants being dried up in summer and sufficiently open to allow the roots to penetrate easily. By making artificial drainage beneath the flower beds, with 3 feet of made soil above, and so separating the soil of the beds from the subsoil of cold, wet clay, I find I can grow Hepaticas anywhere. They like sheltered situations, not amongst tree roots, better than exposure to full sun, and an eastern aspect is best, as it is for nearly all alpine. They do best of all on raised beds, provided they are watered in summer. As a wild plant the Hepatica has a wide range in Europe, extending at least as far north as the southern shores of the Baltic, and flowering from February to the end of June, according to latitude and altitude. In the Pyrenees it is particularly abundant, growing thickly over large spaces on the mountain sides. I saw them there in June, when they were just in flower, at elevations of from 5000 feet to 7000 feet. The colours were white or blue, all that grew together being of one colour. The plants had all the appearance of being yearlings, being single crowned and not spreading into large clumps, as in gardens. Here and there was a plant with marbled leaves like a *Cyclamen*, but these were not very common.

In cultivation the Hepatica varies much in colour, producing seedlings of every shade of pink, from dark rose to pure white. The shades of blue vary in a similar way, and there is a variety of a rich purple colour, known in nurseries as *Barlowi*, which, I think, is imported

largely from some parts of Poland. I have only seen two colours of double flowers, bright pink and blue. The former is perhaps the commonest of all the varieties in gardens, and the latter the most rare, though I find it quite as easy to cultivate and increase as the others, but it requires to be divided more frequently. In Mr. Loudon's "Herbaceous Plants" a double white Hepatica is figured, but no such plant is known to exist now. If more attention were paid to raising Hepaticas from seed, we perhaps might soon have this variety.

If left alone for many years plants of Hepatica in cultivation die of exhaustion and overcrowding of the crowns. In my soil they want dividing every four or five years, and I find it better to pull them into pieces consisting of only one or two crowns, shortening the old roots nearly to the base of the crown. I believe that when these long-rooted plants—and the same remark applies to the Christmas Rose—are divided, leaving the old roots only checks the plant, which expects to be fed by them, but is not so fed. When the old roots are removed, it at once sets all its energy to making new roots. I find peat the best soil for making a store bed of Hepaticas, and perhaps they do best in it permanently. If transplanted, a long, narrow spade should be used, so as to lift the roots entire with a good depth of soil attached.

The seed of Hepatica will not germinate if kept dry; but if allowed to shed and not eaten by vermin, it comes up readily round the parent plant, and especially over the crown of it, if covered with fine soil. It begins to grow about the end of October, but the leaves are not visible above ground till April. If gathered, it should be sown at once, and the soil kept moist; it may be put into the dark for six months to prevent the growth of Lichen on the surface. It is ripe about the end of May. As a rule, the colour of the seedlings follows that of the parents, though varying in shade. I have never tried artificial crossing of the colours. The seedlings flower the second year, after which they increase rapidly.

The variety or species of Hepatica called *H. angulosa* requires exactly the same treatment as the other varieties, but grows more robustly and wants more frequent division. In my garden it is hopeless to attempt to grow it without guards of perforated zinc, which must be kept permanently round the plant, as otherwise small slugs spoil the buds. Slugs, indeed, are bad enemies of all Hepatica flowers, attacking them in the early bud and in autumn. The best dressing to prevent this is tobacco powder, which I use freely at the beginning of autumn; it is the best remedy I have ever tried against all small vermin.

I may remind readers of THE GARDEN that Mr. Burbidge has told us that the Hepatica has been developed by horticulturists of Japan into ornamental forms unknown in Europe. There ought to be no difficulty in importing these plants if they can be obtained. In late summer the dormant crowns might be enclosed in balls of clay as Lilies are, which would prevent their being dried up. There is perhaps reason to think that if Japanese gardens were open to Europeans, we might get many noteworthy things which the skill of the natives and the splendid climate have produced in the course of centuries of gardening. One of the most wonderful plants of this kind is that known as *Veronica longifolia subsessilis*, which is said by botanists to be nothing but a development of *V. longifolia*. Though with me it fails to be a perennial and requires constant renewal, it is a remarkable example of what industry and

climate can do with a worthless plant, unworthy of cultivation in its unimproved state.
Edge Hall, Malpas. C. WOLLEY DOD.

FLOWER GARDEN NOTES.

POTTING BULBS AND SOWING SEEDS.—The bitterly cold weather that has now prevailed for nearly three weeks has stopped all ground work, a most important item of which we had in hand when the frost set in, namely, the re-arranging of the borders and adding to collections of herbaceous plants. All is in readiness for a start as soon as the weather is suitable, and in the meantime I am potting such bulbs as were intended to be planted directly in the borders or rather part of them, and that require a long season's growth before they flower freely, amongst them being *Lilium auratum*, the latest flowering varieties of *Gladiolus*, *Hyacinthus candicans*, *Ranunculuses*, and French *Anemones*. All these will be transplanted into the borders before they become in the least pot-bound. Thus, by a little labour now when owing to bad weather there is plenty of time for the work, these bulbs will be growing and be as soon in flower as if we had never had bad weather to prevent our planting them out, and what is another advantage, the rich soil used for potting will be a valuable addition to the soil of the borders, and of the utmost service throughout the season to the bulbs. The following seeds are being sown in shallow pans and placed in a warm pit to germinate: *Phlox decussata*, *Pinks*, *Carnations*, *Poppies*, *Pentstemons*, *Aquilegias*, *Acanthus lusitanicus*, and *Helianthus major*. Of seeds, the plants of which are intended for the bedded-out garden, the following have just been sown: *Salvia argentea*, invaluable for planting under tall-growing foliage plants, or as an edging plant for the same; and *Eucalyptus globulus*—I regret to say that the late severe weather has killed the seedlings of last year. This has now occurred so often, that I have come to the conclusion that we must give up hope of ever seeing the *Eucalyptus* a large tree. Before these severe winters began we had trees 30 feet high, and stout—indeed, timber-like—in proportion, but last year they were killed to the ground. Suckers started from the bottom, but they were so weakly, that we had the stumps dug up. It, however, grows rapidly, and seed being cheap, it is well worth growing as a foliage plant for the summer garden. We have made a first sowing of *Ricinus Gibsoni*, which is really the only variety that ought to be sown so early; in fact, it is the only kind I care to grow, and the reason why I sow so early is that the plant makes most perfect bushes either round or pyramidal if the shoots are stopped or pinched at the right time. The variety is naturally a more compact and short-pointed grower than any of the other *Castor-oil* plants; hence its adaptability to pinching. Another plant that is commonly supposed not to be amenable to pinching out the points so as to get it bushy is *Giant Hemp* (*Cannabis gigantea*). It, however, bears the operation well, and, as a matter of course therefore, there is no need for the ugly specimens that one generally sees, and which, by reason of their great height and slender branches, are amongst the first to be damaged by high winds at the end of summer. Sow now in warmth, and pot off as soon as large enough to handle; pinch out the leading shoots when about 18 inches high, and side branches will quickly push out, also a fresh leader, which must be pinched again in due time. The light Fern-like appearance of this plant would justify its being used as a summer-bedding foliage plant far more freely than at present.

POTTING BEDDING PLANTS AND PRICKING OFF SEEDLINGS.—By a more extensive use of hardy plants the work of preparing tender plants has been reduced to reasonable proportions, but we have plenty of that sort of work still. I use few *Pelargoniums*, but these we endeavour to get as fine as possible, so that they may make a show directly they are put out. The largest of these are now being potted off, having been wintered thickly together in boxes. The smallest plants are again planted in boxes and given space to grow there until bedding-out time, and the smaller plants are

used for beds that have to be margined with Pelargoniums, and therefore require to be planted thickly. Some few kinds could not be propagated in the autumn, and cuttings of such are being inserted now in shallow boxes of sandy soil and placed on bricks over the hot-water pipes in any house available. They soon strike if kept on the dry side as to moisture, and not unfrequently make as fine plants as those struck in autumn—indeed, better if

beds or borders from the pots, the aim is to keep them in as quiet a state as possible so long as growth is continuous; then it is that the plants are certain to be robust. Seedlings of those refined kinds of Thistles are effective among dwarf-foliaged plants such as Alternantheras, Coleus, variegated Mesembryanthemums and Sedums. Seeds of Chamaepeuce diacantha and Casabonæ have germinated well, and the plants are ready to pot into

for pricking out into boxes of light vegetable soil preparatory to potting them singly into small pots. There is yet ample time for those who have not yet sown to have good examples by planting-out time if they will but sow at once. Alternantheras do not always winter nicely, and ours being somewhat stunted and starved, a hotbed (leaves and litter) has been made up in a heated pit. The plants, having been shaken quite free of the old soil of the store pots, are being planted out on this bed for the production of cuttings in light, sandy soil of a peaty nature. The old examples will then be destroyed, being useless for planting in beds because of their tendency to flower rather than make satisfactory growth.

SHRUB-PRUNING.—We have been fortunate enough to almost escape the snow that one reads about having fallen in such quantities in nearly all parts of the country; consequently we have been able to get through the bulk of this kind of work. Conifers always claim the first attention, but they do not take long to prune, as only an irregular branch here and there that is spoiling the symmetry of the tree is removed; or perhaps a specimen may be developing two leaders, and one of these must of course be removed, and, maybe, another has lost its leader, and the best side branch—the one most inclined to turn upwards—is tied upright to a stout stick secured to the central stem. Our next move is the pruning, only knives being used, of Retinosporas, Thujas, and Junipers, all long points being cut back; thus the plants are kept dense and shapely without being more formal than is natural to them. The few standard Portugal Laurels that we have as substitutes for Orange trees take the longest time to prune, as all must match both in size and form. These we find it necessary to cut twice a year, now and again as soon as new growth is completed, not that much of the new growth is cut away, but only sufficient to make the plants even for the remainder of the summer. Large Hollies we venture to prune with shears, but small specimens are cut with a knife. The pruning of shrubs outside the pleasure grounds is necessarily of a rougher description, common and Portugal Laurels, Yews, Hollies, and Rhododendrons being cut back with a view to keep them dense for game covert, so that bill-hooks as well as shears are brought freely into play. I have sometimes been asked as to the right season to do this sort of work, and I invariably reply, when you have most time.

MANURING AND APPLYING FRESH SOIL TO SHRUBS.—It is too often taken for granted that the applying of top-dressings of fresh material—if the ground was well prepared when the shrubs were first planted—is useless and unnecessary. This is, however, a great fallacy. Coniferous trees in particular only thrive satisfactorily when surface-dressing, either manure or soil or both combined, is given them at least once in three years. W. WILDSMITH.



A jar of white Lilies.

the last-named have had unfavourable winter quarters. All Dahlia roots are now potted up, and the kinds most in request are given the most favourable quarters in respect of heat and moisture, so that cuttings may be produced and inserted at the earliest period. Kinds not required to be propagated have been placed with other bulbs and tubers in a frame, from which frost can be excluded by turning on heat when the state of the weather demands it. As all tubers—Lilies, Gladioli, &c.—in this pit are intended to be planted directly into the

small pots. They should always be potted singly, because the roots quickly get matted together, and to part them not unfrequently results in the death of a number of them, and is, I believe, the most common cause of the plants dying off after they are planted in the beds. The way to prevent such occurrences is obvious, namely, never let the plants have a check of any kind. By strict adherence to this rule we have now for some years had very little cause to complain. Seedlings of Solanum pyracanthum, robustum and marginatum are quite ready

A JAR OF WHITE LILIES.
No flower is more stately and beautiful than the common white Lily, whether growing in the garden or used boldly, as its majestic spikes demand, as a cut flower indoors. In a blue-grey jar of German earthenware, with boughs of Scotch Fir, whose colouring harmonises with both jar and Lilies, they look extremely well, and last in beauty for many days.

STOVE AND GREENHOUSE.

T. BAINES.

LUCULIA GRATISSIMA.

It is a wonder that this plant is not grown by everyone who has a fairly roomy structure wherein the temperature of a warm greenhouse is kept up. It is within the mark to say that it does not find a place in one garden in fifty where there is the means of growing it. True, it is not quite so easily struck from cuttings or afterwards so quickly grown on to specimen size as a Fuchsia or an Abutilon, but if everything is to be dismissed from our greenhouses that is not as easily managed as a Chrysanthemum or a zonal Pelargonium, the use and interest attached to the structures in question are reduced to a minimum.

It is now over half a century since this *Luculia* first found its way to Europe from the cool, moist hill region of Nepaul, where it is indigenous, and the climate of which points to its cultural requirements in the matters of heat and moisture. Like many of the best and most desirable plants known to cultivators, the *Luculia* in its early stages does not make so much headway as things of a less enduring character, but this is fully compensated for by the length of time that it will keep on in a vigorous, thriving state, for when its requirements are fairly attended to it is much less liable to get out of condition than most hard-wooded plants. It may be kept in a healthy, vigorous state for a good many years in a large pot or tub, giving more room as this is required, but as the plant naturally attains a considerable size, it should ultimately have a moderate-sized bed to accommodate its roots. During the early stages of its growth, especially if it is not pushed on in moderate warmth, the progress made is slower than that of many things, the consequence being that if the plants are turned out before they have enough roots to occupy the body of soil of which the bed is composed within a reasonable time, the material gets sour and in a condition that the roots do not like. Where premature planting out in this way is practised there is usually another adverse influence at work. Conservatories are generally higher than ordinary plant houses, the consequence being that the small plants in beds on the floor are in a semi-dark position, the result often being that instead of growing away freely they die, a fate that befalls many other plants when turned out, whilst they are too small to allow of their heads getting sufficient light to enable their making healthy growth. If the plants were grown on in pots until large enough, say 3 feet or 4 feet high, or even more, they would, when placed in lofty, heavy-roofed houses, be able to struggle on until their heads were near enough to the roof to be independent of the deficiency of light near the floor of the structure.

There is one peculiarity connected with the propagation of this *Luculia* from cuttings that it is necessary to bear in mind, which is, that they must on no account be allowed to flag. As far as my own experience goes, if this occurs no amount of attention subsequently will induce them to root, and this would seem to be the verdict of all who have grown the plant and have stated their experience with it. Yet if we may judge from the frequent failures that are heard of in getting cuttings to strike, it would appear as if little notice was taken of this important matter. Cuttings of the plant sent as I have frequently seen them from distant parts of the kingdom when sufficient precaution had not been taken to place them in wet Moss or other

moist material are simply useless, as not one in fifty will strike.

The young shoots when taken off should be in a half-ripened state; if too soft they will rot, and if the wood is too much hardened, the emission of roots is slow and uncertain, and even if roots are formed the little plants take a long time to get properly established. The earlier in the season the cuttings are struck the more time there is for the plants to make headway before winter. The exact period of the shoots being in right condition depends on the time the plants that produce them have flowered, consequent on the more or less warmth they have been subjected to. This *Luculia* may be said to be an autumn bloomer, sometimes beginning to open its flowers in September, and keeping on for many weeks when the specimens are large and vigorous; but when kept in a cold house I have seen the bloom delayed until February, the shoot growth, as a matter of course, being so much later. The cuttings are best put singly in small pots, as in moving them on there is no check through the roots getting broken, such as more or less follows disentangling them and potting off when a number are struck together in pots or small pans. A few crocks in the bottoms of the pots, with a mixture of loam, peat, and sand above, the surface being all sand, answer well; keep the material quite moist, standing the pots on a moist surface covered with propagating glasses in a temperature of 60° or 65° by night, with a rise in the day. With this amount of heat I have been more successful than when the cuttings were subjected to the temperature of a hot stove, especially for a time after they were put in. When well callused they are safe and will bear more heat. As soon as they are well rooted inure them gradually to the full air of the house and remove into 4-inch pots; keep on through the summer at about 60° in the night with a proportionate rise in the day with air. Use the syringe freely overhead, keeping the soil fairly moist. A little shade will be necessary in bright weather during the summer months, discontinuing it so as to help to harden the growth before winter. With the same object give more air and keep the atmosphere drier. Through the ensuing winter a night temperature of 50°, or a few degrees under, will suffice; the soil, even during the resting period, must not get so dry as many things would bear. Early in spring move the plants into pots two or three sizes larger, and pinch out the point of the principal shoot, or any that may be taking an undue lead, as the object is to lay the foundation for a sufficiently furnished base, rather than the bare-legged examples of this plant often met with. Treat again during the summer as in the previous one; if all goes well, they will grow apace and produce some flowers in the autumn. Winter as before, and in spring give additional pot-room proportionate to the progress the roots have made. No further stopping of the shoots should be required, except shortening any that are too vigorous. It is a good plan to tie the points of any shoots of this description down, which will further tend to help those that are weaker.

In preparing the bed or border in which the plant is to be grown—one is sufficient even for a large house—it is well to remember that evergreen subjects of this kind cannot bear taking up and shaking out to have the soil renewed; consequently it becomes necessary to give them material that has good lasting properties, and not liable to get sour or adhesive through the free applications of water which the plant re-

quires. If this occurs the roots will not act in a way to keep up the needful vigour. With a like intention the drainage must be sufficient; broken charcoal, crocks, or other similar material in moderate quantity, mixed with the soil, will help to keep it in the requisite condition; enough sand must also be added. Before growth commences in spring is the best time for planting out, and if the strong roots are much coiled round the inside of the pot they should be opened out so far as can be done without breaking many of the small fibres. It is necessary to make the soil quite solid round the ball of the plant, or the water given for some time afterwards will pass off without moistening it, and in this way the roots will suffer. With fair treatment the plant will keep on improving for many years, never failing as the autumn comes round to yield a profusion of its delightfully tinted, sweet-scented flowers. This *Luculia* can also be raised from seed, which, I am told, vegetates freely.

Tydeas in flower.—Few plants are more accommodating than the *Tydeas*, as they can be had in bloom at almost any season of the year, but the time at which they naturally flower is during the winter months, when they are especially valuable. Provided the plants are in a healthy condition and receive an occasional dose of liquid manure, they will bloom for several months; indeed, few subjects are more persistent in this respect. There is a great difference in the colour of the blooms, but all are quaintly marked. *Tydeas* are of easy propagation and culture, for young plants may be obtained either from seeds, cuttings, or division of the peculiar caterpillar-like rhizomes. The plants that have been flowering throughout the winter will, in many cases, by this time, begin to wear a somewhat shabby appearance, when they may be rested for a short time. Before they are again started into growth they should be turned out of their pots and every bit of soil shaken from the roots. They may be either potted singly into small pots or grouped together into larger pots or pans; in any case good drainage must be secured, and they must not get much water till they begin to grow. When the young shoots are about 3 inches or 4 inches long a good opportunity presents itself for the propagation of any that it may be desired to increase the stock of, as the young tops may be taken off as cuttings, leaving one good joint at the bottom, from whence the future shoots will spring. They may be grown in a cold frame during the summer, but in winter they require the temperature of an intermediate house or the cool end of the stove to maintain a regular supply of bloom. Pretty though the flowers of the *Tydeas* are, they are not available for use in a cut state. The plants are not particular as to soil, provided it is of a good open nature and with a liberal supply of sand therein to guard against stagnant moisture.—H. P.

Browallia elata.—This beautiful old perennial should be grown by everyone having a stove, conservatory, or greenhouse to embellish during the winter and spring months. Its blue Phlox-like flowers, which proceed freely from the tops of the side shoots, are then of the brightest hue, and contrast effectively when associated with flowering plants of *Eucharis amazonica* and *Poinsettias*, &c. A stock of these plants can be very easily raised from seeds, a few of which should be sown at once in 4½-inch pots, previously crocked and filled to the rim with a light compost, say three parts of sandy loam and one of sweet leaf-mould. Cover the seeds lightly with fine mould and place the pots in a warm house or pit, water through a fine rose, and cover with glass. The latter must be removed as soon as the seedlings appear. From this time the seedling plants must be grown on near the glass and be gradually inured to air to prevent them making a weakly growth. Three plants in a pot will be sufficient. The superfluous plants should be pulled out before they become crowded, and the thinnings, if necessary to increase the number of plants, be

transplanted into the same sized pots, watered and put in a close frame, and shaded from sun for a few days until the roots have taken to the soil. The plants should have supports and be kept well supplied with water at the roots, and be damped overhead morning and afternoon on bright days before they come into flower to prevent the attacks of red spider. Seed should be sown in August to supply winter-blooming plants, treating them as above indicated.—H. W. W.

THE ÆSCHYNANTHUS.

It is much to be regretted that these beautiful stove shrubs, many of which were common some twenty-five or thirty years ago, should now be so neglected, as there are few things more handsome or, one would think, more worthy of general cultivation. Some of the kinds flower in summer, while others, such as *Æ. grandiflorus*, are particularly adapted for warm houses during the winter months. In most cases the flowers are of the richest velvety scarlet or crimson, and are more or less conspicuously blotched with black or yellow markings on the inner surface of the limb. In several species the flowers are also very fragrant, while they last well, being disposed in terminal as well as in axillary umbels, each of which contain from four to twelve blossoms, and sometimes more. The *Æschynanthuses* are naturally quick growers; their culture is simple, and they may be cultivated with success either as pot, basket, or as block plants. In the latter case all that is required is a block of wood, which, as for growing *Platycerium*, or Stag's-horn Fern, must be covered with a rough compost of two parts Sphagnum and one part of fibrous peat, fixed to the block by means of wire, and into which the cuttings are inserted as soon as rooted. Then the same treatment as that given to *Gardenias* and *Ixoras* is all that is necessary to form in a comparatively short space of time fine specimens. In olden days *Æschynanthuses* were commonly and with good effect grown in hanging baskets. If under that mode of culture they were so effective, why should it have been discontinued in later years? It is difficult to assign a reason for their now being seldom, if ever, grown in perfection in that, or indeed in any other way. Yet the culture in baskets is anything but difficult. After the baskets have been lined with green Moss and filled with a light and rich compost, the plants are placed as near the centre as possible, so that a uniform growth is encouraged. The young branches are then fastened down at equal distances with wooden pegs. Plants thus grown require copious waterings during the summer so as to produce and encourage a rapid growth, which during the first season is of the greatest importance. Few or no flowers should be allowed to remain on the plants during the first season, and if the plants are kept in a comparatively cool temperature and dry during the following winter, they will, the following season, produce their blossoms in abundance. When grown in pots these plants require to be frequently repotted into a rich, light, and porous compost, and when the shoots are sufficiently developed train them up a trellis. The best use that can be made of them, however, is for covering damp walls. They spread over the surface like Ivy, and the gorgeous flowers and handsome foliage are very showy. Some species appear specially adapted for that mode of culture, among the best being *Æ. Lobbianus*, *pulcher*, *Boschianus*, and *javanicus*.

All the known *Æschynanthuses* are natives of the East Indies, and principally come from Java and Borneo, whence the best forms were imported as long ago as between 1835 and 1845. Thus we have the magnificent *Æ. Lobbianus*, with campanulate flowers of a rich scarlet disposed in terminal corymbs. The leaves are of a peculiarly pleasing glaucous colour. The flowers of *Æ. javanicus* are bright red, contrasting agreeably with the bright yellow colour of the throat. The foliage of this beautiful species is small, ovate, slightly toothed, and of a dark green colour. In the rich orange-coloured *Æ. grandiflorus* we have another Javanese species of great beauty, its large and showy flowers being generally produced from November to Janu-

ary. It is one of the best kinds for pot culture, as its growth is not so rambling or so drooping as that of others. The bright scarlet *Æ. Boschianus*, whose flowers are disposed in clusters and have a particularly wide throat, is a Javanese species, distinct from all other kinds in foliage. *Æ. longiflorus* and *Æ. miniatus* are also from Java. In the former species the flowers are scarlet and erect; while in the latter-named species they are of an unusually rich vermilion colour, with the upper lip bi-lobed; they are also generally produced three together. The Bornean species, *cordifolius*, has deep red flowers, striped with black inside the orange tube; they are axillary and clustered; the leaves are quite smooth, dark green on the upper side and paler below. In *Æ. tricolor*, which is another Bornean species, the flowers, generally produced in pairs, are of a deep blood-red colour, with the throat and the base of the lobes bright orange, the three upper lobes being striped with black. The leaves are dark green above and paler below, and the edges as well as the under surface and the stems are slightly hairy. *Æ. speciosus* is the only garden hybrid on record. The flowers are bright scarlet and spotted with black on their margins; they are disposed in terminal panicles, and last in perfection for a long time. The *Æschynanthuses* are usually propagated by cuttings, which root readily in early spring if inserted in a light compost covered with an inch of silver sand. The best cuttings are those obtained from half-ripened wood, cut into lengths of 2 inches or 3 inches, and inserted under a bell-glass, all the leaves being removed with the exception of one or two pairs at the top. As soon as rooted the plants are best put in single pots and again placed under glass until they are established, when they are gradually hardened off and then grown on a shelf or in any light position in the warm house. S. G.

Boronia megastigma.—To the lover of sweet-scented blossoms this has much to commend it, as the flowers are so fragrant, that a small plant or two will suffice to fill a good-sized structure with the delicious perfume. It is a plant that is pretty well known, but not half enough grown, for, provided its requirements (which are by no means exacting) are attended to, it will grow and flower well every year. The blooms with which the branches are thickly wreathed are bell-shaped and of a dull bronzy exterior, while the inside is yellowish. Though the blooms are not showy, they are borne in such profusion, that being delicately poised on their slender stems they are by no means unattractive. This *Boronia* succeeds best in good sandy peat, to which some prefer the addition of a little loam. Being a native of Australia, cool greenhouse treatment is all that it requires, and during the summer it may be kept out of doors. All the *Boronias*, the most commonly known of which are *B. serrulata*, *pinnata*, *Drummondii*, and *elatior*, are well worth a place in gardens, and to these should be added the new *B. heterophylla*, with its magenta-violet-coloured blossoms.—T.

Flowering Cannas.—About half a dozen years ago a coloured plate of *C. iridiflora Ehemanni* in THE GARDEN came as a surprise to many, for the fact that such showy blooms were borne by any of the Cannas was unknown to most people. The *Canna* under notice was, however, a large-growing kind and needed a good sized structure for its full development. Since then, however, we have had quite a new race that, flowering freely in a dwarf state, produces large showy blossoms, and maintains a succession of bloom for a very long time. Some of this section were much admired when shown by Mr. Cannell last season, and should before long become very popular. For this dwarf large-flowering race of Cannas we are indebted to M. Crozy, of Lyons, who has devoted a considerable amount of attention to bring them to their present state of perfection, and who issues quite a long list of the best kinds. The flowers of this new race vary in colour from pale yellow to deep crimson, some of the varieties having the petals prettily bordered or spotted, while in some the foliage is green, and in others different shades of red or bronze. As the roots are at present

in a dormant state, this is the best time of the year to obtain them, and on their after treatment will depend the time at which they will commence to bloom.—H. P.

Spot on Pelargoniums.—My experience of spot on Pelargoniums does not agree with either that of "R. D." (p. 117) or T. W. Browning (p. 161). Many years ago I used to grow Pelargoniums rather largely, and always placed the plants out of doors to get the wood thoroughly ripened before cutting them down, a practice largely adopted by growers in our neighbourhood (Yorkshire). I used to lay the plants on their sides to prevent the soil in the pots becoming soddened by rains both before cutting the stems down and after, and we were not troubled at all by spot on the leaves. Why I do not agree with T. W. Browning as to the use of leaf soil being the cause of the spot is because at the present time I grow a good many plants for decoration and leaf soil is always used in potting, and no foliage could look better than that on our plants at the present time. I think spot on the leaves is mainly caused by keeping the soil too wet during the winter, more particularly during the autumn before the Pelargoniums are sufficiently supplied with roots. It is at that time more than any other when the spot appears. Plants badly affected are most difficult to cleanse during that season of growth, but by amended treatment during the following autumn the same plants may be so managed as to show no signs of spot on the leaves whatever. It is much better to keep the soil on the dry side during the autumn and winter months, especially if the plants have to be subjected to a low temperature during the time named. A temperature not lower than 45° by night and a rise of 7° to 10° by day according to the weather suits them admirably. Syringing the plants should not commence until towards the end of March, and then only occasionally in fine weather to keep the foliage clean.—S.

Camellias dropping their buds.—One cause, not mentioned by those who have written on this subject of late in THE GARDEN, is a too high temperature in winter. If this should range higher than 50° in the dark days, there is great danger of the majority of the buds falling. A friend who had in his charge two large houses attached to the dwelling, one being mainly filled with Camellias planted out, was told that he must, if possible, get them into full bloom in January, on account of certain festivities that were to be held at that time. The consequence was that nearly the whole of the buds dropped. The plants were in robust health, and had never before failed in that way; but I am inclined to think that when such things as Camellias are put into the open during a portion of the summer they are more apt to suffer from a rise in temperature after housing. The change from the cool, fresh, damp nights of early September to the close atmosphere of a glass house is naturally great. Abundance of air should be given for a week or two at least, and on every possible occasion the ventilators should be left open at night. The plants will then gradually become accustomed to the altered conditions and will better bear the application of artificial warmth later on. If there are other things of a tender nature in the house, it must, of course, be closed when there are signs of frost, otherwise I should prefer to give air at night up to the middle of November, for the Camellia being hardy, a few degrees of frost will not hurt it.—J. C. B.

Rhododendron Countess of Sefton.—This is the result of a cross between the Himalayan *R. Edgeworthi* and the little free-flowering *R. multiflorum*. This last has a dwarf, much-branched habit, and forms a neat compact bush, every twig of which will be terminated by a flower bud. The blooms are borne in comparatively large clusters, and have the edges of the petals prettily crisped. They are generally of a pale blush tint. *R. Edgeworthi* is the parent of many hybrid varieties, most of which are agreeably scented. The flowers of this species are in themselves very handsome, being large and pure white, with the exception of a stain of yellow at the base of the throat. The

hybrid more nearly resembles *R. Edgworthi* than its other parent, but it is dwarfer in habit, and the flowers are not so large as those of that kind. They are of a pure satiny white inside, while the exterior is occasionally flushed with rose. The blooms of this are deliciously scented. There are some other varieties claiming the same parentage, but I take this and Duchess of Sutherland to be the best, as they are of good sturdy habit, while Countess of Derby, Mrs. James Shawe, and Lady Skelmersdale are of thinner growth, and more inclined to get naked. These hybrid *Rhododendrons*, and, in fact, many of the others, are invaluable at this season of the year, for if some are assisted with a little heat whilst others are allowed to come on normally in the cool greenhouse, a succession will be maintained for a considerable period. The little *R. ciliatum* has also been of good service to the hybridiser, having, in conjunction with *R. Edgworthi*, produced Princess Alice, one of the first of all these hybrids. A distinct type was produced by the intercrossing of *R. ciliatum* and the European *R. davuricum*, the result being *R. praeox*, which is one of the most valuable kinds for forcing that we have, as it can without difficulty be had in bloom early in the year. —T.

WORK IN PLANT HOUSES.

GREENHOUSE.—LILIES.—Plants of *Lilium Harrisii* that have been forced early should, as soon as they are out of bloom, be moved to a cool house or pit, and regularly attended to with water so as to keep the tops in a healthy state until they die down. After this the bulbs may be repotted to prepare them for another year. Successional plants of this Lily should be put in heat to keep up a supply of flowers. It is better to give them an intermediate temperature than subject them to more heat. Let the plants have plenty of light with a little air when the weather is favourable.

L. EXIMUM.—This is the best variety of *L. longiflorum*, inasmuch as it will give something like double the number of flowers that the species is capable of. It forces well, coming in after *L. Harrisii*, and requires to be treated as advised for that kind. If the bulbs are strong and well attended to with water, they will most likely push up a second growth and flower again towards autumn.

L. CANDIDUM.—When well managed this old-fashioned Lily is one of the best of all the white-flowered kinds for pot culture. But it does not often do well if placed in much heat. Bulbs that were potted about the close of last summer, and have been kept in a cool greenhouse temperature during the winter, will now have their stems well up and be showing flower. A portion of the stock may be stood in an intermediate temperature, which will bring the plants on so that they will bloom in advance of the others that will come in later with greenhouse treatment. To make the most of this Lily, the plants after blooming should be well treated, giving them a light position in a cool house or pit, and keeping the soil moderately moist. In this way they may be expected to bloom again next autumn or winter, producing a second crop of flowers quite equal to the first.

L. AURATUM AND L. SPECIOSUM.—The time of the flowering of the first-named of these Lilies varies much in different plants. Even when the treatment is identical, as when a number of imported bulbs are potted at the same time, there will generally be a difference of one or two months in the time of their blooming. As the tops make their appearance above the soil they should be stood where they will get an abundance of light with air at favourable times. When they begin to move freely more water may be given, but in the case of imported bulbs that are now making their first growth in pots, it is well to ascertain whether they are rooting sufficiently, as upon this depends the amount of water the soil will bear. *L. speciosum* is deserving of better treatment than it often gets, for when fairly attended to it is one of the finest of all autumn-blooming plants, especially where there happens to be a large conservatory to keep furnished. As soon as the plants begin to grow, a cold pit or

frame with sufficient covering to keep them safe on frosty nights will be the best place for them. Kept cool in this way, with their tops near the glass, the leaves have enough substance to enable them to keep fresh and healthy until the plants have flowered.

CAMELIAS.—As the plants go out of bloom and the young growth begins to move, they should have a genial growing temperature, with frequent syringing overhead. At no time is it so necessary to be careful in giving the requisite amount of shade to prevent the foliage being injured as during the early stages of growth, the leaves being then in their most tender state. To avoid the plants being over-shaded, they should not be crowded together; they ought to have enough room to stand clear of each other, without which the lower branches cannot possibly continue to maintain their strength. The amount of shade which it is necessary to give Camellias depends a good deal on the character of the house in which they are grown. Lean-to houses facing south, or span-roofed ones that stand with their ends east and west, necessitate more shading than span-roofed structures that stand in the opposite direction. In all cases movable shading is much better than fixed, and the thinner the material that is used the stronger will be the growth.

STOVE.—ALOCASIAS.—The different kinds of *Alocasia* should now be potted, for, however good the material they are grown in may be, it requires to be renewed yearly. Without this there is danger of its getting too far decomposed before the end of a second season for the roots to keep healthy in it. The best fibrous peat, such as used for Orchids, with a liberal addition of chopped Sphagnum, some dry rotten manure, broken charcoal, or corks, and a sprinkling of sand, is the most suitable material for all the kinds except *A. macrorrhiza variegata*. The plants are shallow rooters, and require liberal pot room. Pots of the ordinary shape may be half filled with drainage, and this will leave enough depth of soil for the plants. In potting, the bulb-like formations which some of the kinds produce should be taken off and put singly into small pots. With ordinary treatment before the end of the season they will make useful stock for growing on.

ALOCASIA MACRORRHIZA VARIEGATA.—When well grown, a large specimen of this species is one of the most effective of all variegated plants. It requires different soil from that which answers for other *Alocasias*. Good fresh turfy loam suits it best, and it likes richer material than many plants will bear; one-third rotten manure, such as has been used for growing Mushrooms in, is not too much. The manure should be nearly dry when mixed with the soil. Anything in a wet, adhesive state will injure the roots. A good sprinkling of sand should be added. This *Alocasia* likes plenty of pot room, and where large specimens are required, plants that were raised from suckers last spring should be selected. If these are now in 8-inch or 10-inch pots they may be moved to others that are 16 inches or 18 inches in diameter. With liberal treatment of this kind and the use of manure water, the leaves will attain a large size. Plenty of light is necessary, but shade must be given at all times when the weather is bright.

CISSUS.—*C. discolor* and *C. porphyrophylla* are amongst the best plants for covering a back wall in a stove where there is often not sufficient light for flowering subjects. To have the first-named species in good condition, the plants require to be frequently renewed. When this is done, if they are turned out in a border, the old soil should be cleared away and replaced with new. Either loam or peat will answer, provided it is made rich with rotten manure. When the plants are grown in pots, large ones should be used, as the top growth that is made will much depend on liberal root-room being given. *C. porphyrophylla* does not require to be renewed so often, but must be liberally treated in the matter of rich soil, as in cases where these plants are thus used the object is to get the space well clothed without delay.

FLOWERING STOVE-CLIMBERS.—The various kinds of flowering stove-climbers when planted out

often get into a weak, unsatisfactory state. This is usually because the soil in the beds and borders wherein they are planted becomes poor and exhausted. The vigorous growth which most of the plants so used naturally make soon impoverishes the soil, however good it may happen to be at first, and unless means are regularly taken to make good the exhaustion, the plants suffer. Now is the best time to carry out the partial renovation which should annually be made. As much of the old surface soil should be removed as can be done without an undue sacrifice of the roots. The new material with which it is replaced should have more manure in it than it would be advisable to use in making new beds or borders. Ordinary manure, such as is obtainable from an old hotbed, is the safest to use. Artificial manures are best used later on in the season when the solid manure has done its work. By a judicious use of both, the requisite vigour may be maintained, even with the limited root-run that the plants under notice usually have. Strong growers, such as *Allamandas*, *Aristolochias*, *Hexacentris*, *Clorodendron Balfourii*, *Bougainvilleas*, *Bignonias*, *Thunbergias*, *Passifloras*, and *Ipomæas*, require to be liberally treated in the way advised, or the growth, after the plants have been turned out a year or two, gradually falls off, so as to lead to their becoming prematurely of little use. T. B.

GARDEN FLORA.

PLATE 639.

ROSE MADAME DE WATTEVILLE.*

WHEN some time in the '60's, Homère was still a new Rose and there was occasionally obtained a perfectly coloured flower of it, it earned the name of the "Sensation Rose" from the effect it produced on captivated beholders by the novel and striking disposition of its tints. In one sense, no doubt, it might have been urged that there is nothing new under the sun, and that the marginal arrangement of colour had been long since more than foreshadowed in the white-purple-edged petal of the exquisite Hebe's Lip; but then Hebe's Lip was only a summer Rose, and to remember too much about summer Roses in the early days of Perpetuals was to own to being not quite in the mode; and, worse still, the flowers of Hebe's Lip are not double, and against single Roses there was in those days an unreasoning prejudice, which is hardly yet broken down. So Homère, with its white petals bordered with rose colour, continued to be proclaimed as the most novel of Roses, as among autumnal bloomers no doubt it was, and for a long time it remained unique. But of late years some other Tea-scented Roses have appeared, which more or less carry on its scheme of colour. Of these, one very pretty variety was *L'Elegante*, sent out in 1882 by Guillot, but though the white petals have a marginal band of clear rose, they are too few and the flowers are too small for it to become universally popular. Another variety in the same line somewhat was sent out by Dubreuil in 1885 under the name of *Marquise de Vivens*, and seems also to be what is generally described as a bud Rose.

But the most beautiful of all the Roses of this type is *Madame de Watteville* (Guillot, 1883), one of the most distinct and striking

* Drawn for THE GARDEN at Gravetye by H. G. Moon, August 18, 1887, and printed by G. Severeys.



of modern Teas. The exquisite blooms of it continuously staged throughout the summer of 1886 constituted one of the most conspicuous features of the Rose shows of that season. Rarely has anything more attractive been seen at an exhibition of cut Roses than the box of blooms of this variety with which Mr. B. R. Cant won the prize offered for twelve trusses of any new Rose at the metropolitan exhibition of the National Rose Society in the three successive years of 1885, 1886, and 1887. As an indication of the fact that novelty (in the sense of being newly distributed) was not the sole recommendation of Madame de Watteville, it may be observed that this Rose was also included during the last three seasons in Mr. B. R. Cant's great winning collections of seventy-two distinct varieties. While thus it will be seen that its individual blooms are among the finest of its class, Madame de Watteville is also conspicuously attractive in the garden on account of its great freedom, its erect habit of growth, and its complete distinctness, and it is a good autumnal, fragrant, a good grower, and hardy. Madame de Watteville, when forced under glass, generally appears as a uniformly pale blush rose, the flowers, like most of the two-coloured Teas under such circumstances, not displaying any differentiation of tint, but out of doors, and especially early in the season, the white petals, just tinged with yellow at the base—sometimes evenly margined with clear rose, sometimes with the colour run, as it were, half way down the petals, or as if their upper part had been washed lightly over with soft rose colour—constitute flowers so distinct and attractive, as to enable Madame de Watteville to take rank among the most desirable and beautiful of our Tea-scented Roses. In the accompanying plate the colour in course of printing has become far deeper than in the original drawing, although the form and mode of growth of the buds are well preserved. The normal disposition of tints is best seen in the lowest bud, but throughout if the lighter parts were yellowish white, and the fuller coloured parts proportionately paler, the more general appearance of the flower would be realised even from the abnormally deep-coloured example here shown.

T. W. GIRDLESTONE.

Flowers and frost.—A friend wrote to me the other day from Bayonne, to which place he had travelled from London, that the ground was thickly covered with snow the whole way. In France and on the Pyrenees the snowfall is this year said to be the heaviest experienced during the past fifty years. At the Lisbon Carnival, the other day, flowers were scarce, even in sunny Spain, and a charitable lady who has a garden at Cintra made quite a large sum for the poor of her district by the sale of flowers from her sheltered Dutch-oven of a garden among the rocks. The Carnival at Nice was not so successful as in former years. As a friend present wrote me, snow-balls could have been had more readily than flowers. The "Battle of the Flowers" absorbs cartloads of little bouquets in ordinary years, but according to the papers it

seems that this season it is more difficult than usual to obtain a sufficient number of "Lilies of the field," owing to the extreme cold which still prevails with but rare interruptions of warmer days. A lady residing at

one of the charming nooks of the Alpes Maritimes, where every day is a holiday, writes with regard to the flower supply, "I walked to-day to one of the chief providers of spring flowers, and found him lamenting over frozen Rosebuds and scorched Narcissi, but under his long perspectives of glass houses were multitudes of warm perfumed creatures in the fullness of life and odour. How many of their fair heads will not be guillotined to make one Nizzan holiday!"

It is curious to find that the Scilly Islands and some parts of Ireland escaped the snow storms and to a great extent the frost, and that in these places Narcissi and Violets are plentiful.—VERONICA.

PROPAGATING.

RHODODENDRONS.—The various tube-flowered hybrid Rhododendrons which are now so popular grow and flower nearly throughout the year, and where they have been kept in a warm structure during the winter for the sake of their blossoms, the plants will often push strongly into growth by the early part of February. In this case a great many of the shoots will now be in a half-ripened state—that is to say, if bent sharply they will not snap, and yet are in far from a thoroughly ripened condition. If they are taken off when in this state and placed under favourable conditions, they soon root; whereas, if allowed to get too hard, they stand for months without striking, and, on the other hand, if too succulent, they at once decay. Should the entire shoot not be more than 4 inches to 5 inches long, it should be taken whole at the base of the shoot, just as it starts from where the old wood is a little swollen, and several buds are clustered thereabouts, so that roots are pushed out from that particular spot more freely than they are from any other part of the stem. By far the best soil for these cuttings consists of two parts of peat to one of sand, pounded charcoal, and crocks. The latter should be broken fine enough to pass through a sieve with a quarter of an inch mesh, and the cuttings root far more vigorously in such a compost than they will in peat and sand alone. Such compost as this will be found one of the best not only for Rhododendrons, but for many other difficult-rooting subjects. The soil having been prepared, the pots may be got ready for the cuttings by thoroughly draining them, filling them nearly to the rim with the compost, and then finishing off with a layer of sand on the top. The cuttings must then be dibbled in, care being taken that the soil is well closed around the base; for if space is left there, the cutting will stand much longer than it otherwise would before rooting. When the pots are filled and a thorough watering given, they must be placed in a close propagating case, which is kept somewhat warmer than the structure in which the plants have been grown. With attention in the matter of watering, shading, &c., they will root in about a couple of months at this season, and when sufficiently advanced they should be potted off. Particular care must be taken when they are in the close propagating case that thrips do not attack the leaves, as these pests increase rapidly in the confined atmosphere and disfigure the foliage.

LILY OF THE VALLEY TREE (*Andromeda japonica*).—Where this is grown under glass it will be already in active growth, and if desired to increase the stock the same directions may be followed out as above recommended for the Rhododendrons. When the plants are in the open ground, growth of course takes place later, and the cuttings then produced will strike in a cold frame if it is kept close and properly attended to.

JASMINUM GRACILLIMUM.—Not only can this beautiful stove Jasmine be propagated by cuttings of the young shoots in the same way as the others, but it can also be increased by means of root cuttings, which grow readily enough at this season. The roots must be cut up into lengths of an inch or two and dibbled into pots or pans of sandy soil in the same way as root cuttings of *Bouvardias* are treated.

PALMS.—Now that Palms are so popular, and seeds of many of them are imported in considerable quantities, a few notes as to their treatment may be of service. As the seeds of some Palms quickly lose their vitality they should be sown as soon as possible after they are received, for even if they eventually grow, old seed will remain in the ground longer than new. One reason why Palms may be sown at any time of the year is the fact that the young plants do not damp off, even if they appear above ground in the depth of winter. Most Palm seeds are fairly amenable to one mode of treatment. Unless in the case of those which have seeds of an exceptional size, boxes or pans from 3 inches to 4 inches deep are very handy things in which to sow them, being prepared for the purpose by a thin layer of crocks in the bottom. Then put in sufficient soil, so that when the seeds are sown thereon it will allow of their being covered with soil about their own thickness. A compost with a good proportion of loam is very suitable for most Palms, and for sowing the seeds in. It may consist of three parts good open loam to one of sand, or if the loam is of too adhesive a nature it may be lightened by a little decayed leaf mould or peat. The pans and boxes may then be stood anywhere under the stage (provided they are not in close proximity to the hot-water pipes) till germination takes place, when they should be at once shifted into a lighter position. From the time the seed is sown the soil must not be allowed to become dry, for should it get in this state when germination has commenced serious harm may be done. The seeds of even greenhouse Palms grow better if placed in a cool part of the stove than they do in a lower temperature. Generally speaking, with most Palms they should be potted off as soon as the first leaf is well developed, for if delayed longer the roots become entangled, and being very susceptible of injury it is not an easy matter to disentangle and pot them without breaking some of them.

MAULE'S QUINCE (*Pyrus Maulei*).—This pretty shrub, recently noted in THE GARDEN, often ripens seeds from which young plants can be raised, and, besides this, the plants strike readily from cuttings. Early last spring I put in a quantity, most of them being formed of the shoots that are pushed up often in considerable numbers around the collar of the plant. They were from 9 inches to 12 inches long, and after being trimmed over were dibbled firmly into a somewhat sheltered border. Though the summer was so trying, the cuttings did well (being watered occasionally), for the loss among them was very slight. I could not obtain the cuttings in the autumn, otherwise I should prefer putting them in at that time. The *Pyrus*, or *Cydonia japonica* and its numerous varieties can also be increased in the same way, but cuttings do not strike quite so readily as those of Maule's Quince. Besides this, the plants can be propagated by root cuttings, but as some of the named varieties are often grafted on pieces of the roots, this must be seen to before taking the cuttings.

MAGNOLIA FUSCATA.—This deliciously fragrant evergreen species of *Magnolia* is the easiest of the genus to strike from cuttings, for though they do not root readily, yet with but ordinary care and attention there will be little loss among them. The cuttings should be taken in about the same condition and receive the same treatment as above recommended for Rhododendrons, but those of the *Magnolia* will take longer to root than they do. The general way of propagating the other *Magnolias* is by seeds when obtainable, by layers, or by grafting, the stock generally used for this purpose being the Japanese *M. obovata* or *purpurea*, which strikes roots from layers in less time than any of the others.

AKEBIA QUINATA.—This pretty climber can be readily propagated, for cuttings of the young shoots strike fairly well. Besides this, it can be increased by means of root cuttings. In selecting the shoots for propagation, do not take the stout, vigorous ones, as those that are weaker and not so long-jointed strike better. Such shoots are often pushed out from various parts of the main stem, and when

present they may be taken off with a heel and dibbled into pots of sandy soil, in which they soon root. T.

CHRYSANTHEMUMS.

E. MOLYNEUX.

DWARF CHRYSANTHEMUMS.

THE dwarf method of growing Chrysanthemums appears to be finding much favour, both with exhibitors and those who only grow for conservatory decoration. The reason is, I suppose, because the flowers produced by this method are so much more easily seen than when tall plants are cultivated. Dwarf plants are nearly always much better furnished with foliage—an important point in the grouping of Chrysanthemums for effect; but it is useless to compare the blooms produced from dwarf plants generally with those which can be secured by growing the plants in the other way. Many good flowers are seen upon dwarf plants, but, on the whole, they lack solidity and depth.

It would, indeed, be a boon if equally good flowers could be had by cutting the plants down at the time, which is practised by growers of dwarf plants for grouping. Those persons who purpose to grow dwarf plants for groups will now have them as stout and dwarf as possible by allotting them a favourable position near the glass to prevent a weakly growth. For the present, and for some time to come, the plants should be treated in the same manner as though they were intended for the production of exhibition flowers by preserving the leading shoot or stem in an upright manner, securing it to a stake as it grows, for fear of accident to its point. At this stage a check to its growth means irreparable loss by the lower eyes or buds breaking into growth. Shift the plants on into larger pots as the roots progress, but avoid large shifts, because in grouping the plants when in bloom they are generally stood close together. Thus it will be seen that very large pots will be inconvenient. Those 9 inches in diameter will be large enough for the final shift—indeed, some may be grown in 8-inch pots. If the plants were propagated in a cool house, pot them into 3½-inch pots directly the roots commence to run into the new soil, which is the first shift from the cutting pots, and remove them at once to a cold frame where a stocky growth will be made. The treatment required from now until the early part of May will be the same as for the tall-growing batch. At that time preparations should be made to induce a dwarf growth.

Dwarf plants growing in pots 3½ inches in diameter are well suited for indoor decoration in vases or for standing on the side stages of the conservatory where such examples only are required. Plants producing one bloom each, many measuring 5 inches and more across, are well worthy of what little attention they require. Early in August is the time to commence the cultivation of these small plants in earnest, but some sort of provision should be made at once if a large number of dwarf plants are likely to be needed. There are several methods of procuring a stock of plants for this purpose, which I will describe. For a large number of plants the following way is perhaps the best, as causing the least trouble. Both Japanese and incurved varieties are suitable for this style of growth, giving the preference to those kinds which are not weakly in growth, avoiding all that have slender peduncles. The stout, erect growers are the most useful, as they require no support when in bloom. Baron de Prailly is a

type of what is required. Insert cuttings in the usual way at once, pot the plants as required, and do not top the point of the shoot, but at the first break train up four shoots, tying all loosely to one stake, removing all other side branches as they occur, thus concentrating all the energies of the plant into the four stems. Choose an open piece of ground, and early in May, or as soon as all fear of frost is past, plant out in moderately rich soil, having first hardened the plants thoroughly. Tread the soil firmly about the roots, to assist in promoting a short, stocky growth.

Another method of securing cuttings for dwarf plants is the following. Where plants are grown for "big blooms," instead of allowing three shoots to each, as is generally the practice, allow four to remain at the first break, training them all up together, and when the buds form in August, the extra shoots can be cut off and the cuttings inserted. Another method, and that most generally practised, is this: Where Chrysanthemums are grown for large blooms, some of the points are almost sure to be broken off by various causes, as, for instance, heavy rains, high winds, and birds alighting on them—shoots at this stage being very brittle. The cuttings should not be inserted before August; therefore, any broken shoots before that time will be useless.

The bush method of growing the plants is one which finds favour with many persons, particularly those with limited accommodation under glass, and who wish to have a quantity of flowers during the winter months. Such a method has its advantages, the principal one being the opportunity to cut flowers in abundance when the quality of such is not of the greatest importance; for making a brilliant show in the conservatory, such plants are also very useful. The management required is to strike the cuttings either in January or the early part of the present month, pinching the point out of each when about 4 inches high to induce side branches to grow, which are the foundation of the "bush." If small plants only are required, one topping will be enough, but when larger plants are required the shoots must be again topped when they have grown another 5 inches from the first topping. Good foliage enhances the appearance of bush-grown plants considerably. To obtain and retain the leaves in a healthy condition much care must be exercised in allowing ample space between the plants during the summer's growth. Watering the plants, both at the roots and overhead, is an important item in their successful culture. Neglect in this latter detail even for a short time soon renders the plants unsightly; therefore any extra attention bestowed in this way is amply repaid.

Chrysanthemum culture.—I thank Mr. Beckett (p. 167) for kindly replying to my inquiry respecting several points in his paper on Chrysanthemum culture. But to those who wish to learn all matters connected with these now popular plants I must say that the two contradictory statements on pages 8 and 9 respecting the practice of himself and "J. C. C.," relating to sucker cuttings, were likely to put many others besides myself in a fix to know which was really the better plan. If Mr. Beckett had given his reasons at that time why clean-cut cuttings were so much better than suckers, the matter would not have required mentioning. Upon such important details as these it would be satisfactory to many if writers were to explain their practice, particularly when they are so positive upon certain points being the best to adopt. I should have thought that the suckers could be easily removed from the base of the plants during the summer without injury to the roots. I did not think that was the chief objection to sucker

cuttings. I thought it was a long time for the plants to remain in the 6-inch pots, and as Chrysanthemums make roots very fast at that time of the year, I thought the roots would become so cramped that they would not take so kindly to the new soil as otherwise would be the case. I consider Mr. Beckett gives an excellent reason for the soil becoming sour, viz., long-continued applications of water and stimulants clogging the drainage, which, when it does occur, must seriously hinder the welfare of the plants. With regard to "taking the buds," I notice that Mr. Beckett in *THE GARDEN* (p. 167), in his answer to my inquiry respecting the buds, admits that what I asked had some foundation for inquiry when he says that those sorts I named, and also some others in addition, do require earlier bud selection.—INQUIRER.

WEAKLY-GROWING CHRYSANTHEMUMS.

THERE are many Chrysanthemums of a weakly habit of growth, and such varieties are often most desirable if their flowers can be developed satisfactorily. The flowers from some of the weak-growing sorts cannot always be dispensed with if a leading position is desired. The finest blooms it is possible to obtain from such varieties that are weakly in growth strengthens a stand considerably when the judges take into consideration the difficulty there is in cultivating some sorts to the highest excellence. Very often weakly-growing sorts are longer in making roots than others. At each successional potting the plants should only receive a shift into pots a size larger than those in which they were growing. Pots of too large a size are very unsuitable indeed for weak varieties, which only make roots in proportion to the branches; therefore, if very large pots are used, the plants cannot be fed in the same manner as if they occupied smaller-sized pots. Pots 8 inches in diameter are large enough to flower the plants in. The soil used should be prepared rather differently from that for the ordinary varieties, a lighter kind being used. By adding more leaf-mould, charcoal, and sand where the loam is of a heavy kind, and a little less manure, a suitable compost is prepared. Great care should be exercised in its preparation, so as to have it in as rough a state as possible, rejecting the fine soil. A more porous compost is then obtained. The soil should not be pressed so firmly into the pots as in the case of more vigorous growers.

It is a good plan to stand weak-growing sorts by themselves in their summer quarters, as more regular attention can then be given to them. Care should be taken in applying water to the roots after potting, as weak-growing plants do not make roots fast; consequently they do not need so much water, as the soil is liable to become sour. Indeed, when the plants are growing freely, water should not be given them unless they require it. For the advantage of those who do not know the weak-growing sorts, I give a list of them, such varieties being all the better for a special course of treatment:—

Japanese.—Jeanne Délaux, Criterion, Golden Dragon, Margaret Marrouch, Martha Hardinge, Balmoreau, M. Ardène, Garnet, Agréments de la Nature, Mrs. Mahood, and Mr. John Laing.

Incurved.—Barbara, Lady Carey, Mr. Bunn, Princess Beatrice, Mrs. W. Shipman, Nonpareil, Sir Stafford Carey, Angelina, Lady Slade, Cherub, and Lady Hardinge.

Reflexed.—Dr. Sharpe and Emperor of China.

Anemone varieties.—Mlle. Cabrol, Fleur de Marie, Mme. Clos, Margouline, and Mme. Ghys.

E. M.

SHORT NOTES.—CHRYSANTHEMUMS.

Pompon Chrysanthemum St. Michael.—If anyone desires to grow a valuable Pompon Chrysanthemum for cutting I should recommend the above. The colour is clear golden yellow; it is late in blooming, and the flowers, which are freely produced, are thrown up quite clear of the stems. Let not the fact that it is somewhat old tell against it. It is too useful to be slighted on that ground. A gardener of my acquaintance grows a large quantity of it

for cutting, and he states that if not the best, it is at least one of the most useful varieties for yielding cut flowers in the autumn months.—R. D.

Grafting Chrysanthemums.—Those who intend to graft the weak varieties of Chrysanthemums on to strong-growing sorts with the object of improving their constitution and developing finer blooms should shortly make a commencement. Any time from now until May will do. Elaine makes the best stock of any sort for grafting upon, as the growth of this variety is free without being too robust, and an even balance of both stock and graft should be aimed at, so that the whole swelling may be uniform. Any weakly growing sort may be worked upon Elaine as the stock. I would suggest one name—Balmoreau—as a sort to try as an experiment. If the cuttings of Elaine were struck at the usual time, say in December, the plants will be in good condition about the middle of March, if they have been potted once from the cutting-pot and kept growing freely in a cool house. The scion should be put on about 6 inches above the soil, and what is commonly known as wedge-grafting should be adopted, care being taken that the bark of both stock and graft come exactly together. Tie with bast and, for fear of breakage, secure the graft to a stake directly it begins to grow. The plants after this operation should be kept in the warmest end of the house for a short time away from direct draught until it is seen that a union is formed. Excepting in this particular instance, no special treatment is needed.—S.

PREPARING FOR POTTING.

At the present time, when the weather is not suitable for out-door work, much may be done to facilitate the work which will press more heavily later on in the spring by preparing the pots for the subsequent shifts that will be necessary. I will first take the plants cultivated for large blooms, as these need the most preparation. The next sized pots the plants will need are those $5\frac{1}{2}$ inches and $6\frac{1}{2}$ inches in diameter, presuming the pots they now occupy are $3\frac{1}{2}$ inches and $4\frac{1}{2}$ inches. The next size of pots after this will be 9-inch and 10-inch, the latter being for the strongest-growing kinds, and the first named for the bulk of the ordinary habited sorts. Where a stock of pots is at hand larger in diameter than the sizes named, and it is the wish of the cultivator that they be used, it is much better to grow two plants in each pot after the final shift than to place one only in each pot, as they are sure to grow in anything but a satisfactory condition, owing to the plants being unable to make a sufficiency of roots to fill large pots. When two plants are to be grown together they must, of course, be the same varieties, choosing those most weakly in growth. As the "cast" sizes vary at different potteries, I think it better to give the sizes in inches, always measuring inside. Pots of the sizes named, if dirty, should be washed clean and stored away ready for use. When there are not sufficient pots in stock, new ones should be got in from the pottery some time before being required, as they are better if well soaked previous to using them. New pots should never be employed without first soaking them, as they absorb so much moisture from the soil. The crocks should be washed if dirty, as it is necessary to take great care to prevent the drainage becoming choked. Some preparation may also be made with the soil by placing the different ingredients required under cover, so that when needed the compost will be neither wet nor dry. This is a much better plan than leaving it outside until the day it is wanted, and then being compelled to dry it rapidly to make it ready for use.

Loam, as it is called, is composed of the top spit of an old pasture cut in thickness according to the depth of the fibrous roots of the Grass,

In some places 3 inches is not too deep, while in others $1\frac{1}{2}$ inches is enough, according to the time the pasture has been laid down. The turf should remain just long enough to allow the Grass to decay and prevent it growing through the surface in the pots. Loam is the principal ingredient in the compost required. Leaf-soil, not too much decomposed, is also necessary. The materials from a spent Mushroom bed and some horse manure prepared as if for a Mushroom bed are beneficial to the plants used at the final potting. Soot, finely-ground bones, wood ashes, and sharp silver sand are all necessary items in the compost for Chrysanthemums. Stakes are necessary for the support of the plants, and circumstances will guide the cultivator in the preparation of these. Where the stakes can be obtained from woods they are much better cut now, pointed, made into various lengths, and tied up in bundles, as this will help to straighten any that are crooked. One year's growth of Hazel will suffice to make stakes for the young plants. Other lengths, such as 4 feet, 6 feet, 8 feet, and 10 feet, will also be needed. Bamboo canes are largely used where available, and they make excellent stakes, when split and dressed, for the kind of trellis work that is erected annually in the summer quarters of the plants to secure them firmly from strong winds. Stout poles for supports and cross rails of thinner dimensions can be got ready. The length of the poles must be proportionate to the height the plants are likely to grow. Stakes for this purpose where available should be prepared at this time. Labels for the plants should now be got ready. Builders' ceiling laths answer well if cut into lengths of about 6 inches. E. M.

ORCHIDS.

W. H. GOWER.

VANDAS AT HOLLOWAY.

WHILST the majority of Orchid growers have for a long time discarded these plants, Mr. Williams has been for many years a persistent admirer and collector of them, until the quantity of noble specimens of the *V. tricolor* and *V. suavis* section now to be seen in this establishment is quite marvellous. Mr. Williams has always expressed his belief in the return of Vandas to popularity when the flow of new *Odontoglossums* and *Masdevallias* has somewhat abated. This has now come to pass.

V. suavis and *V. tricolor* and their varieties are natives of Java, where they are said to grow wild upon large Palm trees in the woods on the western side of the island, but in this country they form the most beautiful ornaments when grown in pots, their long, pendent, two-ranked dark green leaves rendering them extremely ornamental. In the house devoted to the cultivation of Vandas and other distichous-leaved Orchids at Holloway are just now several fine forms of *V. suavis* and *tricolor*, the flowers of which fill the structure with perfume, this being aromatic, grateful, and powerful, without becoming fulsome. Several examples of *V. suavis* are producing quantities of bloom. The flowers measure some 3 inches across, the sepals and petals being reflexed, the latter twisted, so as to show the outer surface; they are all spatulate, thick and waxy in texture, china-white, streaked and dotted with moderate-sized deep blood-red spots. The three-lobed lip is deeply bilobed in front, where it is white, the remaining portion being rich purplish magenta. In *M. Gottschalck's* variety, the plant is very robust and the flowers are proportionately large, the spotting being very heavy

and profuse, and the lip deep rosy purple, with a white bifid apex. The Chatsworth variety has very large flowers, the sepals and petals being undulated at the edges, the china-white ground colour being profusely marked with small spots of deep blood-red. In the form called *flava* the ground colour in front is yellow, the surface being streaked and spotted with oblong deep brown spots, and the lip deep rose. These flowers are pure white on the reverse side, and the petals all turn quite round, so as to expose the back part to view. *V. tricolor* and its varieties are similar in habit of growth, the typical plant bearing cinnamon-coloured flowers, blotched and streaked with brown, the lip being flat, not bilobed, and deep rose colour. Dr. Paterson's variety is another handsome form, which, moreover, has the great recommendation of flowering in quite a small state; the sepals and petals are creamy white, profusely blotched and spotted with cinnamon-brown, the reverse side white; lip bright magenta, large and flat. *Planilabris* is one of the grandest of the *tricolor* varieties, the ground colour of the sepals and petals being clear citron-yellow, ornamented with a profusion of reddish brown spots and blotches; the lip is large, flat, and rich magenta-purple. *Insignis* is a variety which for years occupied a place in our collections as the plant thus named by Blume; but the true *insignis* of Bl. has been introduced by the Messrs. Veitch, and proves to be quite distinct. This cannot, therefore, be considered other than a form of *tricolor*. It has sepals and petals of a light yellow, spotted and blotched with crimson, the large lip being soft lilac or mauve. Other forms of *tricolor* flowering here are the *Glen* variety and the *Dalkeith* variety, the flowers of the latter being pale yellow, blotched and spotted with rich brown, and the lip deep magenta. These and various other forms can now be seen in the Holloway collection, forming quite an exhibition of themselves. Their cultivation, as treated here, is very simple. They are potted in sweet living *Sphagnum* Moss and are kept fairly moist, the temperature in winter not being allowed to fall lower than about 60°. The plants are allowed plenty of air, and do not get more shade than is necessary to keep the leaves from becoming a bad colour. Thus treated, the plants retain their leaves almost to the base for years, and produce two and three crops of flowers annually. In the days of fumigation for the destruction of insects, this operation was a risky one, as soon after each fumigation the Vandas cast some of their lower leaves; but since the *Thanatophane* has been used, no ill-effects have resulted therefrom. But to be successful, I am told it is necessary to use the specially prepared mixture.

Angræcums at Burford Lodge.—A number of beautiful species of this genus are grown here, many of them from the giant *A. sesquipedale*, with its large, thick, and fleshy ivory-white flowers, and spur over a foot in length, to the dwarf *A. hyaloides*, which spreads its distichous raceme of pure white flowers on the soil, causing the surface to appear as if covered with snow, being in full beauty at the time of my visit. Here also were excellent examples of *A. pertusum*, its long spikes, thickly set with pure white flowers arranged in a two-ranked fashion, resembling so many pearly shells set upon a wire, the deep green of its foliage affording an admirable contrast. In close proximity were plants of *A. pellucidum*, a bold and handsome plant, but, like the previously named kind, far too seldom grown. The spikes of *A. pellucidum* are long and drooping, the raceme being composed of numerous white fringed flowers. The free-flowering and ever welcome *A. ciliatum*, its delicate flowers having just a tinge of pale yellow, was also in bloom. *A. eburneum* is a noble plant, the pure ivory-white of

its large lip rendering it very conspicuous; moreover it lasts nearly all through the winter in full beauty. Another species under the name of *A. Sanderianum* was not open, but it seems to be a profuse bloomer. It appears to require nearly twelve months to fully develop its flowers.—W. H. G.

MASDEVALLIAS AT BURFORD LODGE.

OF this very interesting cold-house genus of Orchids Sir Trevor Lawrence possesses a magnificent collection. The leaves have a healthy appearance, are deep green in most cases and free from the black stains which too frequently disfigure these plants. These black stains, the marks left by the ravages of thrips, are usually brought about by keeping the plants too hot and dry. I was a little too early in the season to see the *Masdevallias* in their full beauty. Amongst the most curious and distinct was that known as the Lion's-tongue *Masdevallia*, the flowers heavily blotched and spotted with purple. *M. gargantua* is another rare and singular species with dull purple sepals. *M. Chimæra* and *M. bella* were in abundance. *M. Houtteana* and *M. benedicta* were two others literally smothered with blooms, the flowers being creamy white profusely spotted with deep red, the sepals lengthened out into tail-like points which are also deep red. When seen in a mass these blooms are very beautiful. I cannot think that these two plants are specifically distinct, as the only point of difference discernible was size of flower. *M. racemosa* was also flowering, and although the plant is growing apparently strongly, it does not show any sign of making such a magnificent raceme of bloom as I was once shown by Mr. Shuttleworth, of Clapham. By the way, I see that someone in a recent number of THE GARDEN states that this variety is a hybrid. It is the first time I ever heard this suggested. Will the writer kindly say what are its parents? *M. ignea* in several forms was also well represented. *M. Frazeri* is a hybrid form with handsome flowers, intermediate in colour between those of the parents, which are *M. ignea* and *M. Lindeni*. This parentage is distinctly visible, as both *ignea* and *Lindeni* are flowering in close proximity. The rare and majestic *M. macrura*, with its large solitary flowers, which are reddish brown streaked and dotted with deep purple, the sepals lengthened out into tail-like appendages, which are some 5 inches long and yellow, was also in bloom. In curious contrast to this was the Gnat *Masdevallia* (*M. culex*), whose diminutive flowers much resemble a flight of gnats. I believe that the plant has now been removed to the genus *Pleurothallis*. These, with some deeply coloured forms of *M. polysticta* and the perpetual-flowering *M. amabilis*, comprised the varieties in flower. These plants when grouped with the lovely *Odontoglossum Alexandræ* form a picture rich and rare, and one that may be enjoyed for a long time, as these flowers last in perfection for many weeks.

W. H. G.

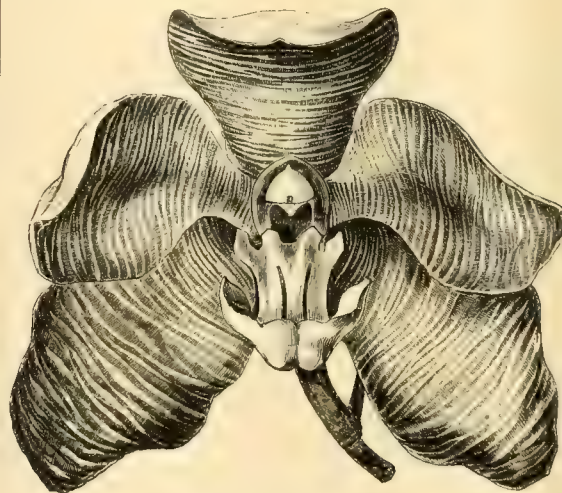
Pescatorea Lehmanni.—Reichenbach makes this genus identical with *Zygopetalum*. This species was discovered by M. Lehmann, whose name it bears, in the mountains of Ecuador. It is an ever-green plant, bearing light green plaited leaves, which are from 12 inches to 18 inches high. The peduncles are single-flowered, each blossom measuring upwards of 3 inches across; sepals and petals obtusely rounded, white, streaked with close set lines of reddish purple; lip mauve-purple, ciliated, and ribbed. These plants grow naturally upon the stems of trees, but a fine example of this species which I recently noted flowering in the Burford Lodge collection was treated as a pot plant, and appeared to be in vigorous health. It was growing in a warm house.—W. H.

Epidendrum Schomburgki.—This species is a native of Demerara and Surinam, and is also said to be found in various parts of Brazil and in the Andes of Peru; but it is doubtful, and probably more than one species is included in these wide localities. This species is said to have been introduced in the year 1836, but I have never seen it until this year, when I recently noted it flowering in Mr. Williams' nursery at Holloway. It belongs

to the slender-stemmed section, and grows some 2 feet or 3 feet long, perhaps more. The leaves are thick and fleshy in texture, two-ranked and deep green; the scape is long and leafless, and it bears upon the end a somewhat closely packed raceme of flowers, which are numerous, although not large; these are of a purplish rose colour, the lip being fringed in front. In the Holloway Nursery this plant has been grown in a warm house, and if it has been brought from British Guiana it probably requires it; but if the same species is found about Quito, plants imported from that district would, in all probability, grow best in a lower temperature. The flowers are of a pleasing shade of colour, but certainly not scarlet, as described by Lindley. This variety will make a nice companion for the other thin-stemmed kinds which appear to be finding favour.—G.

VANDA CATHCARTI.

THIS noble and distinct species (an illustration of which is here given) deserves all that "W. H. G." says of it in THE GARDEN (p. 175) and more, but he should have verified his facts as to its first flowering in England. I happen to have had the finest specimen of *Vanda Cathcarti* then known in England under my care in 1870, and I figured it and a flower of



Vanda Cathcarti.

the natural size in the *Gardeners' Chronicle* of October 22 of that year (p. 1409). This illustration has since appeared in the "Orchid Manual" of Mr. Williams, and is included in the current edition. The facts of the case are that this *Vanda* first flowered in England in 1869 in the collection of Mr. Stead, of The Knoll, Baildon, near Leeds, and bore five spikes of its great chocolate-barred and wax-like flowers. It again bloomed under my care in 1870 in August or September, when the figure above alluded to was made. The plant was fully 6 feet in height with a second outgrowth near its base among its thick aerial roots. The plant grew up a teak wood log at the warm end of an East Indian house, in which *Phalænopsis* of all kinds did remarkably well. The position was rather shady, close to a glass division, and the plant grew very rapidly, being syringed three times a day when making its growth. An Indian traveller once told me that he had seen masses of this plant in the Himalayas as large as a load of hay, the growths and roots being intermixed in all directions and clustered around the bases of forest trees, generally near waterfalls, at about 2000 feet altitude, but in deep gullies, where the climate was very hot and moist. A good account of this plant by an eye-

witness is given in the *Gardeners' Chronicle*, 1870 (p. 40). In my own original account of the flowering of this then rare species in Hort. Stead, in 1870, I mentioned the fact that "Last year (1869) this plant produced several spikes which I am informed were much finer than those produced this year."

The history of Mr. Stead's specimen as told to me at the time was, that it formed a part of an extensive collection purchased by him on the Continent in 1867 or 1868, I think from Belgium, and certainly it contained many other Orchids besides this *Vanda*, which at the time, and even since, were extremely rare in English collections. I firmly believe that this *Vanda* had flowered on the Continent before it came into The Knoll collection, but I should not like to assert the belief as a certain fact. Even with all the facilities for an easy and rapid interchange of knowledge which we now possess, a good many rarities escape notice in the hundreds of old country-house gardens that remain comparatively unknown. The introduction of seeds and plants of all kinds now takes place all over England in a quiet, unobtrusive way, and many undiscovered novelties exist here and there, and their owners are satisfied either by their beauty, interest, or associations; and so things remain unknown to the many, although prized locally by the few. It is not quite safe now-a-days to assert that any plant is rare in England generally simply because it happens to be so in the gardens or nurseries near London. My own experience is that the garden flora of any great centre in England is often more varied than the native one, by which I mean that there seems to be a focus of good plants at one centre, say Liverpool or Manchester, which you will not find in other centres, such as Exeter, Edinburgh, or Dublin. London certainly has a rich hothouse flora, but certain things good at Kew may be poorly developed at York or Edinburgh, or *vice versa*. When we come to consider the hardy flora of our gardens this fact is even more apparent, since climate in spite of us exerts a more or less rigid course of evolution or natural selection. Daffodils in Ireland and Daffodils near London are scarcely

recognisable when compared with each other, and the same is true of Primroses and most other plants which like a moist, mild climate and not too hot a summer's sun. In a journey through the shires or amongst the out-of-the-way gardens in England, it is simply astonishing to see the way in which some long-forgotten plants are grown, and not unfrequently you are startled by seeing some new species.

F. W. BURBIDGE.

Aerides vandarum.—This plant, which I recently noted as being so fine in the Burford Lodge collection, I observe is also flowering with Mr. Williams at Holloway, where it appears to be grown in strong heat in company with *Vanda Hookeriana* and *V. teres*. Hooker figured this plant in the *Botanical Magazine* (t. 4982) under the name of *A. cylindricum*, and says it is a native of the Jyamally Hills, Coimbatore; but whether that refers to the true *Aerides cylindricum* or the present plant I am unable to say. This *Aerides* does not require much potting material about its roots, as they are mostly aerial, indicating the necessity of maintaining a very moist atmosphere. The leaves are slender and about 6 inches in length; the flowers, which are produced singly or in pairs on a short spike from the base of the leaves, are large, with a spreading

pure white lip. This *Aerides* still remains one of the rarest of the genus to which it belongs.—G.

Brassia Lawrenceana.—The members of this genus have been for a long time discarded by Orchid growers, although in days gone by Brassias were plentiful enough in our stoves. There appears to be a revival of the taste for them, however, and such a variety of the above species, as I recently noted flowering at Ladymead, East Harting, in Sussex, the residence of Mr. R. J. Measures, is likely to soon restore them to public favour. The sepals and petals are long and narrow, all spreading, the former being upwards of 6 inches long; petals slightly shorter, yellowish white, spotted in the basal half with dull crimson; lip large and flat, heart-shaped, white, stained with lemon-yellow, and spotted with greenish brown. The lip is 2 inches in length, and upwards of 1½ inches in breadth. Brassias are not difficult to cultivate, but require the temperature of a *Cattleya* house.—W. H. G.

Miltonia cuneata.—This plant, although it has been an inhabitant of our stoves for upwards of forty years, having been introduced by the Messrs. Rollisson, of Tooting, in 1843, remained scarce for many years, and even now is too seldom met with. I recently, however, noted some nice flowering examples of it with Mr. Bonny, in his Hextable Nursery at Swanley, where it is grown with the *Cattleyas*. A friend of mine, who had Coffee plantations somewhere in the neighbourhood of Rio Janeiro, used to bring Orchids home with him every time he visited his estate in Brazil, and amongst them I always found some plants of this species, so that I cannot think it can be rare in a wild state. In growth it somewhat resembles *M. candida*; the scape is erect, bearing a raceme of from six to eight large flowers, the sepals and petals being bright brown tipped with white or yellow, and the lip is large and flat. It is a handsome plant, and the flowers last long in beauty, which, combined with the fact that it blooms in winter, should lead to its more extended cultivation.—W. H. G.

SOWING CYCLAMEN SEED.

I FREQUENTLY see it stated that *Cyclamen* seed germinates so irregularly, that months often elapse between the appearance of the first and last plants. If not true, the assertion would certainly not be so often made, but, curiously enough, although I have raised many thousands of the Persian *Cyclamen*, I have never yet seen this irregularity of germination. With me the plants appear almost all at once, and I have never known any to come through at a later season. I do, however, remember that I once emptied out some seed-pans thinking that the seeds were not good and months afterwards young plants came up on the rubbish heap. In this instance, however, no plants had come through, owing to wrong treatment on my part. In order to save labour and, as I think, to render germination more certain, I sow the seeds broadcast early in autumn in a frame. They remain there until I require them in spring, getting no artificial warmth, but being, of course, well covered in frosty weather. One great advantage attending this method is that I do not need to water all through the winter, and the soil remaining in an equably moist condition, the young plants make more roots than when standing in pans on a greenhouse stage. I had occasion to take some up the other day and was surprised to see how full of white fibres even the latest sown were. I send some thousands of these young plants away annually, and I am frequently told that they were "so well rooted," this extra root activity being, I am sure, due to nothing more than the dispensing with pans or any kind of receptacle for sowing in. I do not think that anyone having once practised this way of sowing *Cyclamen* seed would willingly return to the old method. I seldom fail to get my seed up well in this way. Seeing how favourable the conditions are for the development of the seed by reason of the soil remaining in a constantly moist condition, I have often wondered that no more plants come up later on. With regard to the hardy kinds, however,

I have known the last young plants to come through six months or more after the seed was sown. In their case it does not do to empty out the seed-pans if few or no plants appear within a couple of months of sowing. I sow the hardy kinds in just the same way as the indoor varieties, and with me they come up at the rate of 90 per cent. I fancy, however, that they germinate with most certainty when sown at the beginning of the winter, merely keeping frost from them. I once sowed a lot of *C. europæum* at that time and every seed apparently came up in the spring. I believe that all hard-coated hardy flower seeds would come up more freely if allowed to remain through the winter in the soil.

J. C. B.

FERNS.

W. H. GOWER.

MYRIOPTERIS.

THIS genus was established by Fee about the year 1851 to include all the species which had



Myriopteris elegans.

been placed under the sectional name of *Phylopteris* by Presl. The plants included in this genus are nearly allied to *Nothochlæna*, from which they are distinguished by their elegantly-divided fronds and their small concave, bead-like pinnules. They are for the most part natives of mountainous regions in South America, and a few are found on the Rocky Mountains and California, whilst one species (*M. Szovitzii*) is found in Europe, and also extends to the Himalayan Mountains in India. The majority of the kinds thrive best in a cool (not cold) house. I have grown some of the

species to a large size in the hottest stove, but although the fronds become larger, the general beauty of the plants is not enhanced thereby. Some of the following kinds should obtain a position in every fernery:—

M. LENDIGERA is a handsome Fern, having fronds three or four times divided; the stem is clothed with rusty brown woolly hairs, and the fronds vary from 6 inches to 18 inches long, the ultimate segments being small, deep green above, and clothed with a rusty tomentum beneath. Native of Mexico at considerable elevations.

M. ELEGANS, of which we here give an illustration, produces fronds from 6 inches to 2 feet in length; they are narrowly ovate in outline and three times divided. The stems and ultimate segments are furnished with a dense covering of pale woolly tomentum beneath, upper surface bright green. Native of Peru, Chili, and Mexico.

M. MYRIOPHYLLA is a similar plant to the preceding, but the fronds are broader, and the whole plant is more robust. Native of Mexico.

M. HIRTA.—This is a Cape plant, the fronds being from 6 inches to 18 inches high and from 3 inches to 5 inches broad, pale green above, and furnished with an abundance of reddish brown woolly hairs. In the variety *Ellisiana*, said to have been brought by the late Mr. Ellis from the Mauritius, the fronds are very much broader and ovate in outline; it is altogether a bolder and more handsome plant than the type.

M. VESTITA is an elegant small-growing plant from North America, being somewhat common on the Rocky Mountains and in California, and consequently thriving in a very cool house. The fronds seldom exceed a foot, and more often do not attain more than 8 inches in length, and they are bright green, the stems and rachises being clothed with red hairs.

M. TOMENTOSA.—This plant belongs to the *lendigera* section, and is a native of the Southern States of America, being found in Tennessee and Carolina; the fronds are about a foot long, two or three times divided, the stem and under side being densely clothed with long ferruginous hairs, upper side pale green.

Adiantum setulosum.—This pretty little species is a native of Norfolk Island, the Fijis, New Caledonia and New Zealand. It is seldom met with even in good collections of Ferns. I was, therefore, much pleased to see nice examples of it quite recently in the gardens of Mr. C. A. Day, Terrace House, Southampton. They were growing in small pots, and Mr. Jones assured me he found it one of the very best kinds for grouping with flowering plants in the front row in the conservatory. The fronds seldom exceed a foot in height, and are deep green, with a few short, stiff hairs scattered over the surface. Although not a strong growing species, it forms a beautiful little specimen, and is also admirably adapted for Wardian cases.—W. H. G.

Adiantum curvatum.—Few species of Maiden-hair Fern excel this in beauty when grown into a good specimen; but, unfortunately, one seldom does see it in good condition, although it has been an inhabitant of our gardens for close upon fifty years. The plant grows wild in dry, shady woods on the Sierra de Santa Brida, in Brazil, and this should teach gardeners who have been unsuccessful with it that it does not require a very great quantity of water. The pots should be thoroughly drained, and it is a lover of shade. I used to have some fine examples of this species, but had almost lost sight of it until I recently saw it growing with Mr. Jones, at Terrace House, Southampton, where, although it is the practice to cut most of the Ferns down, I could see that this specimen had been very grand. I have little faith, however, in cutting down Evergreen Ferns, and I would not cut the old fronds away, at any rate, until the young ones had partially developed. The fronds of this fine species attain a height of from 1 foot to 2 feet, and are of somewhat thin texture, and the

colour is rich green. It is a Fern that cannot be too strongly recommended to all lovers of this group.—W. H. G.

KITCHEN GARDEN.

ASPARAGUS FOR FORCING.

Few gardeners, at any rate, need to be told that Asparagus is more easily forced than almost any other choice vegetable, a gentle bottom-heat and very little top-heat being all that are necessary for ensuring strong succulent shoots. The real difficulty in keeping a good supply, say from November till April, is experienced in procuring the roots to be forced, very few being in a position to lift many of these. If, like Seakale, the roots could be lifted, forced, re-planted, and again forced during the following season, the case would be very different. As it is, Asparagus roots that have been lifted and forced are of no further value, their destination being invariably the rubbish heap. Every bit of "grass" has been forced out of the crowns and cut, nothing being left to assist in the formation of more buds or embryo growths. Where Asparagus is forced on a large scale it is the usual plan to break up one or two old beds every winter, from these being drawn the requisite quantity of roots, a corresponding number of new beds being planted each spring. The beds may be six to nine years old when broken up, according to circumstances, but in any case are rarely worn out or exhausted. Now it often happens that very much labour and expense have to be expended on the formation of a new bed, this with the view of supporting or keeping the plants in a profitable state for years, yet they must, in most cases, be broken up prematurely if roots for forcing must be found. Since the introduction of the French system of Asparagus culture, and which answers so well in most instances where given a fair trial, the difficulty as regards procuring a plentiful supply of roots for forcing has become still more intensified. Few of us care to lift those grand clumps obtained by planting Asparagus, say about 3 feet apart each way. And the adoption of this system of culture must perforce be accompanied by a new departure in the way of preparing roots for forcing. Those with plenty of garden room must annually prepare from 1000 to 3000 plants specially for forcing, this being the only way to obviate the difficulty. Others who must have early Asparagus, and have not space to spare for the preparation of the plants, ought either to purchase the roots for forcing or be content with a limited number of dishes.

It will, perhaps, be thought that because old plants are usually forced much time must necessarily be expended in preparing the requisite number of young roots for forcing. On the contrary, it is possible to grow them to a profitable size in one season, and without much trouble in two seasons. To have them fit to lift in one season entails a considerable amount of labour, and I should not resort to it, or advise others to do so, if plenty of seedlings had been raised the spring previous. Supposing there are no young plants available for transplanting, it is advisable to sow seed in heat at once. This may be done either in boxes or pans, and the seedlings eventually potted off singly into 4-inch pots or pricked out thinly in boxes, good loamy soil being used in either instance. A more simple plan is to sow two or three seeds in a 4-inch pot, setting these in heat, or, better still, plunging them in a gentle hotbed, no further trouble beyond thinning out the seedlings, leaving only one in each pot, being needed. Any way, it is possible

to raise a thousand plants in about the same time and space required for a similar number of bedding plants, and fewer of the latter being planted now-a-days renders it an easier matter to devote a little extra labour on the preparation of Asparagus plants. The latter should be kept in gentle heat till the end of April and gradually hardened, so as to be fit for planting out towards the end of May. By this date, if properly attended to, all should be strongly rooted and be pushing up quite strong shoots, or nearly as strong as seedlings raised the year previous in the open air are doing.

In the meantime, a good piece of light, well-drained ground should be prepared for the reception of the young seedlings. Plenty of solid manure should be dug in, but not deeply buried, where the roots will not have time to reach it, the surface being left in a rough state. Just prior to planting, this ought to be well forked over, and if not so free working as desirable, add a liberal dressing of leaf soil, burnt garden refuse, or other material capable of keeping the surface soil from binding and cracking later on. Warm, showery weather is to be preferred at planting time, and all the plants should be well watered before they are turned out of the pots. The rows may be 18 inches apart, and the plants 12 inches asunder in the row; the planting should be done with a trowel and the soil firmly packed round the hills. If the soil is at all dry a watering may be given at once, otherwise it may be deferred for a week or more, according to the weather. The plants ought never to be allowed to get dry at the roots, a mulching of strawy manure or some substitute being of good service in enclosing moisture. These conditions being complied with, strong growth should result, and serviceable roots for lifting during the next autumn and winter be obtained. If more seed is sown in the open ground about the first week in April in shallow drills 15 inches apart, the seedlings being duly thinned out to a distance of 6 inches or rather less apart, a capital lot of plants will be ready for transplanting the following spring, this doing away with the necessity for again sowing in heat.

Those who have a few rows of seedlings of last year's raising may transplant these early in April or as soon as active growth commences, the ground being prepared as just advised. The plants ought to be carefully forked out of the ground with as little damage to the roots as possible, and be at once replanted, or otherwise many of the young fibres will be injured. Open wide flat drills with the spade, spread out the roots in these, and cover with good fine soil. The crowns should be buried just below the surface, the other distances being the same as advised in the case of the plants raised in heat, subsequent treatment also being identical. In every case it is advisable to support the young growths, a strong wind being liable to break them down. A stake to each plant is necessary, the tops being lightly tied to these. Slugs are also very destructive among young Asparagus plants, and must be kept down by frequent surface hoeings as well as occasional dustings of soot and lime. A sprinkling of common salt destroys slugs and also acts as a manure.

I find Early Giant Purple Argenteuil fully a week earlier than the Giant or Battersea and Conover's Colossal. Besides being early, it also grows to a good size, and, all things considered, may safely be recommended for forcing. Failing this, plant and prepare any other variety to hand. W. IGGULDEN.

Forcing Lettuces.—The present severe weather will probably thin out the Lettuces on the borders,

and those which escape will certainly be backward in turning in. If there are spare frames and lights, make up a hotbed now with tree leaves and manure 3 feet high at back and 2 feet in front, place on the frame and cover the bed 6 inches in depth with light rich soil, rake it level and sow thinly broadcast the Paris Market Cabbage Lettuce. Cover up until the seeds germinate, then water and ventilate in the ordinary way. Thin in good time to 6 inches apart, and plant the thinnings on a south border to come on in succession. The Paris Market is the best forcing Lettuce, as it turns in so quickly. If glass cannot be spared prepare the hotbed. Make a frame of rough boards 11 inches high and shelter with straw mats.—E. H.

TOO LENGTHY SEED LISTS.

I WAS surprised to see "A. D." in THE GARDEN, Feb. 25 (p. 168), writing to the effect that there are not too many kinds of vegetables. He says, "May not the same objection be urged against everything else in gardens?" Is not the same objection being urged as regards the numbers of Apples and Pears at the present time? The same applies to vegetables. Intelligent selection and some definite idea as to the reliable sorts among the different kinds of vegetables are just as much needed as in the case of Apples and Pears.

"A. D." says, "Of the 150,000 who garden, on the whole the variety is not too large for them." But are none of these 150,000 persons growing varieties for which much better kinds might often be substituted if their respective merits were only known? The tendency to exaggerate in catalogues has grown to be a serious evil, and although "A. D." may be in a position to know the respective merits of the many different kinds in the seed lists, it is not so with many. If nurserymen only offered proved and reliable sorts, there are thousands of vegetable growers who, rather than accept such information in the spirit of dictation, would gladly welcome it, and be saved much trouble in wading through interminable lists of endless varieties.

"A. D." asks, "Is any raiser or seedsman to be prevented from placing before the public some really meritorious variety because many others are in the field?" How many of the long list of novelties in almost every season's catalogue are superior to varieties already in cultivation? Very few! How many of those "novelties" have received extra treatment at the raiser's hands, have been highly cultivated, richly fed, and altogether double the trouble taken simply to bring them to a high state of apparent excellence, which serves to obtain for them a certificate or some other recognition only to develop a sale. This, however, cannot be kept up under ordinary cultivation. It is a positive fact that many of these novelties fall far short of their reputed merits.

"A. D." says nurserymen would not catalogue varieties unless they were asked for, but nurserymen might help purchasers if, in the compilation of their catalogues, they used a little intelligent selection. As they grow the various kinds for seed, they are in a position to ascertain the respective merits of each, and if they compiled a list of what they had found to be the best, instead of placing in one long list good, bad, and indifferent sorts, purchasers would appreciate it, and the demand for second-rate kinds would soon cease, while the nurserymen would ultimately benefit, being only required to keep stock of fewer varieties. The catalogue system of classification is generally based upon the price of the seed or age of the varieties, minor considerations compared with quality. Selling a novelty with the raiser's own description is a great mistake for obvious reasons. If all these new kinds were subjected to a severe test by some disinterested person before being offered to the public we should hear much less about them.

As to "the intelligent gardener exercising some judgment in testing new varieties," I doubt not many of them could relate instances of their having paid a high price for a little seed of some new variety "that was to supersede all others," and found it fell short of varieties they were already cul-

tivating. The desire for novelties is a public craze and a public failing. The good gardener has found out for himself the kinds of vegetables he can rely upon, but there are thousands of small gardeners and amateurs who have not enough ground and cannot afford to be trying experiments; they go to a nurseryman's list, find a maze of names and have to make a random selection as best they can. Every nurseryman gives prominence to novelties, which after all are the least important, being but little known.—A. H.

—In reference to what has been said on this subject, I think the public, that pay for and grow them, are to blame. No doubt there are too many sorts with too many synonyms. Take, for example, the Intermediate Carrot, and you will find by purchasing one ounce of true St. Valery Intermediate Carrot, at the cost of 3d. or 4d., that it will match them all. I can assure your readers that the good Continental growers have often to purchase back their own individual supplies at big profits. I have myself purchased, at the cost of 10s. 9d., from twelve different firms, this one article under twelve different names, and my one ounce of seed, had from a local seedsman as St. Valery, is the same thing, the latter only costing 3d. As for the Peas, they grow upon us like Mushrooms in one night, but we have to fall back on the good old sorts of our fathers, the Dwarf Green Mammoth, British Queen, and Ne Plus Ultra.—GRANULATA.

KITCHEN GARDEN NOTES.

SECOND EARLY PEAS.—The long spell of wintry weather and a thick covering of snow have naturally interfered with work in the kitchen garden, and little or no progress has been made by Peas or other newly-sown vegetables. In March the ground dries rapidly, and as soon as it can again be freely worked more seed should be sown. At this time I sow a long row of William I. in addition to Telephone and Criterion, and in this manner secure a close succession. An open warm quarter previously freely manured and deeply dug is to be preferred for this crop, and the drills should be not less than 3 inches deep and 5 inches wide, the seed being sown thinly and evenly throughout. One pint of seed is sufficient for a row 18 yards long. Other varieties that may, if preferred, be sown at this date are Stratagem, Early Paragon, the good old Hair's Dwarf Mammoth, President Garfield, Huntingdonian, Laxton's Supreme, and Wordsley Wonder. The last named only attains a height of about 30 inches, and is one of the best for small gardens.

THE MOST PROFITABLE PEAS.—After various trials I have arrived at the conclusion that the tall growing varieties are more profitable than those of medium and dwarf growth. According to my experience, as many pods can be gathered from one good row of a tall growing variety as from two rows of a sort of medium height, while the dwarf kinds are simply nowhere in comparison with the rest. The tall growers, as a rule, possess the strongest constitution, and are the last to succumb either in a dry or excessively wet season. Mildew is the greatest enemy to Peas, while thrips are also most troublesome, and it often happens that only the most robust kinds can make headway against these. Probably many favour those of medium height on account of these costing less in the matter of stakes, but this is a very doubtful saving. Tall stakes are nearly, or quite, as cheap as those cut up for the Peas of medium height, and seeing that fewer rows of the former are needed, the difference in the cost of stakes is not in favour of the latter. The same argument holds good when we come to consider the relative amount of garden space needed by each class. Instead therefore of sowing two rows of Peas that usually attain a height of 3 feet be content to have one good row on the same ground of a variety that will grow to 6 feet and upwards in height. Telegraph, Telephone, Criterion, Huntingdonian, Duke of Albany, Ne Plus Ultra, Emperor of the Marrows, and British Queen are all tall growers and profitable, and more might be added to the list.

PEAS IN ISOLATED ROWS.—Where the attempt to adopt strict rotation of crops is made, the rows of Peas will be collected principally in one quarter and sown probably in succession to Celery, root crops, or any member of the Brassica tribe. This plan of grouping the rows of Peas doubtless has much to recommend it, and when all are given a fair amount of room, good crops may result. As a rule, however, the rows, even when placed as far apart as the respective varieties attain in height—a good rule, let me add—are apt to unduly shade each other, and the plants become weakly in consequence. It is the single or much-isolated rows, such as are often seen in a cottager's garden, that are the most productive, the pods hanging in profusion from near the ground to the top of the stakes, and it is these I would recommend to those in charge of medium-sized gardens. A moderately large establishment may be kept well supplied with good dishes from eight or nine rows of Peas, each say about 18 yards long. Dispose these not less than 10 feet apart, and in the intervening spaces about three rows of either Cauliflowers, Broccoli, Brussels Sprouts, or Potatoes may be grown. Then, according as the earliest and successional rows are cleared off the ground, their places may be filled with more winter vegetables, including Savoy, Kale, and Coleworts, no digging being necessary in either case.

PREPARING THE CELERY TRENCHES.—When the ground intended for Celery is cleared, the first favourable opportunity should be taken of digging and manuring the trenches. This will be found a far better practice than delaying the work until near the time the trenches are needed for the plants, and especially so when the land is of a heavy nature. The trenches being dug and manured early, the soil becomes well pulverised, the manure thoroughly sweetened—everything, in fact, being favourable to a good start. Early digging does not necessitate a longer waste of garden space; quite the reverse. Market growers not only closely crop the spaces between the trenches, but the very sloping edges of the latter are also made to produce early Lettuces and Cabbages. The spaces between the trenches are the very best positions for summer Lettuces, and Kidney Beans, Peas, and Turnips are also successfully grown on them. Whether the trenches should eventually hold more than one row of plants must depend on circumstances. I prefer to plant rather thickly in a single line than thinly in double rows, the former being the least trouble throughout. If I intended to grow a row of Peas on each space between the Celery trenches, the latter would be dug not less than 18 inches wide at the bottom, or wide enough for two rows of plants, and a 6-foot space would be allowed between the trenches. For the other crops named a space of 4 feet between the rows is ample, and the trenches would be made 15 inches wide, or roomy enough for a single row of Celery. Deep trenches are unnecessary, especially if the ground is heavy; in fact, our best Celery is grown only slightly below the ordinary level. Nor are sharp edges or sides of trenches to be commended, these in dry weather shrinking away from the manure and soil in the trench. If the roots are confined to the trench much more water is needed, and I find the best Celery is obtained when the roots spread into the soil on either side. Half a spit, or about 6 inches of soil is sufficient to take out of a trench, this being spread evenly right and left. Then if a good layer of solid manure is forked into the trench no further preparation will be needed.

LEEKs.—Plants of these must be raised early, or otherwise they do not attain a serviceable size before the winter. Seeing that they rank among the hardest green vegetables in cultivation, and are very serviceable in the kitchen, they well repay for good cultivation, and this should be given them. A few early plants being raised in gentle heat, those to succeed them, or the principal crop, ought to be raised on an open border. The young plants cannot well be too strong when planted out, and the seed, therefore, should be sown on well-worked, rich ground. Sow at once, i.e., if the weather permit, either broadcast, covering the seed with a little fresh soil, or thinly in shallow drills drawn 6 inches

apart. Later on the seedlings should be thinned out freely, and in this manner plenty of capital plants will be prepared, these being planted at once where they are to grow. Ayton Castle and Musselburgh are both useful.

TRIPOLI ONIONS.—It is to be hoped that the ground will soon be in good working order; but as the snow and frosts will leave it in a cold state, transplanting the autumn-raised Onions ought to be deferred until the sun has warmed it somewhat. Onions do best on a heavily-manured, deeply-dug, and well-pulverised, heavily-trampled ground, and a surface-dressing of soot and a sprinkling of salt may well be stirred in. A portion of the plants may remain in the seed-bed to mature early, the thinnings being carefully forked out and at once replanted. Shallow wide drills should be drawn for them, these being 12 inches apart, and in them dispose the plants 6 inches apart, spreading out the roots and covering firmly with fine soil. Autumn-raised Onions are apt to run to seed prematurely; but if the flower-head is picked out when first seen, a useful bulb may yet result.

SOWING ONION SEED.—The most valuable crops of Onions are obtained by sowing seed in the spring or any time during March; the crops thus obtained will mature early in the autumn, and being well ripened will keep well through the winter, the very latest lasting till the Tripolis are available. It is a common practice to prepare a large piece of ground as just advised, a small portion of this being planted with the Tripolis and the remainder sown with seed of approved varieties for keeping. The former are succeeded by Coleworts or small June-raised Cabbages and the latter by winter or spring Cabbage, no manuring or digging being required for either successional crop. The varieties suitable for present sowing are Banbury Improved, Reading, Veitch's Maincrop, Giant Zittau, or those of the White Spanish type generally, the very best keepers being Giant Zittau, Brown Globe, and James' Keeping. Nothing is gained by crowding the drills. I prefer rather to have them 12 inches apart, making them wide and shallow. The seed is sown thinly, one ounce being sufficient for four drills, each 17 yards long, and very little thinning being attempted, the Onions eventually crowd one another almost out of the ground. Small and medium-sized bulbs are preferred by the cooks, and these also keep best. If large exhibition bulbs are required, the plants must be early and freely thinned out, or say to a distance of 6 inches apart. The surface of the beds needs frequent stirrings with the Dutch hoe, and it is only among the widely-set rows that this can be accomplished quickly and safely. I ought perhaps to add that few now-a-days think of forming slightly raised beds and pathways at intervals for the Onion crops, all being sown regularly on the level, no pathways being needed.

THE ONION MAGGOT.—Of late years I have not been much troubled with this destructive pest, but in some gardens it is not so easily kept down. Changing the site of the bed, trenching the ground, and a free use of soot are all more or less preventives, moulding over the bulbs being also considered a good remedy. According to my experience, it is those rows very freely thinned that are the first to suffer, the loosening of the ground facilitating the escape of the fly. At any rate, since little or no thinning out has been done the Onions have been comparatively uninjured, and in any case where there are plenty of plants in the row any affected may be drawn out and burnt, those left amounting to a fair crop. W. I. M.

Brussels Sprouts.—I have over and over again heard observers, especially amateurs, say, "What fine Brussels Sprouts! how is it ours never become large or hard?" and this question is interesting to many. I may say that I am not in favour of very large Sprouts, but I like them firm and well formed, and I have often proved that they can only be secured in this desirable condition by sowing the seed early and getting the plants planted out in good time. This is the whole secret of successful Brussels Sprout culture. The best plants always come from seed raised in

spring. I have sown seed in the open in March and April, but unless in very favourable seasons the Sprouts were neither full-grown nor hard by November, and they never improve much after that time. But the plants raised under protection were ready for planting out in May or by the 1st of June. They were tall and robust by the end of August, and by the beginning of November the stems were clothed with firm Sprouts. It is then the season for Brussels Sprouts begins, and when well grown by that time they will remain firm and good until the following April or May; whereas those not sown until late are only soft in the sprout at the beginning of winter, and very often they never gain size or firmness afterwards. I sow the seed in February in shallow cutting boxes and allow the plants to remain there until they are large enough to handle. They are then dibbled into a frame where they have good soil to root in, and are kept at a distance of 3 inches apart. Here they are not forced, but merely protected, and they grow hardy and sturdy and bear transplanting in May or about that time. For the last half-dozen years or so I have ceased to depend on Sprouts raised in the open, and rely entirely on those raised under glass. Although our Sprout quarter is not of large size, we have an abundance of Sprouts from October to May.—CAMBRIAN.

TREES AND SHRUBS.

W. GOLDRING.

THE ALL SAINTS' CHERRY.

(*CERASUS SEMPERFLORENS*.)

How this tree came to be called the All Saints' Cherry I cannot ascertain, but I fancy it had its

Weeping Cherry. Its name Ever-flowering was given in reference to its being almost perpetually in flower. It begins to bloom at the same time as other Cherries, and before the first crop of fruit is coloured it flowers again and on till autumn, so that it is in flower and fruit at the same time, and the Cherries are seen in different stages of ripening. It is an interesting tree when in a conspicuous position on a lawn, as the fruits, which are only suitable for birds, are very attractive. They seem very fond of the fruit, but whether they prefer it to a luscious Bigarreau I cannot say. For the sake of the birds and their song it is worth while planting an All Saints' Cherry.

One cannot mistake this tree for any other sort of Cherry, for apart from its graceful habit the foliage is altogether of a deeper green. In the poorest soils it may be grown, and in the Bagshot sands I have seen a tree of it loaded with flowers and fruit throughout the summer and autumn. There is a tree of it in the herbaceous ground at Kew standing by itself, a remnant of the old royal kitchen garden of bygone days, and being the best specimen in the gardens it is taken good care of. Loudon says that its native country is unknown, and adds to his description of it, "a truly desirable small single tree for a lawn." He further says that a tree of it in the Jardin des Plantes, Paris, was at that time 27 feet high, having been planted fifty years. In Nicholson's "Dictionary of Gardening" a golden variegated variety (*aurea variegata*) is described as being very handsome, but I have not seen it. It is said to have been

visé the planting of a tree of the Cut-leaved Walnut, which is one of the most elegant cut-leaved trees I know, and a specimen or two of it, properly placed, would add much beauty to a lawn. Unlike the ordinary Walnut, the cut-leaved variety forms more of a bush than a tree; at any rate, I have never met with a large tree of it, the tallest I have seen being not more than 15 feet high, and it invariably grows in a spreading way with irregularly arranged branches. The leaves, which in the ordinary Walnut are not inelegant, are in this variety cut into numerous fine segments, which give the whole tree a feathery appearance. It is just the tree to place in a conspicuous position on a small lawn, and it always looks best when quite by itself, as the branches have a downward tendency, yet it should not be entirely isolated, as it likes shelter. A capital place for such a tree is in the bend or recess of a shrubbery, where it would be protected from northerly and easterly winds, which are apt to blacken its tender foliage when expanding. This tree is not cut-leaved in a monstrous or ugly way, as other trees, the so-called Cut-leaved Lime, for example, and anyone fond of trees, if they had not seen it before, would be charmed with it. In nurseries you ask for the Cut or Fern-leaved Walnut, or *Juglans regia laciniata*. Anywhere where the common Walnut thrives this will also.—W. G.

COLLETIA BICTONENSIS.

THIS shrub, alluded to on page 130, is synonymous with *C. cruciata*, under which name it is more frequently met with than that of *C. bictonensis*. The reason of this last name being applied to it was, I believe, owing to the fact that if not actually introduced to cultivation through the gardens at Bicton, it was almost unknown up to the time it made its appearance there among a miscellaneous lot of imported seeds. From Bicton specimens were sent to the late Dr. Lindley, by whom it was named *C. bictonensis*, but on native specimens had already been bestowed the name of *C. cruciata*; therefore, this name should stand. Anyone acquainted with the plant must own that *cruciata* is a suggestive name, as by far its most prominent feature is the peculiar cruciform arrangement of the branches. It forms a stout sturdy growing shrub that seldom exceeds 5 feet in height, and whose branches are clothed with large triangular shaped spines arranged in an opposite manner. The leaves are small and so few in number, that, as far as its appearance is concerned, they may be left out of the question altogether. The flowers are small and bell-shaped, but pleasantly scented. In the open ground they are of a greenish white tint when first expanded, becoming purer with age, but where sheltered their colour is clearer from the first. This *Colletia* does well near the sea, as pointed out by your correspondent, but it is not sufficiently hardy to be recommended for general planting. In the south and west of England it can be depended upon, but in many parts it is injured by severe winters. In the neighbourhood of London, for instance during the winter of 1880-81, most of the *Colletias* were severely injured, and in many cases killed outright. Another species, *C. spinosa*, known also under the names of *C. horrida* and *ferox*, is more slender in growth than the preceding, and the spines are smaller, but it forms an equally formidable specimen.

The young branches of this are sparingly furnished with leaves, but they speedily drop off, leaving the specimen quite devoid of foliage. The absence of leaves is to a great extent compensated for by the spines and bark of the young shoots being of a deep green colour. The flowers of *C. spinosa* are a good deal like those of *C. cruciata*, but are clustered in greater profusion towards the ends of the branches. A very interesting question as to the specific identity of these two widely different plants is raised by the circumstance that specimens of *C. cruciata* have occasionally produced a shoot which is undoubtedly *C. spinosa*. A good illustration of this was exhibited at one of the meetings of the Royal Horticultural Society in the early part of 1886.

Another plant bearing a great general resem-



The All Saints' Cherry (*Cerasus semperflorens*). Showing branches and detached flower.

origin on the Continent. In France it is known as *Cerise de la Toussaint*, as well as the *Cerise de St. Martin* and *Cerise Tardive*, or late Cherry. Here it is called the Ever-flowering Cherry and the Weeping Cherry, so that one would imagine that from its variety of names it is a common tree. But not so. Sometimes you see it in old gardens, or where a collection of trees has been made at some time, but it cannot be called common. It is really a beautiful tree, extremely graceful in growth, all the slender branches having a drooping tendency; hence the name

in cultivation since 1822. Its synonyms are *Prunus semperflorens* and *P. serotina*, but it must not be confused with *Cerasus serotina*, which is a distinct species, the North American representative of the Bird Cherry. The All Saints' Cherry is obtainable from the best English tree nurseries.

The Cut-leaved Walnut. — It is getting almost too late in the season to recommend the planting of deciduous trees and shrubs, but as the Walnuts are late in leafing, it is not too late to ad-

blance to the *Colletias* is *Discaria serratifolia*, which is, indeed, more often met with under the name of *Colletia serratifolia*. It is larger-growing than either of the others, as it forms a vigorous shrub that reaches a height of 10 feet or 12 feet, the branches of which are far more slender than those of the preceding, and also plentifully furnished with leaves. All the above are natives of the more elevated regions of Chili and Peru, and need a well-drained situation. They can all be propagated from cuttings of the ripened shoots, taken off at a length of 6 inches or 8 inches, dibbled firmly into pots of sandy soil, and kept in a frame till rooted.

H. P.

Abies brachyphylla.—I fully agree with all that has been recently said in favour of this tree in THE GARDEN. Our solitary specimen is planted in a low-lying, well-sheltered spot, where the natural soil, a light sandy loam, is of considerable depth, and both soil and position seem favourable to its development. It has grown nearly 6 feet in four years and has filled out well with its increasing height, so well in fact, that it may certainly be thoroughly recommended as a specimen tree for the pinetum. If it continues to thrive as well as at present, I should place it before most of the *Abies*, as it lacks the strict formality of growth of which *Pinsapo* is a type, or the loose, ragged appearance assumed occasionally by *P. cephalonica* and *P. Nordmanniana*.—E. B.

The Mexican Orange flower (*Choisya ternata*).—This is fairly hardy in the neighbourhood of London, though it succeeds better when treated as a wall plant than in the open ground, but in either case the foliage is so much seared by sharp frosts and cold, cutting winds, that to be seen at its best it must be grown under glass, where if it has been gently forced it may be had in bloom by this time. With a little attention in the matter of stopping when young, neat bushy specimens may be readily obtained, and the plant flowers very freely even in a small state. The clusters of white, highly fragrant blossoms are shown off to great advantage by the handsome dark green foliage. When this last is crushed or bruised in any way it exhales a pleasing odour. Plants of this *Choisya* that are required for flowering under glass may be either planted out during the summer and lifted early in the autumn, or they may be confined altogether in pots. I have seen both these methods successfully carried out, but those that were in pots were supplied during the summer with occasional doses of liquid manure, and at no time were they allowed to become dry. Cuttings of the *Choisya* strike without difficulty at almost any season, but the best time to put them in is just as the young shoots are in a half-ripened condition. In growing the *Choisya* under glass, it is rather liable to the attacks of red spider, so that a good syringing occasionally will be of service.—T.

The Kentucky Coffee tree (*Gymnocladus canadensis*).—This would seem to be one of the exotic trees that has found a considerable number of admirers in this country, and to have obtained a place in many good collections. Specimens of any size are, however, comparatively rare. It is a tree of medium size, not attaining in England a height of more than 55 feet, the girth of such specimens averaging between 6 feet and 8 feet. It appears to grow with singular regularity, as the two trees originally planted here are almost identical in height, girth, and general appearance. It is a native of North America and was introduced to this country about 1750. From the first it was one of the trees usually selected in extensive ornamental planting, and is strongly recommended for this purpose by some of our best authorities in arboriculture. Like some of the deciduous *Magnolias*, it is not a pleasing object during the winter, as the wood, which is thinly produced from the branches, is very upright in growth, and so stiff and lifeless in appearance as to resemble a lot of dead poles. Its only drawback as an ornamental tree is its late and short leaf season. It is invariably a week or ten days after the Oak and Ash before the leaves attain their full size, and as they fall at the same time as

those of the Lime and Horse Chestnut, its season is very short. The flowers, produced freely in short racemes, are insignificant in themselves, but have a pretty effect in quantity. The tree produces pods freely in America, and the seeds are said to have been roasted and ground at one time in that country as a substitute for coffee. I have not noticed any seed on either of our trees, or heard that they have been known to bear pods in England. The leaves average from 15 inches to 18 inches in length, and consist of pairs of leaflets on either side of a pendulous leaf-stalk, the latter hanging on some time after the leaflets have disappeared in autumn, as in the case of the *Pterocarya* and *Acacia*. The tree requires a sheltered situation and a deep, rather moist soil. It is, however, perfectly hardy and worthy of a place in all collections.—E. BURRELL.

The Sugar Maple (*Acer saccharinum*).—Of the many different varieties of the Maple suitable for ornamental planting this must be placed high in the list. It is a very handsome tree, and forms a distinct and remarkable feature in any tree group, not only in summer, when the foliage is a wonderfully bright green, but also in autumn when it is of an equally bright golden yellow, a tree in fact that at once arrests the eye at any season of the year. One of the most pleasing combinations of colour to be found in our pleasure grounds through the summer, seen, too, as it is across a sheet of water, is a very fine specimen of this Sugar Maple, flanked on either side by the Mountain Ash and backed by a large Copper Beech. The Sugar Maple is one of the staple trees of N. America, from which country it was introduced about 1730, and is said by some authorities to be rather tender in England, and not to attain anything like the dimensions it reaches in America. Our tree is, however, over 70 feet high, 8 feet in girth, and with a large spreading head. The young wood is small and thickly set on the spreading branches, so that the tree in winter has a fine shapely appearance. The foliage is very similar to that of the Norwegian Maple and about the same size. It is probable the tree may never be extensively planted in England, as we are hardly likely to require it for the production of sugar; it is, however, a very ornamental tree, and I have drawn special attention to its hardiness in order to show that it may be safely included in any collection. It likes a deep moist soil and seems most at home in the immediate neighbourhood of water, or, in fact, any moist, fairly sheltered spot. I may mention that it is one of the trees on which the Mistletoe seems to flourish. In the case of our specimen there are now some fine bunches on different parts of the tree.—E. BURRELL, *Claremont*.

SHORT NOTES.—TREES AND SHRUBS.

Shrubs in Southwark Park.—I walked through this park a few days ago and I never saw such mutilation of shrubs. They are all cut down to an inverted basin-shaped top, no matter whatever kind of shrub or bush. In my home near Bala, in Wales, I allow plants to grow naturally, and do not try to disfigure them. If a little thinning is required it is done, but nothing more.—G. E.

Stock for Japanese Acers.—In answer to "J. G. R." in THE GARDEN, March 3 (p. 200), the typical broad green-leaved *Acer japonicum* is used by the Japanese gardeners as a stock on which to graft their red and palmate-leaved varieties. One of our grafted plants direct from Japan died, but the stock on which it had been worked grew and is *A. japonicum*, with bold pale green palmate foliage and crimson flowers. It seeds freely. The green-leaved varieties root freely from the herbaceous growths. I do not know if our native seedlings of *A. campestre* have been tried as stocks, but a friend who tried those of the Sycamore (*A. Pseudo-Platanus*) failed with them.—F. W. B.

Small-leaved Lime (*Tilia parvifolia*).—This is a neat-growing little tree for a small lawn where trees of the largest growth would be out of place. This Lime differs materially in growth from the common form, though when in leaf it resembles it a good deal. Its leaves are of the same shape, but much smaller, the branches being more twiggy, the head denser; while the trees never get very tall, the usual height being 12 feet or 15 feet. The branches are inclined to droop

and sweep the turf, and this is what makes it so graceful as a lawn tree. It looks best when planted by itself, and requires a clear space of about 15 feet all round its stem in order to develop and show itself off. One advantage with the generality of Limes is that they will flourish on the poorest of soils, and this one is no exception.—G.

Hardiness of Chilian shrubs.—I am anxious to ascertain the comparative hardiness of the under-mentioned shrubs in the various parts of these islands, and shall be greatly obliged to readers who can help me by stating the conditions under which they grow the plants or have seen them growing, whether as bushes in the open or protected by walls. The aspect of the walls, or amount of shelter in the case of bushes in the open, and the nature of the soil would be of value. The plants are *Eucryphia pinnatifolia*, *Embothrium coccineum*, *Berberidopsis corallina*, *Lapageria rosea*, *Mitraria coccinea*, *Calceolaria violacea*, and *C. hyssopifolia*.—W. GOLDRING.

Retinospora ericoides.—What a charming little tufted shrub this has been all through the winter! Its colour rivals that of the coppery *Cryptomeria elegans*, being brighter and of a more violet shade of tint. The neat and compact growth adds to its attractiveness. It does not grow more than a yard high, usually only about 2 feet, and makes a symmetrical cone of dense foliage. This prim little Conifer, like all other "cemetery trees," as I heard them called the other day, has its value in all gardens, the aim being to produce variety by the tasteful arrangements of contrasting or harmonising forms and colours. In a geometrical or terrace garden near the windows, this *Retinospora* is most enjoyable throughout the winter, and again in spring when it changes its dress to a lively green.—G.

Top-dressing shrubs.—As an illustration of the value of top-dressing for shrubs I may say that I have noted how, the very first season of application, apparently every particle of fresh material has become a complete mass of fibrous roots, and this, too, in spite of the turf, that for neatness sake surrounds all our trees, but which after top-dressing is only laid on lightly—not beaten down—till there has been a heavy rainfall to consolidate the top-dressing and wash it down to the roots, some of these having been bared by the removal of part of the old soil before applying the new. The greater part of our younger specimens of Conifers, also some *Hollies* and *Rhododendrons*, are to have these surface-dressings as soon as weather conditions are favourable, and meantime the materials are being wheeled to the trees. A mixture of well-decayed manure and light loam is to be used for Conifers, and being short of peat, leaf-soil, with the natural sand of the district mixed with it, will serve for *Azaleas* and *Rhododendrons*.—W.

Top-dressing lawns.—"Hortus" draws a most unpleasant picture in THE GARDEN, March 3 (p. 200), of London manure as a suitable substance for this purpose. No doubt the ordinary stable manure where horses are bedded with straw would be, for various reasons, unsuitable. But there are other kinds of London manure besides this. The pure droppings and dust constantly being collected in the streets of the city are useful for the above or any other purpose. Then in many large establishments peat litter is the bedding material used, and this is not changed until every particle has absorbed more or less valuable fertilising matter. This is a most excellent material for top-dressing lawns, and is so rich in plant food, that far less than either "50 tons or 25 tons to the acre" is sufficient to destroy the Moss and restore the verdure of worn-out lawns. Last year I saw a lawn to which a slight top-dressing of this had been applied, and the effect was quite magical. It is a cleanly substance to use, very light to handle, and in every way suitable. There are cases where a heavier dressing of soil is required to give body to the staple in which the grass is growing; in such a case the peat manure may be mixed with ordinary garden earth at the rate of two parts of the latter to one part of the former. In most places road

scrappings and sweepings can be had readily, and when such is the case there is to hand a most excellent top-dressing. The advice to scarify the surface before putting on the dressing, whatever it is, is excellent, and should never be omitted.—T. SMITH

DESTROYERS.

WIREWORM IN THE STRAWBERRY HOUSE.

IN reply to "H. L." in THE GARDEN, February 25 (p. 163), a worse enemy in this department it is hardly possible to imagine. Fly, spider, and mildew can be checked or annihilated without inflicting serious injury upon the plants; but wireworm having more than six months' start will be thoroughly established in the root-stocks, whence it will be almost, if not quite, impossible to dislodge it without destroying the plants. Indeed, it is questionable if the fate of many of the plants was not sealed long before they were removed from their winter quarters, but did not show the effect of the insidious attack until after they were introduced into heat. If, upon examination, it is found that the roots are destroyed, the cheapest and best remedy is turning out and burning, as unhealthy plants are a scourge in forcing houses, and no amount of feeding will enable them to set or carry fairly fertilised fruit to maturity. If, on the other hand, the plants are only slightly affected, they might be divided, the fresh and apparently healthy being retained; those affected destroyed. The usual remedy, where powerful insecticides cannot be applied, is the introduction of traps, than which there is nothing better than slices of Carrot, Potato, or Turnip inserted in the soil and withdrawn every day, when the worms attached can be treated to boiling water. The introduction of the slices to the balls of Strawberries in pots being difficult, if not injurious, they might be placed on the surface every night, and examined the following morning, but never having had to do battle with the enemy in Strawberry pots, I am not prepared to assert that these tempting baits will draw them upward to be caught in broad daylight. Soot being distasteful, water in a weak clarified state, made by sinking a peck bagful into the cistern, might be used regularly for watering and syringing purposes. Another bait is rape-cake, a good artificial manure to boot, of which the wireworm is said to eat to repletion, and thus encompass its own destruction. This should be broken up into small pieces and, like the sliced vegetables, placed upon the tops of the balls at nightfall. Mr. Tonks, of Birmingham, a well-known correspondent, a good chemist, and a thoroughly practical horticulturist, strongly recommends sulphide of potassium, not only for destroying insects and mildew, but also for dipping purposes. The strength he recommends is a quarter of an ounce to half an ounce to the gallon of water, and in this he dips all kinds of plants, Orchids included, root and leaf. Worms and all kinds of insects, he assures me, are destroyed by this plunge-bath, and so far from the plants or tender roots being injured, he has proved, to his own satisfaction, that the solution acts as a stimulant. Having used the sulphide as an insecticide, I can endorse all Mr. Tonks has said in its favour, and shall be glad to hear that "H. L." has thoroughly tested it on some of his affected Strawberry plants before he destroys them.

WIREWORM IN THE COMPOST YARD.—The past winter having been dry and (until recently) mild, I am not surprised to hear that exposure of the sods has not been attended by the happy result "H. L." anticipated. Had he sprinkled the sods with a small quantity of gas-lime and watered, or allowed the rain to wash it in prior to stacking, every wireworm would have been destroyed and the soil none the worse for potting purposes. The refuse lime of gasworks contains a large percentage of sulphuretted hydrogen, alike fatal to growing plants and insect life, and on this account should be applied some time before the soil is wanted for use. Having stacked his turf, "H. L." may not care to take it to pieces again; neither need he if he perseveres with the

placing of bits of the roots I have named all over the heap, and pays regular attention to the collection of the worms when they commence feeding. I once had the misfortune to use soil infested with wireworm for a new outside Vine border. I am not certain that the young roots of the Vines suffered, but having a wholesome dread of an enemy which remains five years in the grub state, I plied the surface heavily with soot, watered it in, and although the compost was frequently examined I saw no more of it. Some plantmen bake doubtful soils for special purposes, and in this way destroy the larvæ of insects, but for Strawberries, especially where hundreds or thousands of plants are potted annually, breaking up by hand and careful picking, preceded by trapping with Carrots, should reduce wireworm to a harmless minority.

W. COLEMAN.

Sulphide of potassium.—In reply to the inquiry of "Fix" in last week's GARDEN, I think I can offer him a little enlightenment. The "dark substance in a bottle" is most probably the true sulphide of potassium. The white powder sold by another chemist is a totally different substance—"sulphate of potassium." The third substance spoken of as "like small lumps of soda" is probably "sulphite of potassium." This, again, is a totally different chemical to the one which has so often been mentioned in these columns as a remedy for mildew, aphid, red spider, &c. It seems monstrous that anyone deserving the name of chemist should impose either the sulphate or the sulphite upon a customer as being what the customer wants when he asks for "sulphide of potassium." Strange as it may seem, this is often done. Moreover, in one case in Scotland a gentleman applied to a large artificial manure manufacturer for a supply of the sulphide, and was told it could only be got with great trouble and was very expensive. During the past few days I have seen a number of letters written by gardeners in various parts of the country fully bearing out the statements made in THE GARDEN by Mr. W. Coleman and others as to the efficacy of this chemical in freeing plants from attacks of mildew.—EDWARD W. BADGER.

— In answer to "Fix," in THE GARDEN, March 3 (p. 206), the white powder and small lumps like soda were either fraudulently or with culpable ignorance supplied to your correspondent when he ordered sulphide of potassium. A druggist with the most limited knowledge of his trade could not have made the mistake. Sulphide of potassium is not white nor crystalline. When freshly broken it has a brownish-yellow or liver-brown colour; hence its old name, liver of sulphur. Dissolved in water, it makes a bright yellow solution, and has a strong odour of sulphuretted hydrogen. I have used it for about thirty years, but have not found it very efficient for the destruction of red spider, though it is as efficient for that purpose (or more so) as the ordinary modes of application of sulphur. Many years ago I made a series of crucial experiments as to the action of sulphur on spider, and the conclusion I arrived at was I found no remedy permanently successful where from any cause I could not secure plenty of moisture, combined with healthy action at the roots; and anyone who wishes to get rid of red spider must look to them. But while the sulphide is not so efficient against insects, it is fatal to lower forms of life, whether vegetable or animal parasitic either on plants or animals, and at the same time is perfectly harmless to the hosts. In fact, the beneficial effects to plants, and also to animals, in various forms of skin diseases—boils, whitlows, poisoned wounds—are most marked. Generally one application of half an ounce to a pint of water effects a cure, but for plants a solution of half an ounce to a gallon is sufficient. If there be any difficulty in procuring sulphide of potassium, the sulphide of calcium may be used in its place. This can be made as follows: Flowers of sulphur, 1 oz.; fresh sifted lime, 2 ozs.; and soft water, 1 quart. Boil in an iron vessel, with frequent stirring, about a quarter of an hour. When clear, pour off and keep in a well-corked bottle. Use half a pint of this to a

gallon of water; if for the red spider, add 1 oz. of soft soap.—EDMUND TONKS, *Packwood*.

NOTES OF THE WEEK.

WE have received a double-spathed Calla from Mr. Bridger, Penshurst Place, Kent. It is not of very uncommon occurrence for the Calla to bear a double spathe. We had a similar example of such abnormal development sent us a short time since.

Utricularia Goweri.—This is a provisional name for a lovely new species of Bladder-wort, sold last week in the City by Mr. Protheroe. It was introduced by Mr. Sander, of St. Albans, from the Roraima district in Demerara, and has strap-shaped light green leaves and an erect scape, with medium-sized rich violet-purple flowers.

White Hoop-petticoat Narciss.—All through this bitter weather I had a potful of white Hoop-petticoat Narcissus (*N. monophyllus*) in a cold frame. Finding the bulbs were just in flower, I took the pot into my room for a few days to develop the blooms. One of these I now enclose. Is it not exquisite?—A. KINGSMILL.

Odontoglossum Edithæ.—A very highly-coloured variety of the crispum type; the sepals and petals are heavily flushed with rose, and blotched with chestnut-red, the petals in addition bearing numerous streaks of the same colour; lip rich yellow at the base, with a few chestnut-red streaks, pale yellow in front. It is a very elegant form, and I believe it still remains somewhat rare. I recently noted this variety flowering with numerous other fine forms in The Woodlands collection at Streatham.—W. H. G.

Brownea macrophylla.—Perhaps "W. E. G." is right in his estimation of this Brownea in THE GARDEN, March 3 (p. 186). It is certainly a showier-flowered shrub than *B. grandiceps*, which I was bold enough to assert was the finest of the cultivated Brownes. I have referred to the plate given of *B. macrophylla* in Vol. XV. of THE GARDEN, and, as one may see, it is a gorgeous shrub, but I imagine it has not such a noble appearance in bloom as *B. grandiceps*, which reminds one of a gigantic Rhododendron.—W. G.

Cœlogyne cristata alba.—The finest specimen of this variety which I have yet seen in bloom is now flowering in Mr. Measures' collection at The Woodlands, Streatham, and is bearing 170 of its pure white flowers, which have neither spot nor blemish of any kind. To those who prefer flowers without any admixture of colours this variety is a gem of the first water, and it really requires to be seen in the mass to enable one to appreciate its great charm. It appears to thrive equally as well as the typical plant, and I hope the pure white form may soon become more plentiful.—H.

The Orchid Album.—The January number of this work contains excellent plates of *Cypripedium Morganii*, *Lælia cinnabarina*, *Oncidium lamelligerum*, and *Houlletia odoratissima* antioquiensis. The February number contains *Mesospinidium vulcanicum*, a beautiful form of *Cattleya bicolor*, *Dendrobium MacCarthii*, and a charming variety of the Mexican *Lælia albida sulphurea*, in which the sepals and petals are bright sulphur yellow, the lip being similarly coloured. This form appears to have been flowered by Mr. Walley, of Fallowfield, Manchester, and is by far the finest of its class hitherto seen amongst these Mexican *Lælias*.

Entianthus japonicus.—At first sight this shrub reminds one of *Zenobia speciosa*, an allied genus in the Heath family, but it is evidently not such an important plant as that, not being so free in flower and probably not so hardy. It is a bushy shrub, and the flowers protrude from the branches before the leaves are developed. The Lily of the Valley-like blossoms are white and droop from the branches in clusters. The leaves, which will not be fully grown before the plant is out of flower, are said to die off in autumn of a brilliant golden-orange colour. As its name implies, it is a native of Japan, and was introduced several years ago by the late Mr. Standish. It may be seen in flower in the temperate house at Kew among the Japanese plants. Its near neighbour from China, *E. quinqueflorus*, also called *E. reticulatus*, is an

extremely pretty and interesting shrub well worthy of general cultivation. Its flowers, like tiny drooping bells, are abundant and of a pale red colour, and therefore showy.

Odontoglossum Edwardi.—By far the finest variety of this plant which I have hitherto seen was recently flowering in the fine collection of Mr. Measures at Camberwell a short time since, and bearing hundreds of its distinct, but not large violet-purple flowers, the prominent crest being orange-yellow. These flowers yield a perfume resembling that of Violets. Grown in company with *O. ramosissimum*, the effect of the contrast would be excellent, as the one plant bears shining white-spotted flowers, and the other intense deep violet-purple blooms. Moreover, both plants thrive best under cool treatment, and bloom at the same season of the year.—W. H. G.

Acacia pubescens.—This New Holland plant, which was introduced to this country close upon a century ago, ought to be classed among the very best Acacias. It has feathery foliage, and bears a profusion of its tiny globular flower-heads. There is a specimen in the temperate house at Kew about 10 feet high, with a great spreading head, which looks like a cloud of yellow. It was planted out about five years ago, when a small pot plant, and now has a stem 3 inches in diameter. For a large conservatory it is much finer than the commoner *A. dealbata*, as it makes a more bushy tree if beheaded after it has reached about 8 feet high.

Cœlogyne cristata var.—There is a remarkable form of this lovely Orchid in flower at Kew that deserves notice, as it is different from the ordinary type, and as fine as any of the major forms we have seen. The flowers are not much above the ordinary size, but the sepals and petals are broader, and show no tendency to curl, as in the common form, and the large lip is enriched with a blotch of yellow several shades deeper than usual. The bulbs, moreover, are different in shape, though we do not attach much importance to those, as they are so variable on the same plant. It was, we believe, sent home from Northern India.

New Holland climbers.—From now until the end of May those beautiful and graceful shrubs known commonly as New Holland plants will assert themselves in gardens and nurseries. When one sees the exquisite gracefulness of a New Holland climber festooning a greenhouse roof, one is apt to ask himself why it is that they have gone out of fashion, and this thought struck me as I saw the lovely *Hardenbergia Comptoniana* and *monophylla* in bloom the other day at Kew. Their flowers are much alike, but one has its leaves divided into leaflets, while those of the other are whole. The tiny flowers are of the richest purple and in crowded clusters, and hang in the most elegant way imaginable. As they have long and thin stalks they are useful for bouquets or vases. There is a pure white variety of *H. monophylla* in flower also, but this, I imagine, is rare.—W. G.

The common Corn Poppy.—Single, semi-double, and double varieties of various colours of this well-known plant are being largely distributed this year under the name of *Papaver Hookeri*. The particular plants to which this name was given were, I believe, found abundantly in old gardens in Cashmere, where they had been long cultivated. Owing to their supposed larger rounder seed pods, &c., they were considered quite distinct from the ordinary Corn Poppy. They do, in truth, differ a great deal from the wild plant, but so far as I can make out they are identical in every way with *P. Rheas* as it has been long cultivated in English gardens. When allowed plenty of room in good rich soil they make a magnificent show.

Vanda Goweri.—This extremely rare Orchid is now flowering at Kew, and as few orchidists have seen it in bloom, it may be well to briefly describe it. The plant is large and very healthy, having several breaks. These are slender, from 12 inches to 18 inches high, and with copious air roots. The leaves are about 4 inches long, and about three-quarters of an inch wide, and are fleshy and stiff, standing out horizontally, not recurved, as in most

other Vandas. The two-flowered spike is produced from near the top of the growth. The flower, which is about an inch across, reminds one of that of *V. lamellata* in shape, the sepals and petals being white with wavy margins, and the curiously-shaped lip is coloured with purple and orange. It is a pretty, though modest-looking flower, and one that an enthusiastic orchidist would regard with interest on account of its rarity. The plant was introduced many years ago, and was named in compliment to Mr. W. H. Gower, who is well known as an ardent orchidist.—X.

Helleborus graveolens.—I send a branch of what I have known for the last twenty years under this name. You will observe that the inside is green, and externally it is in great part purple, of a peculiar shade, entirely different from that in any other Hellebore. Being deciduous, the leaves are not yet above ground.—T. H. ARCHER-HIND, *South Devon*.

* * We can state with certainty that the flower sent is the true *H. graveolens*. It is not at all common in gardens, and we have only seen one or two really good forms. It belongs to the group with deciduous leaves, and is placed by Nyman in his "*Conspectus Europæus*" under *H. odoratus* (W. and K.), though we would rather put it with *H. dumetorum*, and Bocconi under *H. viridis*, as, in our opinion, it more nearly resembles the latter in a general way than the former. The flower-stems are branched at the top, with from two to five flowers, the latter $1\frac{1}{2}$ inches in diameter; sepals slightly incurved at the tips, the interior pale green, the exterior a peculiar purple, deeper than *H. torquatus* (*H. purpurascens*), and without the glaucous tint. The buds are most beautiful nestling amongst the soft green leafy bracts. It is a charming little plant for sheltered spots on the rockery.—Ed.

SOCIETIES.

NATIONAL CHRYSANTHEMUM SOCIETY.

ON Monday evening last there was a largely attended meeting of the general committee of this society held at Anderton's Hotel, Fleet Street, the president, Mr. E. Sanderson, being in the chair. The minutes of the preceding meeting having been read and confirmed, the hon. secretary read some interesting correspondence relating to the arrangements for the provincial show. The delegates from the Sheffield Society and the representatives from affiliated societies, present for the first time, were given a hearty welcome, and it was resolved that it should be recorded in the society's books. Mr. Woodcock, in reply, said he desired to point out the very great fairness that characterised the correspondence in connection with the provincial show, and reported that the decision to hold it at Sheffield had excited a great deal of local enthusiasm, and there was every reason to suppose that the show would be a great success.

The report of the society's schedule committee was then moved and adopted, the principal alterations for 1888 being the appointment of two additional judges for the grand November *fête*, the offering of a large number of gold, silver, and bronze medals, and the instituting of a new class for cut blooms, to be competed for by any Chrysanthemum or horticultural society, whether affiliated or not. The prize will consist of a challenge trophy and £10 in money for the best collection of forty-eight blooms, twenty-four incurved and twenty-four Japanese, on the following conditions: First, the entry to be made in the name of the society. Second, an entry fee of 10s. 6d. will be charged to societies not affiliated with the National. No entry fee to be charged to affiliated societies. Third, each society competing must be prepared to guarantee that the blooms staged are cut from the collections of its members only. Fourth, that the forty-eight blooms may be the production of one or more growers, at the option of the society competing. Fifth, no limit as to number of entries from each society, but no society will receive more than one prize. Sixth, the cash will be paid to the

treasurer of the society winning the award, to be equitably divided between the contributors.

The trophy will remain in the possession of the winning society for twelve months, and must be returned to the National Chrysanthemum Society fourteen days before the following November show. The name of each winning society will be engraved upon the trophy.

In the schedule for the early-flowering show there are a few alterations, principally with the view of affording opportunities to small amateurs of exhibiting.

With regard to the provincial show, a schedule has been compiled on the basis of the Sheffield Society's schedule of last year. It was reported that the Sheffield Society are now in a position to guarantee £124 towards the prize fund, and this amount will be materially increased if the pending negotiations with another local society to hold its show in conjunction with the National Chrysanthemum Society's provincial show be successful. The judges appointed are Messrs. J. Wright, Udale, Garnett, Lewis Castle, George Gordon, and Richard Dean, who will nominate a referee.

Mr. Woodcock pointed out that this forthcoming exhibition would be a truly national one, and unsurpassed in the north of England. Many of the leading Liverpool growers would probably compete, and the contest between the northern and southern Chrysanthemum experts would be of the most interesting nature, such an opportunity never having yet occurred, and was already being looked forward to with eagerness.

The usual votes of thanks brought the meeting to a close.

Royal Horticultural Society.—A meeting of the council was held at South Kensington on Tuesday, March 6, when the agreement as to the lease of the premises at 111, Victoria Street, S.W., was finally settled, and a sub-committee was requested to see the details of furnishing, &c., promptly carried out, as the exhibition on March 13 will be the last held at South Kensington. Reports were received and adopted from the finance and Chiswick committees, whereby it is hoped that both increased economy and efficiency may be introduced into the society's work. It was resolved to ask the advice of the Fellows' committee on the following subjects, viz.:—

1. The appointment of local secretaries in the provinces.
2. The best mode of affiliation between local societies and the Royal Horticultural Society.
3. The desirability of petitioning the Government to include horticulture with agriculture under the new Government Board.

The next meeting of council was fixed for March 13

Death of Mr. James Betteridge.—We have to announce the death of this well-known nurseryman, whose name is especially associated with the Aster. We are indebted to him for many fine strains.

THE death of M. JOSEPH MIES occurred on March 3, after two months' illness. He was a partner in the firm of Messrs. Vilmorin-Andrieux & Co., of Paris.

Book wanted.—Would you kindly inform me of the name of a good work on Peach culture?—AMATEUR.

Tufted Pansies.—Your correspondents having been good enough to give the names of the best varieties of these, would they put me under further obligation by saying where good seeds of these kinds may be obtained?—SUBSCRIBER.

* * We fear seeds of the varieties referred to cannot be obtained. Any nurseryman would, no doubt, obtain plants for you.—Ed.

A. A. R.—Insect too smashed for identification.

E. B. L.—The flowers on your Violets are what are called by botanists *Cleistogamic*. They are common to Violets, and produce seeds like ordinary flowers.

Names of plants.—*Vulcan*.—*Miltonia cuneata*.—*H. E. James*.—3, *Cassia floribunda*; 4, specimen insufficient.—*Rajah*.—1, *Asplenium lucidum*; 2, *Cyrtomium japonicum*; 3, *Nephrodium molle*; 4, *Pteris longifolia*.—*E. B.*, *Dunfermline*.—*Megaclinium falcatum*.

WOODS & FORESTS.

PRUNING.

I SEE in THE GARDEN Feb. 25 (p. 182) Mr. J. B. Webster still hankers to be at his forest trees with the knife, but a justification of the practice of pruning as usually followed must be hard to find when he bases his contentions in its favour upon rabbits or hares eating over trees and causing them to send up numerous sprouts requiring to be thinned out. No one would ever think of calling this, pruning forest trees, nor is it what is meant by the term. The worst opponent of pruning would not object to operating with the knife upon a tree accidentally injured in the way described. But this is not forestry pruning as advocated, which means cutting off the limbs of trees till the trees have grown so tall that it requires two men—one with a heavy mallet, and the other with a chisel on the end of a pole 20 feet long or so, a hand saw, knife, or bill-hook, &c. This is "pruning" forest trees as practised by scientific foresters on large estates in Scotland where pruning is chiefly done, and often after a long day's work the writer has been quite tired out with swinging the said mallet. THE GARDEN has lately set itself successfully to combat some silly notions and prejudices in the matter of fruit-tree selection and the like, and I only wish it would begin hammering at the heads of our foresters as energetically, for if ever any class of cultivators has been going blindly to work in many things foresters have, and the questions of pruning and thinning have been among their chief stumbling-blocks. Pruning is the last thing a forester need trouble himself about, and if he plants judiciously the right trees in the right places, he may discard pruning entirely. I confess to feeling thoroughly bored by long rigmaroles and platitudes about the theory and practice of forestry notions. The fact alone that the finest, straightest, cleanest, and highest priced timber, foreign or home-grown, and from every conceivable situation and climate in the world, has been produced in crowded forests untouched by the hand of man, should be sufficient to convince anyone who is not wrapt up in prejudice and rule-of-thumb. James Brown in his "Forester" (p. 539) is quite right when he states

That, generally speaking, wherever healthy young trees have been properly planted in a suitable soil and situation, little or no pruning is ever found necessary, and that where pruning proves necessary or is much needed for young trees,

We conclude that the cause lies in the bad management of the planter in the first instance.

Thus we have Mr. J. B. Webster and the best authorities at loggerheads on the subject—the first advocating pruning till the trees "become thoroughly established," and the other describing the same practice as "bad management."

The statement by Mr. Webster that he Never saw the evils of the non-pruning system, as advocated by some, better exemplified than in the natural forest, where isolated trees and such as were growing along the margin of the forest were often found to be damaged,

is a way of misrepresenting the case that I would not have expected him to attempt. The fact is, the only portion of a natural forest that represents in any degree our foresters' system in this country is the margin of the forest, and the isolated trees, which, owing to the same causes—viz., too much room—produce useless side limbs instead of straight trunks. The natural forest, as a rule and according to all testimony, presents an unbroken stretch of trees, remarkable for the regularity, straightness, and general

symmetry of dimensions of the trees, and the examples described by Mr. Webster are the rare exceptions; hence it is that, while British foresters have been growing rough Larch, Spruce, Fir, and Pines to a size containing 200 or 300 cubic feet, they are shut out of their own market by the foreign importations of Fir planks and poles of the same sort produced from seed where they grew, and which were never touched by a tool till the trees were felled. When we go into our other over-thinned woods at home and see the ungainly, scrambling Oak, Ash, Sycamore, and other trees on every side, we see the causes that spoiled the Firs going on there also. It has, of course, dawned upon foresters that this rough timber is produced by allowing the side limbs and tops too much development, but instead of preventing the evil by natural means—viz., judicious crowding—they took to cutting the limbs off with the knife with one hand, while with the other they have been as diligently over-thinning the trees and encouraging the very evil they wished to prevent. Thousands of acres of our young woods in this country are truly lamentable spectacles of thinning and pruning, but I am sanguine that a few young plantations will now be allowed to grow in consequence of the whole of the woodmen on some estates having been discharged, and there is hope that we may yet see a forest of good timber some day here and there. The best judges of good timber are timber merchants, and the men who know most of the conditions under which good timber is produced are not foresters, but those agents of the timber trade who go out to see and buy foreign timber, and we need not, therefore, be surprised at such men lamenting the ignorance of British foresters, as is the case in last week's *Timber Trades Journal*, stating that

In the great sources from which our foreign supplies are obtained, the planting having been spontaneous, and the growth entirely left to Nature's own laws, the timber is of a superior kind.

YORKSHIREMAN.

TREES FOR MARSH AND MOUNTAIN.

THE BLACK ITALIAN POPLAR.—The colossal dimensions which this tree attains in a given time when compared with the growth of other trees grown in this country for profit surpass that of all others. As this Poplar can be grown on barren marsh land not fit for cultivation it justly deserves the special attention of the planter. It is, however, by no means confined to such situations, and is also quite at home in hollow places on the sides and angles of the hills where the soil is of a loose, open character. As to hardness, it is all that can be desired, as it not only grows, but attains a large size on the most exposed sites in bare moorland districts of the country. When planted along with other trees in a mixed plantation its lofty head soon towers above all its associates, and can be readily recognised at a considerable distance from the plantation. The planter, however, will do well not to use this tree in the formation of mixed plantations, as from the rapidity of its growth and the large unwieldy size of the branches which it produces at the top, it soon dwarfs and destroys the other trees in its immediate vicinity. During its early career it seldom produces a double leader at the top, but large rambling side branches should be cut back to keep the tree within bounds and lessen the risk of fracture by wind. In order to grow this tree profitably it should be grown in blocks by itself and planted rather thickly upon the ground, by which means the branches being confined lose their vitality and fall to the ground. Although it attains to a great height, yet at the same time it naturally retains its thickness upwards in a remarkable manner, even in cases where the trees are planted about 6 feet or 7 feet apart, or at the rate of about 1000 trees per acre. Some of the best trees that I

have ever cut were growing at such a distance apart, and as the ground was liable to be flooded for a considerable time during winter, it proved the hardness of the tree and its suitability for such situations.

Isolated trees and such as are growing at wide distances apart attain larger sizes than those indicated, but from the larger number of branches which they produce the trunks present an extra number of knots, thus lessening the value of the trees to a considerable extent. Large trees likewise require a great deal of labour and expense in their removal, more especially when the timber is in marsh ground and not near a road; whereas trees of medium size can be handled with facility by a few men and removed without loss of time or extra expense. Damp clayey ground of a retentive nature that cannot be advantageously cultivated, as well as damp boggy ground by the sides of mountain and other streams, may be planted with this tree, but, pure Moss ground not suiting it, it should never be planted on such unless clay has been added to and mixed with the staple. When planting this tree upon poor soil resting on a hard bottom, I have found it an advantage to have the subsoil broken up with a pick wherever the trees were planted. This, of course, entails some extra expense in the formation of the plantation, but the results in the superior growth and development of the trees will far outweigh the cost of the extra outlay. Vast areas of marsh ground in Ireland might be planted with this tree, and, with the exception of the common Alder, I am not aware of any other tree that will give so quick and profitable a return. I have planted considerable quantities of both trees in that country, and find the soil, with some few exceptions, very suitable for their growth, and, moreover, a fair price can generally be obtained for good, sound stuff. The prices which I have received vary considerably, according to size, quality, and demand, and range from 8s. to 15s. per ton. The Poplar is easily propagated by cuttings, which should be selected after the tree has matured its growth. In selecting the cuttings, choose fine, straight twigs, and then cut them into lengths of about 1 foot, and insert them in nursery lines in well worked sandy soil.

The Abele Poplar is another hardy tree that can be grown to advantage in different soils and situations, and although it does not attain to so large a size as the former, yet its growth and hardness are such as to warrant its extensive planting. In addition to its qualities as a timber tree it also is very ornamental, and may be planted either as a single specimen or mixed with others to afford contrast and variety. In smoky districts, about towns where there is plenty of space, it may be advantageously planted. This Poplar is also one of the best trees for planting in cold sea-coast districts where the soil is of a poor sandy texture. No doubt it would attain larger dimensions on poor soil in sheltered places. Yet it attains a useful size of timber when exposed to the sea breezes and under conditions unfavourable to the growth of many other timber trees. Young trees are liable to be peeled by hares and rabbits during frost and snow, and in order to protect them from injury my practice is to tie round the stems some Heather or small branches, these being cheap and very efficient modes of protection. The timber of both trees is largely used for a great variety of purposes, and clean stuff of medium size, and free of knots generally, commands a ready sale and the best price, although at the same time large butts of good quality are occasionally wanted for particular purposes and give a good return. When the Abele Poplar is grown on marshy ground it is liable to contract heart-rot, which should be guarded against by cutting the trees as soon as they attain maturity. Country carpenters use the wood extensively for repairing carts, barrows, wagons, planking for scaffolding, &c. I have used the wood pretty extensively in the erection of cattle and other sheds, paling rails, and for a variety of other things in connection with estate management. I have had paling rails of this wood in good condition after having been exposed for eight years.

J. B. WEBSTER.

No. 852. SATURDAY, March 17, 1888. Vol. XXXIII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

POSIES AND FAN BOUQUETS.

WHEN I addressed you a few weeks ago on posies *versus* "mushroom"—or, as you preferred to put it, "pincushion"—bouquets, I, of course, expected a little opposition, and if I have any regret whatever it is that sterling opposition was lacking. My idea of bouquets is derived from the windows of the Central Avenue, Covent Garden, and from the florists' shops of the West End. Of course, I know that there are private ladies of exquisite taste who plan their own floral decorations, and I know that under these circumstances their gardeners may in the main be trusted to produce some very pleasing arrangements. My object in now writing is to suggest that posies of a few noble flowers and good leaves need not be a "family jam" in any sense of the word, for if that is so, of course, the very name of posy becomes a misnomer, seeing that a posy is really a posy in pretty flowers instead of one in mere words. There is one point in the making of posies deserving of mention. It is that none but the finest and best of garden flowers can be used effectively in such arrangements. This is, from a lady's point of view, a real gain, because any miserable bits of flowers may be impaled on wires with foliage other than their own, and then be introduced into that mixture called a bouquet. But in posies you must have long-stalked flowers of the best quality—Arum Lilies, Eucharis spikes, flowers, and buds, Roses, or Orchids, and the whole spike or inflorescence arranged naturally on a Palm leaf or other foliage as nearly as possible in the way it grew. Daffodils are now coming in, and these, if cut full length and placed on a suitable background of foliage, make very effective posies for all sorts of costumes. Another point worth notice is that there is an immense saving of time in the method of arrangement I recommend. We will say, for argument, that a bouquet of flowers wired and petticoated in the usual manner takes an hour to produce, while the posy—a far more beautiful, more artistic, and effective thing—may be made in from ten to fifteen minutes. My experience is, that nearly all the floral arrangements which take a very long time to "arrange" are very bad in proportion to the waste of time. It always annoys me to see people filling vases or flower-glasses, and sticking in a flower here or a bit of Fern there without any notion of the value of first intention or finality. In THE GARDEN of Feb. 25 (p. 167) there is a bold and simple grouping of six or eight Tree Peonies and a long spray or two of Clematis montana. I have no personal knowledge of who arranged that

group, but it is a great deal more beautiful than the mixed masses of choice flowers which Van Huysum used to paint, and which may now be seen in the National Gallery. I should think that it was arranged by a lady who is an artist, and that she wandered not "down the mountain side," but into a good garden in May, and, supposing time an object to her, I should imagine that from first to last ten minutes saw the beginning and finish of the whole group. I, of course, do not say that this was the fact, but that it is possible I have no doubt whatever. That no florist or ordinary gardener arranged that tazza of Peonies is a foregone conclusion; its symmetry is too subtle. A gardener likes each flower separate and distinct, as Mr. Hemsley told us the other day when criticising my knowledge of modern bouquets, and two of those soft, flesh-tinted Peonies are nestling side by side. Then only one bit of Clematis strays down, naturally and unrestrained, on to the surface of the table on which the tazza stands, and everybody knows that a gardener would have dangled down three pieces at equal distances from each other, so as to suggest a sort of tripod for the vase!

This instinctive hankering after mere numerical symmetry is one of the greatest of all the inartistic failings of the average gardener and florist of our time. Symmetry, simplicity, and repose there must be in all grouping, but it need—indeed, must—not be equidistant, formal, or numerical symmetry, which is fatal to the highest and best of art work of all kinds.

To return to the posy as opposed to the bouquet. I do not say that the posy, however well and tastefully made, will always please, but I would beg of ladies to give it a trial now and then, by way of a relief or change. Personally, I believe it has merits which no ordinary bouquet can ever possess, but I wish bouquet-bearers to decide for themselves. Another very pleasing and useful arrangement is a tastefully-made fan posy. Now the posy, like the bouquet, is simply ornate, and not of any real service to its fair owner. The fan posy has a useful and an ornamental side. Like the posy pure and simple, it is nice to look at, and if made of sweet blossoms and fragrant leafage it is, moreover, agreeable to the nose as well. To make it you take a common Palm-leaf fan and cover one side of it as prettily as possible with flowers; edge it with feathery Asparagus or with a fringe of finely-cut Ferns, and let the smaller flowers jut beyond the margin here and there in an artistic way. Then cover the other side where the stalks are, or are not, as the case may be, with a bit of silk, fluted satin, or lace to match the costume or dress, and you are the envy of half the people who carry the antiquated pincushion bouquet. I again appeal to ladies of taste and say, Try the posy of noble blossoms simply arranged. Try also the fan posy, a "thing of beauty," of fragrance, and really serviceable as well—a fan and a bouquet

in one. Try both of these, and then return to the mushroom bouquet if you will.

VERONICA.

HEPATICAS FROM GLOUCESTER-SHIRE.

THIS harsh and snowy March is not kind to Hepaticas, and even the Snowdrop seems hurt by it. Mixed and very pretty Hepaticas kindly sent by the Rev. C. O. Miles seem not to have suffered. The new forms of Hepatica, some of which we have shown in colour in THE GARDEN, have charming qualities, but not every garden suits them or shows their pure white colour. Mr. Miles writes: "If you look at them by daylight you will see that there are four kinds of blue, three of pink, two of white. There are 700 plants here, all seedlings, raised by my brother. At present each Hepatica carries from fifteen to thirty blooms. The plants are arranged on a long border in the full sun, and not a leaf is to be seen on the whole lot. The leaves come when the blooms are over. These plants have been in this position four years. A few at the end, amongst them two examples of *H. angulosa*, are in deep shade and they rarely bloom, but keep their leaves. The latter harbour slugs. These Hepaticas began to bloom before the snow fell. They were exposed to the gale on Sunday, snow and rain on Tuesday, and heavy rain this morning. I know no flower that would emerge so triumphantly from such an ordeal."

STANDARD PEARS FOR BRITAIN.

MR. COLEMAN, whom all our fruit-growing readers trust, selects Glou Moreau as No. 7 of our standard Pears. Mr. Wildsmith, a good Pear grower, whose fruit room is often well filled, selects Thompson's as No. 8.

The list now stands thus:—

1. JARGONELLE.
2. MARIE LOUISE.
3. DOYENNE DU COMICE.
4. WINTER NELIS.
5. JOSEPHINE DE MALINES.
6. EMILE D'HEYST.
7. GLOU MORCEAU.
8. THOMPSON'S.
- 9.
- 10.
- 11.
- 12.

EARLY PEARS.	COOKING PEARS.
Citron des Carmes.	Catillac.
Doyenné d'Été.	Uvedale's St. Germain.
Williams' Bon Chrétien.	Gillogil.
Beurré Giffard.	

Pear Glou Moreau.—Having honoured me by placing upon my shoulders the responsibility of selecting No. 7, I unhesitatingly name this grand Pear. A variety so generally good cannot be excluded from your list of twelve; therefore, friend Wildsmith having (p. 189) named another which I should have selected, I will resign to him his love, as I can be happy with either. The majority of your correspondents having included this Pear in their lists, I hope my casting vote will give general satisfaction. The only fault against it is a tendency to spot, and as this fungoid growth may be produced by planting trees upon the Quince stock in too dry a situation, I would suggest to those who have failed, a deep mellow Strawberry loam, well drained and corrected with lime rubble, a free stock, and extension training on a south or west aspect. I will not presume to name another variety, but now my pen is wet I must repeat my

high opinion of Beurré Superfin, an early Pear often at its best without changing colour before Marie Louise is ready. The fine, but disappointing Pear sent to you in February must have been past its best, as early in November I tasted most exquisite fruit from a standard growing near London. Having sat up all night to eat our Jargonelles, where are we to look for our daily supply until Marie Louise is ready?—W. C.

Pear Thompson's.—As you have made me responsible for No. 8, I pronounce without hesitation in favour of Thompson's. It is as delicious as any Pear in the world. The tree is hardy, a good grower, never fails to fruit abundantly, and it is as good on the Quince as on the Pear stock. I prefer the former, as the fruit puts on a finer colour. I have seen and tasted it good here, in Yorkshire, in Suffolk, and in Montgomeryshire, and I think it does well everywhere. Our Easter Beurrés are this season the smallest we have ever had owing to the dry summer, but they have all along been of excellent quality. We are now getting to the end of them. I also send you the first of our ripening fruit of Knight's Monarch, small, because the crop was heavy, and we could not water the trees. I also send you a fruit that is not generally grown, Nouvelle Fulvie. It is one of our best very late Pears, and those sent are the first to ripen. It will be good a month or six weeks hence.—W. WILDSMITH.

ROSE GARDEN.

T. W. GIRDLESTONE.

FRAGRANT ROSES.

I AM delighted to think that "D. T. F.'s" pen ran away with him in his article on the scents of Roses (referred to on page 95), and gladly turn with him to the consideration of "the sweetest beauties in our lady's train," but this as a text I would take literally, for it is impossible to consider one attribute even of a Rose apart from others that it may possess, and the twelve sweetest, selected without regard to any other quality, would include several that no one but a blind man would plant. As in human beings good looks and good temper are not invariably found in conjunction, so among Roses it must be admitted, however reluctantly, that the fairest are not always the most fragrant, nor the sweetest the most seductive in appearance; but while in the first case unbounded amiability ought to be held to compensate for the most exceeding plainness, there are some most fragrant Roses possessing so little other attraction as not to be worth growing. To the blind man no doubt the sweetest Rose is the most beautiful, and this might justify the cultivation of Aline Sisley and Mme. Ferdinand Jamain (still sometimes referred to by its nickname of American Beauty), two of the sweetest Roses in existence. But no one with seeing eyes in his head, unless he were at least absolutely colour-blind, could tolerate the dreary tints and the utter lack of refinement or grace of form of these varieties; so that an attempt will be made rather than to enumerate the twelve absolutely sweetest Roses, which must include several whose fragrance, though immense, is more than counterbalanced by accompanying disadvantages, to select varieties whose conspicuous fragrance is enhanced by other additional attractive qualities.

First and foremost amongst such varieties must always come the Provence Rose, which, even were it not the sweetest of all its race, is so bound up with every earliest association of Roses, that almost everybody when referring to the scent of Roses probably has unconsciously in mind that full, soft, almost unctuous fragrance of the Provence, which has from time immemorial been regarded as the typical aroma

of the Rose. To enumerate all the qualities of the Provence Rose would be an idle task, for every true lover of Roses grows it, always has grown it, and always will grow it as long as Roses can by any means be grown at all. Some things are never out of fashion—can never lose their freshness—can never die—and a world in which the sound of children's laughter had been extinguished is not more inconceivable than a world without Provence Roses.

If the occupant of the second place of honour among the sweetest Roses were to be named by Rose growers at large, La France would probably be elected by acclamation. Of exceptional and unique fragrance, radiantly beautiful, more graceful, though not less gracious, than the Provence Rose, La France has come to be considered the model of what a Rose should be, the expression, so to speak, of the most perfect rose-hood. As the elder variety may be taken as a type of the old days when the annual local flower show, in which Roses played a modest part, was the solitary and great gardening event of the year, so La France may in some sort be held to typify the heightened excitability incident to the high-pressure times and to the feverish rush of modern life in which excitement and display must be unceasing, and even horticultural shows, where the exhibits not only include, but consist entirely of Roses, crowd in such continuous succession upon each other that one is scarcely past before the next is open.

For the great and distinctive characteristic of La France, as compared with the Provence Roses and that which has raised it into such universal favour, is its habit of continuous blooming. No sooner is one set of flowers over than another appears, and from the end of June until cut off by winter frosts there is a constant succession out of doors, while, by the judicious management of plants under glass as well, La France may be had in bloom practically all the year round. It may perhaps be thought that this point has not much to do with fragrance; but there are few more invaluable Roses than La France, and it is difficult to refer to one of its merits without allusion to others, and though, moreover, it will hardly be contested that La France may be commended as one of the most fragrant of Roses, yet too much stress cannot be laid upon the advantage of finding this admirable quality in a Rose whose universal cultivation might also well be urged on half-a-dozen other grounds.

Third on the roll of fragrance comes Socrate, which, as the Provence is the sweetest of summer Roses and La France the sweetest of hybrids, is the most highly scented by far of all the Teas, hardly even excepting the above-mentioned dreary Aline Sisley. In spite of the attractive colour of its flowers, which are of mingled shades of rose and apricot, and which are also of good size, while the plant is a good grower and not tender, Socrate has been unaccountably neglected in this country. There are one or two gardens in which it is reckoned the sweetest of all Roses, but this would probably never be universally the case, as the distinctive scent of the Teas is not so generally popular as that of some other Roses. But it is impossible to resist the thought that if some gardeners who are so ready to inveigh against the cultivation of Roses of little fragrance would instead devote their attention to finding out and growing well the sweetly scented varieties that already exist, they would be rendering a greater service to Rose-growing. Socrate is generally grown in France, where its powerful fragrance is well known, and has been not inaptly described as resembling that of ripe Peaches in the hot sun.

A rampant climber and a representative of the race originated in America by J. Champney (though named after Philippe Noisette, who first sent it to Europe) claims the fourth place in Jaune Desprez, a variety that retains many of the best characteristics of its first parent (the Musk Rose), in that it will cover a high wall almost as quickly and effectively as an Ayrshire, and that its deliciously scented tawny yellow and buff flowers are produced in immense clusters. It should be noted that this Rose is not absolutely hardy in the open; but as so vigorous a climber can hardly, under any circumstances, be grown elsewhere than against a wall or house, this is not a very vital objection.

Number five in the list brings us to a very fairly typical example of the Hybrid Perpetuals according to the general acceptance of that class, possessing about equally the merits and the failings of the group. Prince Camille de Rohan, still the darkest Rose, is of a colour which is not found in any other class; the flowers have the additional merit of being well formed and the plant is vigorous, but it is frequently rendered non-autumnal by its inability to develop the buds produced in September through being overwhelmed with mildew. Nevertheless, its fragrance recalls, more than that of almost any other modern variety, the full and suave aroma of the old-time summer Roses of the Provence type.

STANDARD ROSES.

I HAVE read the remarks on these in THE GARDEN, March 3 (page 195), by "D. T. F.," and also the editorial remark that, "Now and then only a good old standard is pretty." This is true enough, but it is quite certain that standards of some varieties have an excellent effect in gardens. I can well remember the variety Coupe d'Hébé, which, just thirty-five years ago when I was an apprentice in a local nursery, formed beautiful heads of bloom. Another excellent variety popular at that time was a variety of the Gallica type, named Boule de Nanteuil, with flowers of a reddish purple colour. We had also in the nursery a number of climbing Roses on tall stems from 6 feet to 9 feet high, and it must be observed that any strong-growing variety will throw its vigour into the stem. The shoots were regularly trained and pruned when the plants were young, so that the heads did not become lop-sided. After the third year the plants were scarcely pruned at all; there was no formality, and the strong shoots being mostly pendulous, they would throw out short lateral growths, each of them a wreath of lovely pink, deep rose, and pearly blush flowers. One of the most vigorous had smooth stems and reddish crimson flowers. It was named Amadis, or Crimson Boursault. Other Boursault Roses were Inermis and Gracilis, Félicité Perpetuée, pinkish blush; Princess Louise, pale pink. The Dundee Rambler is one of the most vigorous of the pink-flowered varieties and would make shoots 12 feet long or more. As standards near London these graceful climbing Roses have not succeeded well. I thought to re-produce the beautiful pictures I used to admire when a boy, and carefully planted some of them on excellent stems about 7 feet high, but in three years they have not shown sufficient vigour. It may be that their constitutions have become enfeebled with age, and this added to our hot, dry summers and the shallow gravel soil on which they are planted, has robbed them of their grace and glory. The Dundee Rambler grows freely enough against the walls of some houses, wreathing them with hundreds of blossoms to the height of 20 feet. Gloire de Dijon should make a good variety for a tall standard; this we have in a suitable position, covering the house from the base to the top of the third storey. It has many hundreds of Roses open on it at one time.

I intend to get some tall Briers and make another attempt at growing them. What they must have is a deep and rich soil, and if that is light over a

gravel subsoil, the method of procedure must be this: Dig out the good soil from a circular space 3 feet in diameter, which lay aside to be filled in again; all the bad soil at the bottom must be taken away and be replaced with good loam and decayed manure, mixing up the ordinary garden soil with it. If the Rose has to be planted on Grass the turf might be chopped up and thrown into the bottom. We have to treat all our coniferous trees in this way, and make up the ground with peat and loam; in fact, a little good turfy peat is excellent for Roses. The peat litter manure from stables where it is used has proved to be an excellent stimulant on heavy soil for Roses. If the latter are purchased in the second season of their growth, it is very desirable to cut them well back the first season. I would plant about the end of November or early in December, and as they are all quite hardy they may be pruned in February. Why has no persistent attempt been made to improve these graceful climbing Roses by hybridising and seeding, while Hybrid Perpetuals are raised by the thousand and sent out by the score every year? J. DOUGLAS.

PRUNING ROSES.

SUMMER-BLOOMING ROSES may be pruned at any time when the weather is open, but Hybrid Perpetuals and Teas should be left till the end of March or beginning of April, being guided in this respect by the weather. A sharp knife is the best implement to use, as a clean-cut wound will heal quicker than if the tissues are bruised. In commencing to prune a standard or any other Rose, first of all thin out weak shoots, as when such wood is left the head of the plant becomes too full of useless spray. In doing this, an eye should be kept upon the contour of the plant, as it is just as easy to have a good-shaped plant as an awkward, ill-balanced one. Weakly-growing varieties must be cut in harder than those of stronger growth. In shortening back a weakly grower, three or four buds are quite enough to leave; if more are left, only the upper ones will break and produce flowers. Always cut to a dormant bud, as such buds are invariably well ripened and rested, and as a consequence will produce fine flowers, and this remark applies as forcibly to Teas as to Hybrid Perpetuals. A bud in a state of excitement, if it yields a blossom at all, will produce a weak one, and probably also lacking in form and finish. The wood of strong-growing Roses should be left longer, but even here, if very fine blossoms are required, 6 inches or 8 inches should not be exceeded. As I have always noticed, if more wood is left the back eyes do not break, and there is a piece of ugly naked wood at the bottom, which, as the plant gets older, has an unsightly appearance. In pruning standard Roses the great evil is leaving in too much weakly spray. This keeps out sunshine and air, and prevents the thorough ripening of the wood down to the base. Old Roses which have been pruned on the long-rod system, if I may so term it, generally have a miserable look, and then comes a time when the knife must be used in a drastic manner to concentrate the plant's energies and restore its vigour. In other words, the sap which has been frittered away perhaps upon hundreds of outlets has to be confined to a few. The man with a very large number of irons in the fire generally spoils a large number, if not the whole, and this is just what happens in the case of an insufficiently pruned Rose tree. But if a neglected Rose tree is sound at the bottom, a severe pruning will bring back, if not its growth, at least its beauty. In pruning wall Roses, such as Gloire de Dijon and Maréchal Niel, the young, strong, well-ripened shoots may be left a considerable length if there is room to lay them in, and it is advisable to promote the production of these shoots by the removal of all old weakly wood from the centre of the tree, to encourage them to break away as near the bottom as possible. It is the tendency of Noisettes and the stronger-growing Teas to throw out shoots of a vigorous character, and when not overcrowded they invariably ripen and produce fine blossoms. Roses on a south border intended for early blooming may be pruned as soon as the weather breaks, as in some cases, to secure a special

object, it is necessary to run some risk. We accept the risk for the sake of the early blossom, but the risk is not great if the situation be warm and sheltered, as this will refer only to what are termed garden Roses, which are a race possessing more than average vigour. E. H.

Early Marechal Niel Roses.—The Maréchal Niel will bear forcing as well as any variety I am acquainted with. There are some Roses which if forced will make a great deal of wood, but form few flower buds. Others will almost refuse to grow under this treatment, but the Maréchal Niel will both grow and flower most freely. The earliest blossoms may be obtained from plants in pots. If there are several strong shoots, these should be twisted round stakes, and the points if weak cut off. The branches will then emit many side shoots, and most of these will each produce a flower. The plants may be in 6-inch, 8-inch or 10-inch pots, and they should not be repotted, if such an operation seems necessary, until after they have flowered. Give the plants plenty of liquid manure while they are growing. They may be placed in a pit or house where the temperature is from 65° to 70°, and if syringed daily and kept well watered at the roots always, they will flower in a month from the time of their being placed in heat. Specimens that are planted out in beds and borders may also be forced into bloom, although their progress will not be so rapid as in the case of the pot plants. All the weak twigs should be cut out from amongst the strong branches, top-dress the surface, water frequently with liquid manure, syringe the branches when the weather is favourable, and with a temperature of 60° or a little more there will be a good display of flowers by Easter.—CAMBRIAN.

ORCHIDS.

W. H. GOWER.

ANGRÆCUMS AT CLAPTON.

THESE plants in the Messrs. Low's nurseries would appear to occupy the same position as do the Vandas at Mr. Williams', of Holloway. Not that I wish to infer in any way that other genera are neglected, but when one sees nearly three thousand spikes of one variety in flower, one is apt to become enraptured. Here is a large house in which the centre is full of *A. sesquipedale* in all sizes. This species, when well grown, is always a magnificent plant, the stately habit and peculiar metallic blue hue of the leaves always rendering it attractive. The majority of these plants were past flower on the occasion of my last visit, but some were still pushing out flower-buds; these latter kinds will evidently lay claim to the title of the spring-blooming variety. I have often noticed that the flowers which are produced in spring have a more creamy tinge than those of the winter bloomers; this may arise from the plants having more sunshine. Numbers of other new kinds have been imported from Madagascar, an island which appears to abound in beautiful plants, and *Angræcums* in particular; but the kinds which Messrs. Low have imported being at the present moment without name and without flower, they are at present outside of my remarks. In opposition to the giant-flowered *A. sesquipedale* stands the diminutive *A. hyaloides*, blooming profusely; also the miniature new species *A. trichoplectron*, a small, slender plant, with narrow linear leaves, and a single little white flower with a very long spur, which is indeed longer than the whole plant. Here also were numerous examples of *A. Sanderi*, which appears to take such a very long time to develop its flowers; the curious *A. polystachys*, and the small-growing, but large-flowered *A. fastuosum*, its pure white flowers emitting a delicious perfume resembling that of the *Gardenia*. The show of *A. citratum*

is beyond conception, being grand in the extreme. Here in a long house the front stage is full of these plants in small baskets, and others are hanging from the roof, some of the plants bearing four spikes a foot long, with racemes of bloom from 6 inches to 9 inches in length. These flowers, set upon the raceme in a regular two-ranked manner, some two or three dozen on a spike, are of a soft creamy-white, with just a suspicion of a tinge of mauve at the base of the lip, and which as the flowers get old becomes faintly tinged with lemon colour. Spur white, much larger than the flower, and curved forward. Close upon three thousand spikes of this species were open on the occasion of my visit, forming a charming exhibition in themselves. These *Angræcums* do not conform to cool treatment, but require the heat of the East India house all the year round, and will not bear drying in winter, although at that particular season less moisture is required.

Odontoglossum Warscewiczii.—This plant will more properly be considered a *Miltonia*, belonging to the same section as *M. Phalænopsis*, *M. vexillarium*, and *M. Roezli*, and, notwithstanding its rarity, is decidedly inferior to either of the above-named species. It is now flowering in The Woodlands collection. In general habit and appearance it resembles *O. vexillarium*, and its flower is more like that of *Roezli*. The sepals and petals are white, bearing a blotch of rose at the base of each; the lip is also white, stained near the base with two rose-coloured blotches. The plant appears to have been discovered by Warscewicz in the mountains of Costa Rica, and, I believe, flowered first with the Messrs. Veitch at Chelsea about the year 1875.—G.

Cattleya amethystoglossa.—This superb plant has been imported in quantity by Messrs. Low, of Clapton, in whose nursery I recently noted numerous flowering examples, some of them consisting of very large masses, and amongst them some wonderfully fine varieties. In its habit of growth this plant much resembles *C. Leopoldi*, but it appears to be even a taller grower than that plant. It bears a very large head of flowers, upwards of fifty scars having been counted on the imported racemes, so that cultivators have a great deal to look forward to in this plant. Generally, the flowers of this species are rose, of a lighter or deeper shade, and spotted near the margins with rich amethyst-purple, the lip being of the same colour as the spots on the petals. In some of the varieties now flowering at Messrs. Low's the spotting is very heavy and the colours exceptionally bright. The plant is said to grow wild in Brazil in the province of Bahia, and, under cultivation, thrives when growing with other *Cattleyas*.—W. H. G.

Phalænopsids at Clapton.—For giant plants of *Phalænopsis* one must visit the collection of Mr. Partington at Cheshunt; but for quantity the establishment of the Messrs. Low, of Clapton, stands pre-eminent, for here are congregated in two large houses such vast numbers of these plants that I should not like to guess as to how many thousands the two structures contain. The plants do not appear to be grown in a very high temperature, but yet I do not think they are kept as cool as the Cheshunt plants. They are, however, well exposed to the influence of light by keeping them close to the glass, while the excessive wet—which is a prevalent feature in collections of *Phalænopsis*—is entirely absent at Clapton, just a fair amount of genial moisture rising amongst the plants, and under these conditions they thrive admirably. The heavy fogs which enveloped the metropolis in the early part of the season caused great havoc among the *Phalænopsis* flowers at Clapton, and I observed that quantities of spikes which had been cut down are now breaking up again, so that a display of bloom may be looked for at a season when the atmosphere will be clear and the flowers can be enjoyed to their full advantage. This plan appears to find much favour at Clapton, and is really deserving the attention of those who

uffer from London fogs. The sorts now at Clapton comprise numerous examples of almost all the known kinds, and include numbers of plants from new localities, amongst which may be found many with distinct features, such as the combination on one plant of *P. amabilis* and *P. grandiflora*, &c.; indeed, amongst the great lot of *Phalanopsis* grown here the variation is so great that one finds it extremely difficult to draw a line of distinction.—G.

Pilumna fragrans.—This is a perfect little gem. The plant is dwarf and compact in habit, with longer and thinner growths than *P. nobilis*; the flowers are borne in pairs and in threes and are pure white, saving a stain of pale yellow on the disc of the lip, and they yield a delicious perfume resembling that of *Vanilla*. It is a neglected Orchid which requires re-introduction, as it deserves a place in every plant stove for the delightful aromatic odour which the flowers emit. It is now blooming in quantity at Clapton.—W. H. G.

Saccolabium bellinum.—A very fine form of this lovely plant I recently noted flowering in Mr. Measures' collection at Camberwell. The plant is a native of Burmah, and appears to require even more heat than the majority of its relatives are accorded in this place. It belongs to the same section as *S. bigibbum* and *S. calceolare*, and does not make a long spike, after the manner of *S. guttatum* and *S. giganteum*. The raceme bears about five flowers, with a hollow cup-shaped lip, which is heavily fringed, the sepals and petals being tawny yellow and profusely spotted with brownish-black. It is an exquisite gem, and thrives best in a hanging basket.—W. H. G.

Dendrobiums and Ferns.—When admiring the lovely flowers of the Dendrobies I always think how much more their exquisite beauty would be enhanced were the usually bare stems clothed with appropriate verdure. By placing sprays of foliage of various plants, gracefully arranged, amongst the stems fine effects were obtained, and led up to an experiment which is, so far, eminently satisfactory. A plant of the lovely scented *Dendrobium heterocarpum* (or *aureum*) is now in flower, intermingled with the green fronds of *Polypodium vulgare*, scarcely reaching the flowers, and the effect is really charming. When the flowering season is over I purpose taking up the Fern, so that the potting material may not be unnecessarily exhausted, and when the proper time again arrives repeat the arrangement. With Dendrobies, such as *Wardianum*, for instance, which attain a greater height, other varieties of Ferns of more robust growth may be employed.—EDWARD BRETTELE, *The Volean Cottage, Newton-le-Willows.*

SHORT NOTES.—ORCHIDS.

Calanthe oculata vestita gigantea.—This has two advantages over the common type, as the flowers are larger and they appear six weeks later, so that by having the gigantea form the season of *Calanthes* is extended into the spring. There are several plants in bloom with Messrs. Veitch, of Chelsea, the arching spikes attaining considerable length, robust, and carrying numerous creamy or ivory-white flowers of large size and bold expression, the only other colour being a blotch of intense blood-red in the centre.

Odontoglossum Rossi is subject to variation as well as other species of the same genus, and a form named *Rossi majus rubescens* was recently in bloom at Mr. Bull's, of Chelsea. It has the rich brown spottedness of the type, but a pinkish tinge takes the place of the white seen in the lip and sepals and petals of the parent. *O. Rossi majus* is one of the most useful Orchids we have. It blooms with surprising freedom, and has flowers of refined beauty that are valued for their usefulness when cut.

Calanthe Regnieri.—This, one of the late-flowering deciduous *Calanthes*, was introduced from Cochin China a few years ago and sent to this country by M. Regnier, of Paris. Those who know the late-blooming *C. Turneri* will recognise its affinity to *C. Regnieri*, but the flowers are somewhat different in form, and instead of being pure white with a carmine eye, have a delicate blush pink tint suffused over the sepals and petals as well as the lip. As in *Turneri*, the spike is graceful and denser than in *C. vestita*.

We look upon this, together with the new *C. Sanderiana*, also from Cochin China, as most valuable introductions.—W. G.

ORCHID NOTES.

FOR many weeks the wind has been blowing steadily from the north and east, so that we and our plants have alike been longing for a change. Night after night the thermometer registered from 5° to 15° of frost. This we do not mind after a sunny day and a still atmosphere; but it was not so, our difficulties being further increased by occasional snowstorms which kept the temperature low. A steady snowfall on the roof-glass lowers the temperature much more than frost. Under these conditions we have had considerable difficulty to maintain the right atmosphere. The pipes for hot water were sometimes too hot to be pleasant; we were also afraid to allow water to evaporate from the evaporating troughs, in case this would promote growth at a time when it would be weak. Now the days are long enough, and there is sufficient sunshine for a plentiful supply of moisture to be necessary in the atmosphere, and the wind having veered round to the west, we may have milder weather. The evaporating troughs have been filled in all the houses, and moisture in the atmosphere is further increased by sprinkling the paths and stages twice a day, both morning and evening. The shading material has been put up to be ready for use, and I think it best to shade from the sun during hot days in March, as the sudden change from dull weather to bright sunshine may be injurious.

We have surface-dressed or re-potted every one of the cool-house *Odontoglossums* and *Masdevallias*, also the few *Oncidiums* that succeed best in this house. All of them require plentiful supplies of water, and the point we aim at is to keep the Sphagnum growing on the surface. During the last few years several species of *Oncidium* allied to *O. macranthum* have been introduced, and form interesting subjects for culture in the cool house. *O. lamelligerum* is a distinct form and *O. serratum* is well known. Another form is *O. superbiens*, and besides these *O. macropus*, *O. æmulum*, and *O. undulatum* are enumerated in a recent number of the "Orchid Album," and they are placed under Lindley's section of *Microchila*. The plants all require to be kept moist at the roots, and to be well elevated above the rims of the pots, so that the roots may have freedom to grow outside of the potting compound if they choose. We now grow *O. Marshallianum* in the cool house. The plants are suspended in Teak baskets near the roof, and these plants also throw the largest proportion of roots outside the baskets. They are seldom shifted from one basket to another, but the peat and Sphagnum becoming decayed after the plants have passed through the winter, we pick out as much as possible and re-place with fresh material. Another *Oncidium* of a very distinct character which seems to do well in the cool house is *O. cheiroporum*. The small sweetly-perfumed flowers are produced in dense spikes and last long in beauty.

There is a most excellent display of *Odontoglossum* spikes in the cool house, *O. crispum* predominating, but the varieties of *O. hystrix*, *O. triumphans*, *O. Halli*, *O. gloriosum*, &c., form a delightful group, even if they cannot compare with the chaste beauty of *O. crispum* and *O. Pescatorei*. The spikes of all these *Odontoglossums* are exceedingly liable to be attacked by green-fly, and this pest should be dislodged with a brush or washed off with a sponge. These plants will not stand enough tobacco smoke to kill the fly. I happened to look in one evening recently to inspect a large collection, and the cool house smelt strongly of tobacco smoke. I wondered at this, but found that the owner insisted on having the house fumigated, and the gardener, knowing the plants would not stand it, merely placed the fumigator in for a few minutes in order that the owner might smell it.

It is now very easy to keep up a glorious display of bloom in the Cattleya house. The varieties of *C. Trianae* are very numerous, and can be purchased

as cheaply as any Orchids. *Lælia harpophylla* forms a very beautiful feature, and the *Dendrobiums* are also very bright, the delicately-tinted flowers of *D. Wardianum*, *D. nobile*, *D. Ainsworthii*, &c., making a show in themselves. There is plenty of work to do now in this department. The *Thunias*, for instance, are a distinct and interesting genus; the flowers do not last long in beauty, but a succession of them continues to be produced from the same truss, and in that way they keep up a display as long as Cattleyas. I plant five or six of the rod-like plants in a 6-inch pot in a mixture of loam, peat, and Sphagnum. There are scarcely any roots at the base of the stems, so that it is necessary to place a stick to each to hold them in their places. Fill the pots about half full of drainage.

Amongst Cattleyas and *Lælias* there are not many species that require repotting at present, although it is well to look over the collection, and any plants that may be out of order through the compost decaying or other causes should be seen to at once. We are repotting some of the Mexican *Lælias*, viz., *L. anceps*, *L. alba*, and *L. autumnalis*. Having had a good winter's rest, they may now be encouraged to develop new growths by having a moderate amount of moisture at the roots, and also by being kept close to the glass roof. Give them plenty of light and no injury will follow from the sun. I place these plants close to the south end of the house, where they get a larger amount of light than Cattleyas and *Lælias* usually do. *Oncidium tigrinum* has also passed through its period of rest, having been kept comparatively dry and cool through the winter. In fact, the plants have not been watered more than three times during the past three months. Those that were potted last year will be surface-dressed this season, as they are repotted only once in two years, and in other respects they are treated like the Mexican *Lælias*.

In the East India house, any plants that require repotting should also receive this attention before the season is further advanced. The *Calanthes* are now a numerous and interesting genus, and the skill of the hybridist has produced the most beautiful varieties in cultivation; and as the plants increase freely, the best collections are being enriched by them. All the deciduous varieties may now be repotted, and they succeed best when the compost is largely composed of loam, to which has been added a little leaf mould and decayed manure.

The pots should be well drained, say a third part full of drainage. These plants require a warm temperature while in growth, with sufficient moisture in the atmosphere. The same may be said of the *Thunias*; some of them will do fairly well in the Cattleya house, but others, such as *T. Marshalliana*, will not make strong flowering growths unless they receive an East India temperature. Plants of the beautiful *Odontoglossum Roezli* are in flower during every month in the year; and as the blooms last in good condition six weeks, one need never be without them. The plants are usually repotted in July, and they are all surface-dressed early in the year. One of the finest of *Oncidiums*, *O. ampliatum majus*, does best in this house; the spikes are now well advanced, and, with care, I have been able to prevent them being injured by slugs. The best way is to lay down slices of Carrots; these are very attractive to the slugs, which are to be found under the slices in the morning or feeding at night. The temperature of the cool house now is 45° to 55°; Cattleya house 55° to 65°; East India house from 60° to 65° at night, 70° to 75° by day. J. DOUGLAS.

Oncidium undulatum.—This is a very fine species of the *O. macranthum* set which I referred to a short time since when treating on the small-lipped *Oncidiums*. In habit of growth and stature it may be compared with such plants as *O. serratum*, *macranthum*, *lamelligerum*, &c. The flower-spike is about 10 feet in length and bears twelve branches, each branch carrying two and three large flowers; the sepals are wholly of a bronzy brown, the base of the petals purplish mauve, the upper part pure white. It is a handsome and very distinct cool-house species. It is at present in flower at Cambridge Lodge, Camberwell.—G.

FLOWER GARDEN.

THE NETTED IRIS.

SNOWDROPS and Crocuses are world-wide known and their merits often extolled, but scarcely a thought is given by the majority of gardeners to the charming spring-flowering reticulata group of Irises which has come more to the front this season, and happily so, as the species and its varieties are amongst the most cherished of early hardy flowers. The type is naturally the best known, as it has been introduced for some years, its date of introduction probably being about 1821. And now that the fashion of forcing hardy flowers in pots for winter bloom is on the increase, this lovely Iris has come more into notice, as it is one of those things that a small amount of heat will bring into flower long before its natural season. I showed some flowers recently at a small local society's meeting, and was surprised to find even this favourite comparatively unknown. We may say all Irises are beautiful, but this is especially so, as it is almost as early as the Snowdrop, often sending its violet and gold flowers, vividly coloured and richly fragrant, through a covering of snow, and then its exquisite delicacy is intensified. A clump of *I. reticulata* in full flower on a wintry day is a refreshing sight, and one that may be obtained at a mere nominal outlay. We have had this season a notable addition to this race in *I. Histrio*, which was recently certificated by the Royal Horticultural Society, and thoroughly deserved the distinction, as, although scentless, its flowers are of a delicate shade, pleasing to many, while the flowers have not the washed-out, poor appearance of those of *I. Vartani*—at least this is my opinion of that Iris as I have seen it this season; but perhaps others can tell a different tale. *I. Histrio* was found in Palestine under the famous Lebanon Cedars, and is the second of the group to appear, the first herald being the sky-blue and dwarf-growing variety *cyanea*, a charming thing, and valuable not only for its earliness, but also for its delicate tints. It is quite distinct from *I. reticulata*, and the two as regards colour make a fine contrast, the rich velvety hue of the type associating remarkably well with the paler colour of the other. The flower is smaller, but the segments are broader, the inner ones purple, and the outer flaked and spotted or blotched with purple on an almost white ground, but with a tint of blue. This will evidently become an established kind, and justly so. As mentioned previously, *I. reticulata cyanea* is the first of the series to bloom, and though of quieter colouring than the typical *I. reticulata*, it is a gem that all Iris fanciers must appreciate. It is dwarf, the flowers nestling not far from the ground, and displaying fine shades of blue; the central segments are the palest, the others having a deeper coloured ground, made bright with a rich yellow band. Another form that may be recommended is *Krelagei* or *purpurea*, found, we believe, as in the case of the type, in the Caucasus, and also in Persia. It is less desirable than *I. reticulata*, as the colour is duller, approaching more a slaty hue than a true royal purple, and it is scentless; but, notwithstanding its drawbacks compared with other kinds, it should not be discarded

from the collection. The last of this interesting race to show its beauties is the type, and this needs no eulogising; its beauty speaks for itself, and its popularity justifies its wide cultivation. Such a sweet flower should be in every garden worthy of the name, and it must indeed be a poor place in which this spring Iris cannot find a suitable home. In the case of all these Irises it is a good plan when the weather is likely to prove stormy or cold to shelter the clumps with a hand-light, or give similar protection, as it is impossible to preserve the purity and delightful beauty of the flowers when they are exposed to all weathers. But there is no need to systematically provide a covering, as they are quite hardy, preferring naturally a sheltered, warm corner and moderately light sandy soil, though we have seen the plants succeed under less favourable conditions than these. An amateur may, by planting these



Single Hollyhocks in cottage garden. Engraved for THE GARDEN.

four Irises, have a brilliant succession of beauty from January to March in the open air; and by potting up the type in autumn and placing the plants in a warm house, a display of its lovely flowers will be made during the Christmas festivities.

There is one other point I should like to mention in connection with these Irises, and that is the suitability of the flowers for cutting. It is a common belief that they fade almost as soon as those of the Tiger Flower, or *Tigridia*, but such is by no means the case. I have had the blooms last three or four days in good condition, but after this period they commence to wither.

X.

Single Hollyhocks.—Though of less ample beauty than the fine double kinds, single Hollyhocks are by no means to be despised

as garden plants, and they appear to be less subject to the fungoid pest that has destroyed them in many parts of the country. The cottagers seem to have found this out, as of late years many a fine row of good single forms has appeared in cottage gardens with straight, strong stems, well clothed with vigorous leaves.

LACED PINKS.

By these I mean the pretty fragrant varieties that come under the head of florists' flowers. They are hardy, and cultivated altogether in the open air. They are so free and sweetly fragrant, that if they are, as some say, dying out, it is a great pity. At the May show at the Crystal Palace, and also at that of the Royal Botanic Society, stands of flowers are generally seen, but they are few in number. To secure the perfect lacing of the Pinks is pretty much a matter of culture; the lacing is upon the petal edge, and is broader or narrower, black, purple, or red, according to the variety. The florist always contended for the smooth rather than the serrated petal edge, and in this respect a great improvement has appeared in the Pinks raised within the last thirty years.

I have stated that the florists' Pink is grown in the open air. The usual practice is for the ground to be turned up roughly in summer, and just previous to planting a good dressing of well-decayed manure is worked into the soil. In September the beds are prepared—4 feet in width and 8 inches or so above the ground-level, and rounded in the centre so as to throw off a good deal of the autumn and winter rains. Three rows of plants are planted lengthwise, though sometimes more. When the bed is wider, it is only to have the outside rows 6 inches from the edges of the bed. The fact that the bed is raised greatly assists in wintering the plants in safety. Such a winter as that through which we are now passing is proving favourable to Pinks. It is also very necessary that the leading branches of the plants should be secured from injury from wind, and they can be kept in position by means of pegs, or by placing two small pieces of stick crosswise over the shoots. All that is necessary to be done during winter is to stir the surface of the bed when the weather is at all favourable, keep it clear of weeds, and press down firmly into the soil any plants which may have been loosened by the action of frost. In March the bed is well trodden between the plants, and some top-dressing, which is generally put on about the beginning of the month, is applied. Manure water is not given so much as it used to be, as when used in excess it proved injurious to the young stock, causing the foliage of many sorts to become spotted and sickly. When given, it should always be in a weak and diluted form. If the plants are in a soil that is sweet, rich, and good, they can hardly fail to do well.

There are some good named Pinks that are delicate growers, and it is always safest to winter these in pots, placing them in a cold frame with a dry bottom, but giving all the air possible to keep them hardy and dry. They should be in rather small pots, and they can be turned out of these with good balls of roots, and placed in the open bed in March.

A good, serviceable top-dressing can be made of one barrowful of good loam to three of well-decomposed manure, such as that from an old Mushroom bed. This can be placed upon the bed to the depth of an inch or so. Should dry weather set in at the end of March or early in April, as it sometimes does, it is well to give a good surface watering occasionally.

I have known Pinks to be ordered from a nursery-

man in April, when they have commenced to throw up their flower-stems. It is impossible that such plants lifted from the open ground can produce satisfactory blooms. A good lacing to the flowers can be secured only by planting early in the autumn, so that the plants may become well established during the winter. Plants wintered in pots and planted out in March or April will become as well laced as those planted in the beds in September, care being taken that the balls of roots are disturbed as little as possible.

As the flower-stalks rise they should be secured to stakes, and if the flowers are to be pure in the ground colour and regularly laced, some shading will be necessary. As a matter of course, these measures are necessary only in the case of blooms being desired for exhibition, or the grower wishing to have his flowers in the best possible form.

The Pink is propagated by means of pipings or cuttings, and this work should be done at the end of June or early in July. The Pink puts forth somewhat freely in spring shoots, or "grass," from which pipings are made. Formerly it was the plan to make up a manure bed, place soil upon the top of it, and insert the pipings under hand-glasses. The operation is differently performed now, and quite as successfully, as well as more expeditiously. Some sandy soil is prepared, and the pots, generally those about 4 inches across, are filled nearly full with soil. Then a thin layer of silver sand is placed on the top, and the pipings are placed in them. Then they have a good watering through a rose watering-pot, and are placed in a frame where there is a gentle bottom-heat and kept moderately moist, rather close, and shaded from the sun, a little air being given by day. When rooted they are either potted off singly into small pots, or planted out in carefully prepared nursery beds. R. D.

NOTES ON HARDY PLANTS.

Soldanellas.—In recent works on the alpine floras only four distinct species of this charming little genus are defined, but to these may be added numerous varieties. Some have pure white flowers, others lilac, and intermediate between the two. Without exception this is the most characteristic little group of true alpine we know, and one that has given the cultivator much trouble. The two commoner kinds, *S. alpina* and *S. montana*, are found in plenty both in the Alps and Pyrenees, while the nearly allied *S. pusilla* and the tiny *minima* are said to be peculiar to the Alps alone. As the snow begins to melt in April the first flower to meet the eye is that of the *Soldanella*; indeed we are told by no less an authority than Dr. Christ ("Swiss Flora") that he has often seen the flowers open underneath the snow, a parallel with which we find in the *Douglasia nivalis* of the Rocky Mountains of America. It is doubtless this warm snow blanket that enables these plants to live and thrive so well in their native home, where the winters are of long duration and severer than any we experience in England, and yet with all our nooks and sheltered rockeries success with these *Soldanellas* in the open air has not been very marked. The want of a warm snow covering coupled with the scathing east winds in spring account for this failure where no artificial means are adopted, as just at this time the tiny buds begin to uncurl themselves. All through the winter, and indeed until the flowers extend beyond the protection afforded by the foliage, there is little to fear. Just, however, as this last stage has been attained they are nipped and withered up. Another source of failure, I believe, is in the want of a sufficient supply of moisture as the buds are beginning to appear. In their native homes it is exactly at this time that the plants receive an abundance of water from the melting snow, and in our gardens this is just the season when the spring winds dry everything up. Until the above was made clear to us we had tried everything in the way of artificial covering with only moderate success, but by watering overhead two or three times a day, and keeping a handlight on the plants both to arrest evaporation and protect from the cold, I get flowers in unlimited quantities. Where the above treatment is con-

sidered troublesome the only alternative is to grow them in pots, and by keeping the pots in a cold frame through the winter an abundance of flowers will be obtained. Such plants and all alpine difficult to grow should be raised from seed, as I consider plants that have been raised from seed much easier to manage than imported ones. A few capsules of *S. alpina* gave us 200 plants; the seed was sown in autumn, and when about a month old the plants were potted in 2½-inch pots, well drained, and in a compost of leaf soil and sand. They have been watered regularly all through the winter and are now looking healthy and beginning to grow. About May they will be ready for planting out. K.

THE AURICULA.

If the weather is mild these hardy alpine favourites wake up from their winter's sleep about the end of January. They had made a start here by the middle of that month. Until that time they had been in cold frames without any protection whatever at night, and having once made a start, as was quite evident by the expansion of the rosette of leaves, open at the margin, but closed up during winter as a protection to the truss or trusses, if they are exposed to sharp frosts after this, it cannot be supposed that they will flower as they ought to do in their season. I have placed the largest portion of my plants in a house from which frost is quite excluded. Now, as I write (Feb. 25), the thermometer has registered 14° of frost, and besides a keen frosty wind is blowing which intensifies it. I raise a number of seedlings annually, and with our collection of named varieties we are never without plants in flower. There are in flower amongst the named varieties at the present time Lady Sale (Smith), Frank (Simonite), Confidence (Campbell), Unique (McLean), Acme (Read), Marie (Chapman), Mazzini (Pohlman), Lancashire Hero (Lancashire), Smiling Beauty (Heap), Mrs. Douglas (Simonite), General Gordon (Douglas), General Grahame (Douglas). Others are showing colour, but the above have flowers open on the trusses. How exquisitely beautiful, too, is the foliage even in the shades of green, and in addition we have the meal so densely placed on the leaves of some of them as to be quite white. I noted four that have beautifully formed, densely mealed foliage, viz., Ariel (Simonite), Catherina (Summerscales), Sapphire (Horner), and General Gordon (Douglas). There is therefore from now until the end of April daily occupation in attending to the plants, watching the development of flower and leaf in quick succession, and the greater pleasure of selecting for another season's growth the seedlings flowering for the first time.

No plant is more impatient of a close atmosphere than the Auricula. It is, therefore, most desirable that all the air possible should be admitted. Even in cold weather the plants do not suffer if they are kept from exposure to cutting frosty winds. In the house where our plants are at present the temperature does not rise much over 35° at night. Except cleaning and arranging the plants, there has not been much work amongst them since Christmas. I sowed some seeds as late as the end of September last year. They vegetated in two or three weeks, and the plants have now been pricked out, about a dozen of them being placed in a 3-inch pot. The soil of the seed-pots was not disturbed much, as probably a few more seedlings will appear, and the fanciers have a notion (it may be a delusion) that the seeds which vegetate latest produce the best varieties. These little seedlings require careful attention, and if treated well they are sure to produce good flowering plants for the following season. It is usual to pot them on as they require it until they flower as single plants in 3-inch pots. The Rev. F. D. Horner treats them in a different manner in his well-sheltered kitchen garden at Lowfields, Burton-in-Lonsdale. I was there in September last year, and saw a long border filled with show Auriculas, which were planted out in the open ground and grew as freely as Lettuces. The plants are taken up and potted in September, and have time to become established before severe winter

weather sets in. Lots of them would remain out of doors, and the position being naturally dry and rather sheltered, they would pass through any ordinary winter with but little injury.

The alpine are more hardy than the show varieties, but why they should be it is impossible to say, except that it may be owing to the fact that the show section, of which *Primula Auricula* is the parent stock, has become weakened by being grown under glass houses and frames for more than a century. At all events, I find in practice that the alpine of which *Primula pubescens* is the acknowledged progenitor, do best out of doors. We have now batches of one variety, such as Gorton's *Diadem*, well established. There are nearly 100 crowns of this variety alone in a single mass. We had cleaned the rock garden and surface-dressed all the Auriculas before the frosts set in. *Scillas*, *Snowdrops*, winter *Aconites*, and spring *Snowflakes* were in flower. They are now snug under a covering of snow, and if the wind veers round to the west again, will spring up into life and beauty.

I always keep the alpine in frames, with a choice collection of species of *Primula*, air always being freely admitted. They have not yet made much signs of growth, nor will they do so until we have a steady spell of fine weather. The plants were all looked over a few weeks ago, the decayed leaves carefully removed, and the surface of the soil in the pots lightly stirred. Cleanliness and neatness in frames and borders amongst these choice alpine plants are essential to a true appreciation of their worth; and equally so to their continuing in health. I find, when the soil and subsoil are right and a proper degree of moisture is maintained, that they succeed as well in the full sun as in partial shade. J. DOUGLAS.

Ostrowskia magnifica.—Seeds of this charming new plant, recently discovered in Buchara, are being offered for the first time this spring by several of our leading seedsmen. Not long ago I saw a figure of it in the *Gartenflora*, and, so far as I can judge, it must certainly be the greatest acquisition of late years. It belongs to the Harebell family, and is said to be a bushy plant, forming stems 3 feet or 4 feet in height rising from a tuberous root about a foot long. The stems are deciduous, and I have no doubt from its general appearance and habit that it may be grown in the ordinary border. The leaves are arranged in whorls of from four to six, and are oblong, blunt, and have sharply serrated margins. The flowers are produced on longish stalks and are campanulate, being on strong plants over 3 inches long and ranging from pale lilac to dark blue. It has a curious seed-pod, of much the same shape as that of the Opium Poppy (*P. somniferum*), opening by longitudinal slits just underneath the rim. A few seeds we received last year germinated freely in a little heat, so that there is every prospect of its soon becoming common property.—K.

Snowdrops.—These have been generally very fine all round this season, but we have not heard of any distinct forms. I wish that all who have the opportunity would keep a look-out for anything like a departure amongst our common *Galanthus nivalis*, or any of the other groups. That they do vary we have evidence in the case of *G. Elwesii*, and we have also evidence that *G. nivalis* varies also. There is the fairly well-known *præcox*. I have two distinct forms of this *præcox* and *p. minimus*, and I have a *minimus* which is not *præcox*, and I have a bold, globular-flowered form I call *maximus*, which is a little later to flower than the bulk of *nivalis* and is in full beauty now. I have several others differing either in time of flowering, in the size and shape, or in the depth of the green marking on the inner segments. The most distinct and valuable of all the forms of *G. nivalis* I have yet met with is *G. n. æstivus*. The earliest of all to flower, viz., *præcox*, has gone to seed. The bulk of *nivalis* is fading, but *G. n. æstivus* is just appearing. The foliage is distinct in the way it comes up, and the flower is distinct in shape, the perianth segments being narrow, and the inner ones marked with an intense deep green spot instead of the pale yellowish

green of the type. The origin of this plant is, so far, a mystery. I found an old garden more or less overrun with it and containing no other Snowdrop. It must have been there for ages, had evidently increased from seed, and, so far as my examinations have gone, had never varied in the least. The mystery is, where did it come from, and how long does a Snowdrop require to make a break?—T. SMITH.

SOME CHOICE TENDER ANNUALS.

ONE of these is the Balsam, and it must be said that, as a general rule, Balsams are not nearly so well grown as they might be. I have seen working men, who could give but a few spare hours to their gardens, grow Balsams in a way that might put to shame the efforts of many a gardener whose conveniences for growing them were much greater and more favourable. Good Balsams, that is, well-grown plants of a good strain, are among the grandest and most effective of our tender annuals, and, when properly treated, can be easily managed. To have good Balsams (supposing the strain to be good, and a bad one is not worth cultivating), three things are necessary, viz., light, air, and water. The Balsam is often mismanaged by the seeds being sown in a high temperature, and the young plants allowed to remain in the seed-pot until they become quite long and lanky. To remedy this some growers adopt the practice of placing the roots as deeply in the pots as possible, which is not to be recommended.

Now, there need be no difficulty in raising Balsams from seed. If the latter is sown thinly in pots of light soil, and placed in an ordinary greenhouse, with a piece of glass over each, and kept out of the reach of frost, it will soon germinate, but not so quickly as it would in an ordinary hot-bed or a Cucumber frame. I have seen Balsams and Cockscombs both raised from seed in a hot-bed, and allowed to remain there until the plants were drawn up long and thin, and rendered practically useless for cultural purposes. No one who raises Balsams in this manner can expect to produce good specimens. When the plants are raised in a hotbed they should be potted off singly into small pots as soon as possible; be kept short and stocky, and, at the same time, grown into good, bushy specimens. It is in this way that the foundation of useful decorative or exhibition plants is laid. Those who have no hotbed, and have to raise seeds in a cold greenhouse, may sow the first week in March as directed above. I think that Balsams are sometimes spoiled by being grown in too rich a soil, the cultivator aiming at producing very large plants, when smaller-sized ones, and, indeed, more satisfactory specimens in every respect, can be had. Balsams will grow well in any free loamy soil. In the light sandy soil at Messrs. Sutton and Sons' Portland Nursery, Reading, Balsams grow into very fine plants indeed in the open air, and produce large, fully double flowers. I have grown them to a high state of perfection in the open air and in rather poor soil. I am quite certain that in point of quality of bloom better results are often got in the open air than in pots. Weakly plants rarely flower well, and when they do they throw poor blooms. The strain of seeds is condemned; whereas the errors of the cultivator are most to blame. A good compost for Balsams in pots is a sweet yellow loam, some leaf mould, and a little sand, helping the specimens with some weak manure water when they begin to flower.

ASTERS.—These are included among the tender annuals, and they are great favourites. In the west of England Asters are grown to perfection for exhibition, and a stand of twenty-four fine blooms of the Victoria type, or of the delicate and symmetrical quilled varieties is always greatly admired. The usual practice is to sow the seeds in March on a gentle bottom heat, and they will germinate freely when sown in pans in an ordinary greenhouse. However carefully Aster seeds might be sown, they are always fairly thick in the soil if the seeds be good, and therefore I prefer to prick the young plants off into shallow boxes or in a bed made up in a cold frame, where they can grow into

a good size, and then be planted out in the open ground, with nice balls of soil about the roots, doing this, if possible, when the weather is showery. If the plants are put out during a dry time they should be watered until they have become established in the soil, and if anyone would have fine flowers, the Asters must be grown in good ground. I am an advocate for planting the Asters in beds and mulching them with well-decomposed manure, the result being that the summer rains carry down to the roots the fertilising properties stored up in the top-dressing. It is important to get the plants out into the open ground as soon as possible, so that they may become well rooted into it before dry weather sets in. Anyone growing Asters for exhibition should have the Victoria and Truffaut's Peony-flowered, as representing what are known as flat-petalled types, and a fine strain of the quilled. Asters for cutting should be the quilled and the pretty free-flowering bouquet varieties.

STOCKS.—Stocks are delightful summer-flowering plants, because they are so free, fragrant, and of varied colours. They can be sown in the same way as Asters, or in the open ground in light free soil. The best class of summer Stocks is what is known as the giant dwarf pyramidal Ten-week, as they are not only most useful for decoration, but being very fine in quality they are well adapted for exhibition also. If anyone desires anything particularly good for the latter purpose, they should grow the Giant Perfection Ten-week type. To have fine Stocks, they should be in a good, deep, well-manured loam, because when well grown they carry large heads of bloom, and must have something to support it. Slugs will sometimes attack young Stocks and destroy them. One of the best remedies appears to be fresh lime dusted over them. Branching stocks are a good, useful type. It might be said of all Stocks that they are "branching," but selections have been made of some showing this tendency more than others, so that when the centre spike of bloom begins to fade, others are thrown out from the sides, and so a decided continuity of flower is secured.

I sometimes wonder that the intermediate or autumnal Stocks are not more grown in the south of England in the open garden than they appear to be. If the seeds are sown early in March, and the plants placed out in the open ground as quickly as possible, they will bloom late in the summer and autumn, following the ordinary Ten-week varieties. In favourable localities and in early warm soils the plants will stand through the winter and flower again in spring. A neighbouring market gardener grows Stocks very largely for bunching, and he raises the seeds in frames, placing the plants in the open ground as soon as large enough. In 1886 he tried the experiment of sowing the seeds in the open ground in August, and raised a very large bed of them, and nearly up to Christmas they looked as well as possible. In the spring, snow, frost, and damp killed every one of them, though they were in the open and on somewhat early soil. I am afraid that all kinds of biennial Stocks—Capes, Bromptons, and Intermediates—that are growing in the open air are beginning to suffer very much from the nipping, icy winds and prolonged frost. There was a rare promise up to the end of February, but I fear many hundreds of plants are dead.

PHLOX DRUMMONDI.—This charming subject holds a high place among our tender annuals. In a light, sandy soil the seeds may be sown in the open ground, but if the garden ground is not of this character, then it would be best to sow the seeds as one would those of Stocks. For decoration, and especially for filling flower beds, Phlox Drummondii is much to be preferred to Verbenas, especially if the plants are well grown and the decaying flower-buds kept picked off. I remember seeing last year in Lincolnshire a border of Phlox Drummondii that was a beautiful sight, and the trusses of bloom in their size and beauty far exceeded anything that could be found among Verbenas. The finest strain is that known as grandiflora, and if anyone wishes to have a rich-looking and delightful bed, let them obtain some seeds of the large vermillion-crimson

grandiflora splendens and plant a bed of it, and they will be delighted with the result.

THE DWARF DOUBLE ZINNIAS.—These are also highly effective summer plants, growing into nice bushes and producing splendid heads of bloom when properly grown. The double Zinnias especially are now much used for exhibition purposes, and in some country districts they can be seen very fine indeed, because they are carefully cultivated. We have now very fine strains carefully improved by the Continental florists, and, handsome as the single varieties are, the double forms are now much more largely in demand.

HELICHRYSUMS.—These useful and showy Everlastings can, like the Zinnias, be sown in an ordinary frame and transplanted, and they produce fine heads of flower provided the plants are in good soil. They are very useful for cutting from, and can be had in many colours, from white to deep crimson and maroon. They can be made very useful indeed for winter decoration, and should be cut when the flowers are in a half-expanded state with as long stems as possible. Tie them in bunches and hang them with the flower-heads downwards. They should be hung up in a cool, dry place where they can dry off gradually. The stems become rigid, and then they should be carefully put aside for winter use.

PETUNIAS.—These can be cultivated in the same way as Phlox Drummondii, and the seeds, if sown in the open ground, will germinate as freely and successfully as those of any other tender annual. There are, as is well known, double and single varieties. I prefer the latter for making effective flower-beds, though the double types are also very effective and showy. R. D.

SOME GOOD VARIETIES OF TUFTED PANSIES.

I AM always puzzled to know the difference between Violas and Pansies, and I fancy there are many others who agree with me in that respect. I think the name the editor has given them, namely, Tufted Pansies, an excellent one to adopt, more particularly in respect of the perpetual-flowering or budding kinds, which are usually called Violas. As there have been inquiries lately as to the best kinds, I note a few that have proved, after the severest possible test, namely, the heat and drought of last summer, in every way worthy of a foremost place in every garden where these flowers are valued. The best blue-flowered kinds are Bluebell, one of the oldest and perhaps the most free-flowering kind known. Beauty of form it has none, and the colour is somewhat faded, but for massing or for lines of colour it has no equal. Next is Archie Grant, an immense finely-shaped self-coloured deep bluish-purple flower of fine substance; its only fault is that it is of so robust a growth that heavy rain storms flatten down the plants; they, however, quickly recover, and the flowers not being injured soon get upright. Elegans is a first-rate bluish lavender-coloured flower which is effective either in a mass or intermixed with silver variegated Pelargoniums, variegated Mesembryanthemums, or Cerastium tomentosum. The only white-flowered varieties I care for are Mrs. Gray and Countess of Hopetoun; the latter is the largest and best shaped flower and most tufted in habit, but it is not nearly so free-flowering as Mrs. Gray. Both are excellent for intermixing with pink-flowered Pelargoniums, as well as with lavender or light blue-flowered plants, such as Ageratum and Agathe celestis (Blue Marguerite). Countess of Kintore is a purple-shaded flower with blotches of pure white. Its variegation, if I may so call this mixture of colour, makes it unsuited for use as a bedder; the only effective way to use it is in clumps of about a dozen plants amongst herbaceous perennials. I have tried a dozen or more yellow-flowered sorts, with the result that one variety only, namely, Hardwicke Yellow, is considered worthy of being retained. From the beginning of May to midwinter this kind continues in full flower, and stands heat and drought better than any other.

We have many other kinds, but the foregoing are the only sorts that are considered worthy of growing

in beds or borders that from early summer to the beginning of winter are expected to be always gay, and, as a matter of course, these will not so flower if left to themselves. Picking off seedling flowers must be done once a week, and good rich soil is imperative, as is also a free supply of water during the heat and drought of summer. Given these, there are no more effective flowering plants for summer bedding. W. W.

FLOWER GARDEN NOTES.

PREPARING BEDS FOR SUB-TROPICAL PLANTS.—Satisfactory results with these plants are only attained by careful cultivation, and the first requisite is thorough drainage, and the next is plenty of rich soil—I mean in depth—and it should be well raised above the ordinary ground-level, so that sun heat may act directly on it. The few beds we plant with sub-tropicals are now being trenched as deeply as the gravel subsoil will permit, and even the latter we fork up and over it lay a thick coating of long litter, which prevents the fine particles of soil washing into the gravel and choking up the natural drainage. The soil used is a good loam with a free admixture of leaf-soil and cow manure, the depth of the whole averaging about 30 inches or a trifle over. Plants do well in such a compost. Those who cannot afford time or obtain the materials just mentioned would do well not to attempt sub-tropical planting, for nothing looks more wretched than puny, half-starved specimens of *Solanums*, *Cannas*, and *Castor-oil* plants; better far keep to *Pelargoniums*, *Fuchsias*, and *Calceolarias*.

APPLYING FRESH SOIL AND MANURE TO CHUSAN PALMS (*Chamærops Fortunei*).—You lately gave us (p. 202) a beautiful picture of a flowering *Yucca*. I will shortly send you a photo of these Palms which are English grown. The plants well illustrate your remarks as to "beauty of form" in English flower gardens, and I hope you may think them worth engraving. The plants require rich feeding, but what else can be expected of roots the majority of which are as thick as one's finger. The plants are on turf, and each alternate year this is rolled back to a distance of several yards from the base of the plants. About a foot of the old soil is then carefully forked out from amongst the roots and cleared right away. Another light fork over then takes place, and then comes the new material, which is one half of the best loam procurable and the other half well-decayed manure and horn shavings. This compost is well worked and compressed about the roots by treading. The turf remains rolled up till the ground has had a good soaking rain and is then rolled into place, but not beaten down hard until the approach of dry, warm weather. Of course the plants might do well without such top-dressings, but they thrive so well with this treatment that I should be loth to give it up.

NEW ZEALAND FLAX (*Phormium tenax*).—We have several plants, but only three kinds, namely, the ordinary green variety, *tenax*, *tenax* variegatum, and *tenax* Colensoi—the bronze-coloured kind. All are hardy, having, with one exception—a plant in a wet, marshy position—stood unharmed during the late severe winters. This is another plant illustrative of "beauty of form" and well deserving of a foremost position in gardens where such a feature is prized. We have some good-sized clumps and want to make others, but the plant resents transplanting so greatly that I am reluctant to transplant at all. However, the stock must be increased, and we are about to commence operations, and our plans are to lift the plants entirely with all the soil possible, then with a sharp edging iron make a clean cut right through the parts of roots clear of crowns and plant with the soil adhering. Stiff loam—in fact, clay—seems to suit them best. All or any of the three varieties are fine for the lawn, and in association with the smaller coniferous plants—*Retinospora*, for instance—make a desirable break in the scenery. Last year the common variety *tenax* flowered freely and ripened its seeds, some of which have germinated and promise to make good specimens by the time it will be safe to plant them out.

SOWING STOCKS.—It is quite early enough for the sowing of Ten-week Stocks, but not for the variety most highly prized here, namely, *East Lothian*, and therefore I make the one sowing suffice. Moreover, the frames in which we have to sow will very shortly be required for other purposes. The result of such enforced sowing is an advantage rather than otherwise, inasmuch as Ten-week Stocks, though flowering too early for the time at which we are required to have the greatest display of flowers, come in well as cut flowers, and the *East Lothian* Stock, with average summer weather, will be in its prime by the middle of August and continue to Christmas if the weather is not over severe. Our mode of raising plants is simple in the extreme. About 4 inches depth of light soil composed of a good proportion of finely sifted leaf soil is placed in the frames, which are stood on the hard ground. Lines—they can hardly be called drills—are made with a sharp-edged lath, which is cut to the width of the frame. These lines are about 3 inches apart, and the seeds are sown thinly and covered in carefully with the fingers. A light watering is given as soon as the sowing is complete, and the lights are kept closed till the seedlings appear, when ventilation is given as weather permits. No pricking off is ever done, the plants being transferred to the position in which they are to flower direct from the seed frames, or rather from the place in which they were sown, as the frames will have been moved long before transplanting is needed. *Asters*, *Zinnias*, *Everlastings*, ornamental *Grasses*, &c., we sow in the same way usually the last week in March, which is sufficiently early to have good plants for planting out about the middle of May. If sown early they are apt to get stunted in their seed bed before it is safe to transplant.

HARDY ANNUAL FLOWERS.—Of late years the ravages caused by slugs, bad weather, and other more pressing duties at the time when sowing ought to be done, have caused us to neglect this class of flowers, and on looking round for space to sow a few of the most popular there really seems to be no place for them except a few vacant spots amongst herbaceous plants. *Mignonette* we sow amongst the *Roses*, as well as in patches on the mixed flower borders, and a few patches of the following will also be sown there some time within the next fortnight: *Candytufts* of sorts, *Collinsia*, *Coreopsis*, *Godetia*, *Larkspur*, *Limnanthes*, *Sanvitalia*, *Silene*, *Sweet Sultan* and *Virginian Stock*. There are many other varieties equal in merit to these, but these are as many as we have room for or time to attend to. Most of the above transplant well, but the seed is so cheap, and the check received by the plants when being removed so great, that the practice is not recommended.

W. WILDSMITH.

Early Crocuses.—The earliest of the spring Crocuses have had a very bad time of it lately, and where they have been planted in exposed situations the biting winds have affected them considerably. It is a great pity that flowers so beautiful and varied as these early Crocuses have not a constitution like that of the vernal Snowflake, whose flowers, bent to the ground by the frost in early morning, straighten up and look as fresh as ever when touched by the magic rays of the sun. With the knowledge that we have of our treacherous spring weather, too much attention can hardly be directed to this question of shelter. It seems to me absolutely useless to go on year after year growing these plants on the chance of a mild spring occurring when we know very well, if we observe, that the blooms are entirely destroyed four out of five years. In all gardens, and especially private ones, suitable positions will not be difficult to find, and these, if properly utilised, will enable the owner to enjoy his Crocuses, *Lenten Roses*, and other early flowers all through February and March instead of seeing them withered up. Amongst the earliest of the Crocuses to flower with us in a nice sheltered spot was *C. Korolkowi*, a comparatively new and very pretty species, having rather firmer segments than the majority of them. The flowers are full-sized and orange-yellow feathered with purple on the outside. It was

amongst Dr. Aitchison's finds in Afghanistan, where, I believe, it was fairly plentiful. The equally pretty *C. chrysanthus*, an old garden favourite, is in full beauty just now. The varieties *fusco-tinctus* and *fusco-lineatus* are very beautiful. *C. vitellinus* has been flowering, more or less, since November, the flowers being small, deep orange, and plentiful; *C. ancyrensis* has orange flowers, and is harder than many of the others. The *Cloth of Gold Crocus*, *C. susianus*, is a well-known kind, and was figured in 1613 in the "*Hortus Eystettensis*" as *Crocus vernus aureus variegatus*. When the flowers are fully open and the segments reflexed, as is characteristic in this species, it is remarkably effective, the colour being deep orange, while on the outer side the segments are variously feathered with brown. Others are *C. alaticus*, *a. albus*, *Imperati*, *bannaticus*, &c.—K.

The white-flowered Mountain Saxifrage.—All the forms of *Saxifraga oppositifolia*, when naturally placed, are beautiful rock plants, but in my opinion none of them equal the pure white variety now so common in gardens. It grows freely on the rockery in deep rich soil, or in positions where the roots can penetrate the fissures of rocks, of which they are very fond, especially in the summer season, when they want to be kept cool. These varieties seem to bloom most freely when exposed to the sun, but where the soil is shallow they are sure to suffer, unless they can be liberally watered. The flowers of the above variety show up with pearly whiteness against the dark green foliage and are more attractive, though not so large as those of such varieties as *pyrenaica* and *maxima*. It can be propagated by division, and makes a capital pot plant for a cool house or balcony.—K.

The Mimulus.—I have to thank Mr. Vesey for pointing out a printer's error. It was the *Floricul-tural Cabinet* I alluded to. I had referred to all the coloured plates in that work, also the whole of the *Botanical Magazine* and *Florist* plates before writing the article at page 164. Those in the *Cabinet* are so badly done that one cannot depend upon their correctness. I have little doubt in my own mind that *M. luteus* is at least one of the parents of our garden *Mimuluses*. The variety *Younganus* and also *variegatus*, both figured in the *Botanical Magazine* (tab. 3336 and 3363) are evidence of this. *M. variegatus* is given by some authorities as a distinct species, but Dr. Hooker in his remarks in the *Botanical Magazine* (tab. 3336) states—

After a most careful examination and comparison, I am forced to the conclusion that it is not specifically distinct from *M. luteus*, which is probably a very variable plant.

The variety *Younganus* is certainly not a form of *M. rivularis*, but of *M. luteus*, as stated with the plate in the *Botanical Magazine*. Dr. Hooker had the plant sent as a wild specimen from Chili, and also from Mr. Loddiges, of Hackney, under the above name. He states that they are perfectly hardy in the Glasgow Botanic Garden. He was at that time (1834) Professor of Botany in the Glasgow University.—J. DOUGLAS.

Lilies and Daffodils.—Mr. A. Barker, in *THE GARDEN*, March 10 (p. 214), very rightly remarks that Lilies may be grown amongst Daffodils. Where Daffodils are made a speciality, as they are at Edge, and where beds are made with the chief object of growing this tribe well, it gives additional interest to have Lilies to succeed them, and the rich sandy loam which suits most of the genus *Narcissus* is the best soil for a great proportion of hardy Lilies. The portions of the beds assigned to Lilies and to Daffodils should, however, be sufficiently distinct to enable the Daffodils to be kept dry in June, when the Lilies may require watering. Nothing is more damaging to Daffodils than to have their ripening unduly retarded by wet. The prevalence of disease amongst Daffodils, and their wretched failure in many gardens in the spring of 1887, was due in a great measure to the cold and wet June of 1886, and the admirable season of Daffodil flowers which is now commencing must be set down to the credit of the dry and hot June of 1887. This season will be a good one to test the validity of the not unreasonable belief in the power of single Daffodils

to become double; and I hope that the owners of the forty gardens to which I sent single Daffodils for trial five years ago will record their observations next month. I may again say that after a very careful observation made in my own garden for ten years, where about 20,000 Daffodils flower every year, I am still unable to record with certainty the doubling of any single flower, though I have, undoubtedly, raised several doubles from the seed of singles, especially from the Tenby Daffodil.—C. WOLLEY DOD, *Llandudno*.

POINSETTIAS AT BERKELEY.

THE following gives a description of the mode of culture adopted by me in growing the Poinsettias, an engraving of which is here presented from a photograph sent by Lady Fitzhardinge. About the month of April the old plants which have been dried off should be cut back to any length desired. After a few days water gently to make the buds push, or syringe them to assist in breaking. When

plenty of air to induce a sturdy habit until the time the bracts appear. During this treatment water must be used with very great care, for the roots, being young and succulent, are very apt to rot, causing the leaves to turn yellow and drop, destroying every possibility of making a good head. When the bracts appear, increase the heat and moisture, syringing daily, and growing on as quickly as possible. By the end of November you will have plants from 9 inches to 15 inches high, and with healthy green leaves down to the pots, with heads 9 inches to 15 inches in diameter. The plants should be hardened to a cooler atmosphere before using. To return to the old plants. Where the point was taken off they will break two or three shoots; these may be taken off again when long enough, and will make splendid little plants in 3-inch pots, producing heads 6 inches to 9 inches in diameter. There

size. Those in the ground, however, were large enough to go into 5-inch pots, and I advise those who have not tried the planting-out system to do so. It is necessary, of course, to provide the plants with the protection of a cold pit or frame and a bed of rich soil for the roots; and the sooner they are planted after the middle of May, the stronger they will become. Young Cyclamen plants cannot bear too much sun. They like plenty of air when the weather is warm, and this should be given by tilting the lights. To give the necessary shade the glass should have a thin coat of whitewash on the inside. The plants should be taken up and potted early in October.—J. C. C.

FERNS.

W. H. GOWER.

OLEANDRAS.

THESE are quite distinct in appearance from the ordinary run of Ferns. They are exceedingly handsome, and present a striking feature in a fernery when properly managed. They are for



Poinsettias for table decoration. Engraved for THE GARDEN from a photograph sent by Lady Fitzhardinge.

fairly started, shake out and repot into good soil, such as is used for general stove plants. Grow on in a moderate heat, giving plenty of air, with little or no shading, to induce healthy, well-ripened growth. The first week in August take off the tops with about four leaves, removing only the lower one, and inserting each cutting into a 3-inch pot. Plunge in strong bottom-heat, keeping close and moist, removing the glass covering at night to prevent damping. If carefully managed, the cuttings will be rooted in a fortnight without losing a leaf. Here you have in a 3-inch pot a plant with leaves furnished to the pot, and containing the strength of one grown in a 7-inch or 9-inch pot. Before repotting, harden off to the general temperature of the house. When this is done, repot into any size desired; 3, 5, and 6-inch pots were used for those shown in the engraving. When fully established, remove the plants to a cooler house, keeping them close to the glass, and giving

is also this advantage, that you have still the old stock of plants left for another year.

RICHARD SHORE.

The Gardens, Berkeley Castle.

Planting out seedling Cyclamens.—For some years past it has been the practice of some growers to plant out their old bulbs early in the summer and let them remain until the autumn. But, until the last year or two, no one thought of planting out quite young seedlings, but now the practice is becoming more general, because much larger plants are obtained with much less trouble. Of the superiority of the planting-out system over that of growing them in pots I have not the least doubt. I saw quite sufficient to convince me of this last autumn in one of our local nurseries, where several hundred plants occupied frames. A part of the stock which had been raised from seed sown late the previous autumn was planted out in a bed of soil and the others grown in pots. Those which occupied the bed of soil were fine plants, with large robust leaves; while those in pots were, in comparison, poor things, that looked as if it would take twelve months longer to have them of a useful

the most part climbing plants, and the rhizomes adhere to whatever surface they come in contact with by the numerous strong roots which they emit. Oleandras may be utilised in exactly a similar manner as recommended for Selaginellas (p. 187), and when thus treated they form desirable specimens.

Oleandras all produce simple fronds; these, however, vary considerably in their length and width. They produce large reniform sori, which add considerably to the beauty of the plant. One species, *O. neriiiformis*, assumes the habit of a shrub, and attains to a height of about 6 feet, and forms a charming subject for a fernery when the latter is planted in a semi-natural style. These Oleandras will cover the stems of old Tree Ferns or any similar objects, but where cylinders are used for them, rough fibrous peat is the best material to use. They enjoy good strong heat and an abundant supply of water.

O. ARTICULATA is a native of the Mauritius and the Seychelle Islands, and produces fronds a foot long and 2 inches wide, these being of a charming light green tint.

O. NODOSA, a native of the West Indian Islands, is of a peculiar soft, glossy, bright green, the stipes and rachis being shining black; the fronds are upwards of a foot long and 1 inch to 2 inches wide, the sori being more scattered over the surface than in the other kinds.

O. WALLICHI.—This is an Indian species, which is said to be found on the mountains at considerable elevations, and it certainly thrives in a somewhat lower temperature than the others. The fronds are narrow, being about $1\frac{1}{2}$ inches wide and 18 inches long. The large sori are situated close to the mid-rib and the colour is bright light green.

O. NERIIFORMIS is a shrubby plant, producing branched stems, which support or develop numerous whorls of simple fronds, which are from 6 inches to 9 inches long and an inch wide, and bear on either side of the mid-rib a single dense row of large sori. It appears to be widely distributed over the tropics of both hemispheres.

CHEILANTHES.

THIS genus contains about fifty species, of which some score or more kinds have been introduced to cultivation. The whole of the family may be included in a choice collection. In stature none of them exceed moderate height; some even are diminutive plants, and are somewhat delicate, but all are amenable to cultivation if intelligent care is bestowed upon them. I, therefore, commend the following kinds to those lovers of Ferns who may be desirous of growing these beautiful forms. I may here state that few of the species of *Cheilanthes* are useful for cutting. Those who possess nothing more costly than a Wardian case in the dwelling-house can indulge their tastes by adding a few species to their collections; others who have a temperate fernery may cultivate a good number; whilst the happy possessor of both tropical and temperate structures may grow a large collection. In a general way it may be taken that these are for the most part mountain plants, and that they naturally inhabit the crevices of rocks, from which their fronds protrude in a more or less pendent manner, and in the regions which they affect they are subjected at times to heavy rains, and in some positions are exposed to the full influence of the sun. Both of these, however, they are enabled to withstand with impunity, as they are more or less clothed with a profusion of curious and beautiful scales which protect them from any ill-effects, and at the same time add considerably to their beauty. Under cultivation, however, the fronds are mostly kept in an erect position, and hence the scales, which in a state of nature resist and throw off the water, are reversed, so that if the plants are syringed overhead, these scales really cause the moisture to be retained about the fronds, and the plants thus treated in consequence usually present a very shabby, woe-begone appearance, are vetoed as difficult to grow, and are discarded. I, therefore, advocate where possible the cultivation of these plants in a natural manner, and allow the fronds to assume a pendent position. Where this system, however, is not admissible, the fronds should never be syringed, and, indeed, in whatever position the plants are grown in this country they will be better if the fronds are not wetted during dull weather nor during the winter months. If note is taken of their natural positions, it may readily be inferred that *Cheilanthes* do not require any great quantity of soil about their roots; indeed, in many instances overpotting is the bane of choice or delicate plants. I have found *Cheilanthes* thrive and attain a large size when potted in a mixture of sandy loam, peat, old mortar, and brick rubbish, and some broken sandstone, and in the case of

the smaller-growing kinds I prefer to keep the crown of the plant well above the soil, surrounding it with moderate-sized nodules of sandstone in addition. The pots should be well drained, and the plants will then require a plentiful supply of water, which, however, as in a state of nature passes rapidly away, and leaves nothing stagnant about their roots. I do not advocate the use of the syringe for these plants, nor exposing them to the full effects of the sun, because in our ferneries we cannot maintain a sufficient circulation of air to dry the fronds rapidly, and if the plants are exposed to the full sun under glass, with but an indifferent current of air, they are very apt to become scorched and permanently disfigured.

C. ALABAMENSIS.—A very beautiful Fern, which does well in a temperature of about 40°. It is a native of Canada and various parts of the United States of America, where it is found growing on limestone rocks, and is said to attain a height of about 12 inches. I myself have grown the plant with fronds 8 inches in length and about $1\frac{1}{2}$ inches in breadth, but I think it is more usually seen from 3 inches to 6 inches high. The stems, produced from a creeping stem, are jet-black and hairy at the base. It forms a beautiful object in a Wardian case.

C. ARGENTEA.—This charming little species is said to be a variety only of *C. farinosa*. Under cultivation, however, *C. farinosa* rapidly increases in size, but *argentea* never. It is triangular in outline, and is from 2 inches to 6 inches high, deep green on the upper side, clothed beneath with a white farinose powder. It thrives admirably in a Wardian case. Native of Siberia and Japan, &c.

C. CAPENSIS is a somewhat rare plant, a native of South Africa; it thrives well in the temperate house, and may also be grown successfully in a Fern case. The fronds vary from 6 inches to 1 foot in length.

C. FRAGRANS.—This is one of the few species which represent this family in Europe; it obtains its name from the odour of its fronds, and which they retain for a long time, even when dry. It is a temperate species. Native of Europe, and is also found in the Himalayan Mountains at 5000 feet elevation, and extends into Afghanistan.

C. FARINOSA is a tropical species, being found in various parts of India, the Philippine Islands, Java, Ceylon, &c. It is a magnificent species, and ought to be in every collection of Ferns. The fronds vary from 1 foot to 2 feet in height, about half of which is naked stem. The fronds when sterile are shorter, more triangular in outline, and the segments are broader.

C. MATTHEWSI.—An elegant temperate house species, producing spreading and somewhat pendent, narrow fronds from 9 inches to 1 foot in length; the segments are finely cut and bright green. It is admirably adapted for small hanging baskets. It comes from the Peruvian Andes.

C. MICROMERA, sometimes called *C. microphylla* (a most inappropriate name), is one of the most charming species in the whole family, and thrives in a temperate house. The fronds are from 1 foot to 18 inches long and nearly 4 inches broad on well-grown specimens, although, I must confess, they are more usually seen about half that size. It is a plant of easy cultivation. Native of various parts of South America.

C. MULTIFIDA.—This, another South African species, forms a charming specimen in the temperate house, and has fronds from 6 inches to 1 foot in height by about 6 inches in breadth.

C. PEDATA is a warm-house species. Native of Jamaica. Its fronds are erect; in the lower part they partake of the character of *C. radiata*, the upper portion resembling *C. spectabilis*, the segments being bright green on both surfaces.

C. PTEROIDES.—A bold, handsome Fern, but rare in cultivation, with something the aspect of a *Pellaea*. It is said to be a native of Java and South Africa, and in cultivation it requires a stove tem-

perature. The fronds rise to a height of 12 inches or 2 feet, and are from 6 inches to 9 inches in breadth.

C. PULVERACEA.—An exceedingly beautiful evergreen temperate Fern. It is said to grow naturally in Mexico, in the crevices of rocks, from 3000 feet to 8000 feet elevation, and to occur most plentifully in the coldest parts. It somewhat resembles *C. farinosa* in general outline, and, like that species, is covered beneath with a white farinose powder; indeed, I have seen some forms of this plant in which the sterile fronds were dusted with a farinose powder on the upper side also. No fernery should lack this plant.

C. PULCHELLA is a native of Madeira, Teneriffe, and the Canary Islands, and thrives under cultivation in a Wardian case or temperate fernery. It is an elegant species. The fronds vary from 6 inches to 1 foot in length.

C. RADIATA.—This is a strikingly beautiful Fern, but which is still rare in collections; indeed it was far more plentiful twenty-five years ago than it is at the present time. It is a native of Brazil and the West Indies, and requires the temperature of a stove; the stems are jet black, from 6 inches to 1 foot long.

C. SIEBERI.—A pretty cool-house plant, which appears to be common in the Isle of Pines, where it grows in dense tufts; it is also found in New Caledonia and Australia. In this country it thrives well in a temperate house; the fronds, narrow, oblong in outline, are from 6 inches to 1 foot long.

C. SPECTABILIS.—This is a stove evergreen plant, admirably adapted for basket culture. Upon well grown specimens the fronds attain 3 feet or 5 feet in length; the stems are black and glossy, the pinnae being from 6 inches to 9 inches long.

C. TENUIFOLIA.—An elegant temperate-house species from New Zealand, where it is said to be very common, growing in stony and rocky places; here, however, the plant is dwarfer and not so ornamental as the form from the Malay Islands, which requires stove temperature. This form produces erect fronds from 1 foot to 18 inches high, and upwards of 6 inches broad in the widest part.

C. VISCOSA, the last species upon my list, but by no means the least beautiful, is a native of Central America, and requires stove heat to develop its fronds, which are triangular in form, about 1 foot long, divided into elegant small segments, which are pale green and soft to the touch, by reason of the numerous downy hairs which clothe both surfaces. W. H. G.

CHRYSANTHEMUMS.

E. MOLYNEUX.

SECOND POTTING.

By the time these lines are in print the earliest struck plants will be ready for transferring to the second-sized pots or the third. If the plants have been in cold frames and attended to with water, the $3\frac{1}{2}$ -inch pots will be full of roots. It is not wise to allow the plants to suffer by allowing them to become pot-bound at this stage, because the roots, becoming so matted around the sides of the pot, do not take so readily to the new soil, except they are disentangled, which cannot be safely accomplished without injury to many of them. Neither should potting commence before the soil is filled with roots, as there is always a tendency for the latter to run into new soil before the plants are pot-bound; consequently the soil does not become permeated with roots. The sizes of the pots being given in a former note, it will not be necessary to again name them. The compost for this shift should be composed as follows: Two parts fibrous loam previously stacked long enough for the Grass to decay. If it is of a heavy character, likely to become retentive, the fine particles of the soil should be taken out by means of a sieve, retaining only the fibrous

parts. One part leaf-soil partly decomposed; one part of spent Mushroom-bed material, which much assists in keeping the compost porous, as do crushed charcoal and coarse silver sand, which should be added in proportion to the character of the loam. To every four bushels of soil add a 5-inch potful of soot and two of finely ground bones. The compost should be used in a rough state, neither too wet nor too dry. If the former, the soil is liable to run together and become sodden, while if too dry it cannot be pressed so firmly into the pots as necessary.

Drain the pots carefully, and over the crocks place some of the rough parts of the compost to prevent the fine soil from running down amongst them, which causes the plants to become waterlogged. Care must be taken to pot firmly. If the soil is in a right state when used, no water will be required for a day or two. After this the plants must not be allowed to suffer for want of water, neither must they have too much. The present is a good opportunity to place a small stake to each plant which is intended for large blooms, so that it is rendered secure from accident. Some varieties are weakly in growth, and at the present stage are scarcely self-supporting. Return the plants to the cold frame, placing them as near to the glass as possible, regulating the height by a layer of ashes under the pots. Allow sufficient space between each plant, so that the leaves of the one do not touch those of its neighbour. Keep the frames rather close for a few days until the roots commence to run into the new soil, when air should be admitted freely, and upon favourable occasions remove the lights entirely during the day, by this means obtaining a stocky growth.

Weak-growing Chrysanthemums.—I am a little surprised to see Emperor of China in "E. M.'s" list on p. 222 as a weakly grower. Here it is one of the most robust varieties we have. Can Empress of China be intended, which at p. 18 of Mr. Molyneux's "Chrysanthemums and their Culture" is set down as a weak grower? Neither Dr. Sharpe nor Fleur de Marie are weak growers here, and all except Empress of China grow vigorously on walls in the open air. Has anyone tried *Artemisia indica* as a stock? Is the plant at Kew or procurable?—F. W. B.

Growing Chrysanthemums in boxes.—Mr. Smith, in THE GARDEN, March 3 (p. 184), says that a great saving could be effected in many gardens by the adoption of boxes for growing Chrysanthemums, and that a strong-made article could be supplied by manufacturers of such things at a cost much less than that of pots. I fail to see where we can effect a saving. A strong-made box, pitched inside, 8 x 8 x 8, could not be made for less than 4d., and a pot the same diameter would only cost 2d.; moreover, a box is not so well adapted as a pot for the growth of this beautiful flower. A pot will absorb water, but a box pitched inside would not, and a pot, with care, will last twenty years; whereas a box at the end of three years would find its way to the stoke-hole.—D. WILSON.

—I can fully confirm all that Mr. Smith says in favour of wooden boxes not only for Chrysanthemums, but for many other plants. Last season we grew a good many Tomatoes in this way, and found them answer exceedingly well; in fact, I think, better than in flower-pots, for there is this in their favour, viz., that you can get a greater quantity of soil into boxes without their being made so deep as the largest flower-pots. I think there is a great advantage in having a large surface full of active feeding roots, as they are more readily acted on by mulching or top-dressings. I am sure that anyone who gives boxes a fair trial will come to the conclusion that for plants that do not require much moving about they are preferable to pots. For Tomatoes we find good-sized boxes, such as eggs are imported in from France, most useful for placing

in glass houses that have no borders for planting in, and after bedding plants are cleared out we set these boxes on the stages and fill them about half full of soil, and turn out good strong plants of Tomatoes. By adding top-dressings of rich soil we can finish off a heavy crop of Tomatoes before the houses are required for filling with late Chrysanthemums or bedding plants. Boxes are certainly cheaper than large pots, and those who follow the profession for profit can only expect to succeed by producing their crops as cheaply as possible. For late-flowering Chrysanthemums that are grown solely for supplying blooms of the ordinary size I find boxes answer just as well as pots, for if the plants root through a little when making their summer growth, I do not find the slight check affects them when transferred to the house, if they are kept well supplied with water and shaded for a few days.—J. G., *Hants.*

KITCHEN GARDEN.

KITCHEN GARDEN NOTES.

KIDNEY BEANS IN BOXES.—During the dull, cold winter months Kidney Beans can be best grown in pots, but as the days lengthen and the sun gains in power, they may be much more profitably cultivated in boxes. Not only do they require less water when in boxes—this alone being an important gain—but the plants are not so liable to become infested with red spider, and are therefore more continuous in bearing than are those in pots. Being necessarily set on shelves, front and back walls of forcing pits, or other light and much-exposed positions, those in pots naturally dry up quickly at the roots, and frequently require to be watered twice daily. Even when those in pots are most closely attended to, the crops are not equal to those in boxes, and if the latter are made about 9 inches wide and 9 inches deep (outside measurement) and 3 feet long, or any convenient length, they will hold ample soil, and may be set in much the same positions as were the pots previously used. Very little drainage is needed, and the boxes should be filled with rich loamy soil, the seed being sown thinly in one central drill, and the seedlings eventually thinned to about 6 inches apart. Water ought to be given sparingly at first, and liberally whenever the soil is approaching dryness later on. Top-dressings are of no use, but a sprinkling of some kind of artificial manure should be given occasionally, or plentiful supplies of liquid manure. The plants, being duly supported with a few stakes and strips of matting, will branch freely and bear capital crops. Six 3-foot boxes are usually sufficient for one batch, other batches being started at intervals of a fortnight. *Ne Plus Ultra* is the most profitable Pea for either pots or boxes, Canadian Wonder and Negro Long-pod being apt to grow too strong.

SUCCESSIONAL TOMATOES.—Plants kept for a long time in 6-inch and perhaps smaller pots naturally become stunted in growth, and I invariably give away or destroy any not needed for present planting or potting. Seed being cheap, strong young plants can be quickly raised, and these soon surpass any that may have long been kept in small pots, or until their fruiting quarters are ready for them. During May many houses suitable for Tomato culture are cleared of bedding and other plants, and in anticipation of this a good stock of Tomato plants should be prepared. From May onwards both round-fruited and ribbed or corrugated varieties will set readily under glass, and the former, being the heaviest and handsomest as well as of good quality, are most preferred. Perfection, Hackwood Park, and Hathaway's Excelsior are all good, and the only objection to *Acme* is its pale, unattractive colour. If a good yellow-fruited variety is needed, try Golden Queen, this being both taking in appearance and good in quality. Sow the seed thinly in pots or pans, set these in gentle heat, keep the seedlings near the glass, and when a second pair of leaves are forming pot off singly in 5-inch pots or in pairs in 6-inch pots. Keep the plants rather close and shaded until they have recovered somewhat from the check given, after which a shelf

near the glass in a warm house is the best place for them.

CELERY FOR MAIN CROP.—When the seed is sown very early or much before the middle of March, it often happens there are no frames available at the time when the seedlings should be pricked off, and they are much weakened in consequence of this delay. Major Clarke's Solid Red or Leicester Red, Standard-bearer, Incomparable Crimson, Matchless, and Sulham Prize are all suitable for this crop, either two of them being sufficient. The seed may be sown thinly in boxes of fine soil and placed in gentle heat, or, better still, be sown in a frame set on a hotbed. The seedlings in the latter case having more room are less liable to become drawn. Market growers frequently raise thousands of plants on shallow hotbeds both with and without glass coverings, and they are dibbled direct into the shallow trenches that were prepared for them early in the spring.

PROTECTING PEA SEEDS.—Voles, or short-tailed field mice, are frequently very troublesome in many country gardens. Gamekeepers destroy their natural enemies, including hawks, stoats, weasels, and cats, and unless other remedies are adopted, the garden soon becomes honeycombed by the mice. If cats can be kept, these soon clear them off, and without them it is a very slow process, as the mice do not take bait readily, and are not easily eradicated by poison. The figure of 4 trap baited with a Pea will catch them, but even in this case they are apt to breed faster than they are caught. In the meantime something must be done to save the Peas, the mice burrowing after these all along the lines. Those already sown without being rendered obnoxious to the mice may sometimes be preserved if enclosed by fine lines of gas-tar, this being renewed every three or four days, the mice not caring to cross it. Chopped Gorse, covered with fine soil, also checks them somewhat. In either case the chances are in favour of the mice, and fresh rows should be sown directly it is seen they have eaten most of the seeds or roots. Rather than risk a break in the supply, it is advisable to soak some seeds in warm water till swollen considerably, sowing these either in 3½-inch pots, troughs, or turves. These being kept in a early Peach house or vinery soon commence active growth, and should be hardened off and planted out without much delay. I have tried soaking the seeds in petroleum a short time prior to sowing, but this does not long deter the mice, and red lead is a far surer preventive. The seed should be slightly damped and then shaken up in a pan or saucer in which powdered red lead has been placed. A coat of red lead does not injure the seed, and though said to be tasteless, neither mice nor birds will touch it.

GLOBE ARTICHOKE.—Any unprotected are badly crippled by the long spell of frosty weather. Protected clumps are much checked, but the crowns appear uninjured, and mild weather will soon cause them to start into active growth. Plenty of plants being preserved, it is not advisable to uncover or disturb them till all danger from severe frosts is past. We experienced more cold weather and sharp frosts in March last year than at any time through the winter, and if Artichokes are uncovered now and encouraged to commence top-growth they may yet be killed outright. Where the old clumps have not been sufficiently protected, and also where there are too few plants, a stock may be rapidly obtained from three or four strong clumps, these being lifted, placed in gentle heat, and well banked up with soil. When the leaves are about 8 inches long the clumps may be split up with a fork, every crown with a small piece of root attached being potted off singly or bedded out in a frame set on a gentle hotbed. Pots varying from 6 inches to 8 inches in size may be used, according to the vigour of the divisions, and rich loamy soil is suitable. Keep the plants in gentle heat and not much shaded till well established, hardening them off and planting out before they become badly root-bound. Those in a bed of soil will transplant as readily as those in pots, and all should give good heads the same season. The Green Globe is always preferred to the purple-headed variety, the scales being more fleshy and succulent.

SOWING PARSNIP SEED.—Medium-sized roots are usually much superior to extra fine ones, and two or three of the former may be grown in the space usually given up to the big roots. It is also important not to mix manure in the top spit of soil, this being liable to cause the roots to become "forked." Plots outside garden walls are quite good enough for the Parsnip crop, and the ground being made firm and well broken down, the seed may be sown in shallow drills drawn 15 inches apart. In some gardens Parsnips canker badly, but it is the coarse, over-grown roots that are most liable to do this, and it may be prevented by eventually leaving the plants 6 inches instead of 12 inches apart. I prefer the variety known as *The Student* to any other kind, and Parsnips were never better than they have been this winter. They do not often find their way into dining-rooms, but if well boiled and mashed they form by no means a despicable dish.

PARSLEY.—Those who have not sown seed under glass with the view of raising a number of strong seedlings for transplanting to the open ought to sow at once in the open. Any out-of-the-way spot is not good enough for Parsley, and if a plentiful supply of strong, handsomely curled leaves is required, plant or sow seed on good open ground. The drills may well be drawn 12 inches apart, and if the soil is naturally heavy or lumpy, cover the seed with fine soil, such as may be obtained by sifting over a heap of old potting soil. The older and least curled strains of Parsley are the hardiest, but the extra curled selections are better in other respects.

EARLY LETTUCES.—Plants wintered thickly in the open have stood the late trying weather better than expected, and I am glad to note that the invaluable *Early Paris Market*, the best early Cabbage Lettuce grown, is nearly as hardy as the *Brown Cos*. All will now be gone over, blanks made good, and the thinnings transplanted to warm borders. More seed ought now to be sown on a warm border, the plants thus obtained forming a close succession to those sown early and now growing in pans, boxes, or frames. A good breadth may well be sown, hundreds of plants being wanted for putting out between Celery trenches, newly-planted Strawberries, or other suitable positions. I sow the *Cos* varieties thinly in shallow drills 6 inches apart, and the Cabbage varieties 4 inches apart. Eventually the whole of the plants in every other line and a considerable number from the reserved rows are transplanted or drawn out, those left hearting in early. *Early Paris Market*, *Golden Queen*, or *Perfect Gem* Cabbage varieties, and *Paris White Cos* and *Black-seeded Brown Cos* are suitable for present sowing, a succession being afforded in each instance.

EARLY BEET.—If early roots are desired, these may best be obtained by sowing a pinch of seed of the Egyptian or Turnip-rooted, of which *Crimson Ball* is the best selection I have yet tried, thinly in a pan or box of light soil, setting this in heat to germinate. When the plants are about 3 inches high transfer them to a cold frame, and when well hardened off dibble them either in a shallow frame set on a warm border, or at the foot of a sunny wall. They may be put about 6 inches apart in lines 10 inches apart, and if lightly protected at the outset will soon commence to bulb and be ready for use a month or six weeks in advance of any raised in the open. W. I. M.

The best Peas.—Will any reader name a better Pea than *No Plus Ultra* or one so good? The writer has placed this first and last for quality for many years, and it has never failed to please the cook and the consumer as well as the grower. Who can say so much of any other Pea? I also think highly of the *British Queen* and *Dwarf Green Mammoth* praised by "*Granulata*," but I do not think either of these equal on the whole to *No Plus Ultra*. As to the windbags, away with them. We have not yet descended to the growth of pods for show instead of sweet, substantial Peas fit for eating. —Hortus.

Dressing herb beds.—A good supply of herbs is one of the daily requirements in gardens, and now is the time to commence their culture. Select a plot of ground near at hand, as herbs cause as

much loss of time in collecting as any crop in the garden. The great majority of herbs may be divided and replanted now with every prospect of success, and a change to a fresh spot of ground at least every alternate year is one of the best safeguards against the plants suddenly dying off. Most of the evergreen section of herbs, such as Sage, Thyme, &c., strike root very readily if put in as cuttings, but where old plants are available the readiest way of keeping up a stock is to pull some of the old plants in pieces and replant at once, reserving the rest of the old stock for use until the young ones get into full growth. The herbaceous varieties, of which Mint and Tarragon are good types, are especially benefited by a change of soil; in fact, if left alone they accomplish this themselves by pushing out in all directions on to fresh soil and dying away entirely where they were first planted. Then there are the annual kinds that need sowing now to get them fit for use as early as possible. Sweet Basil and similar herbs need sowing in boxes and transplanting as soon as strong enough, and Parsley should be sown both early and late to ensure a daily supply, as the lack of these easily-grown things frequently causes a good deal of inconvenience.—J. G. H.

Planting Celery on the surface.—"W. I.," in *THE GARDEN* (p. 196), expresses his opinion very clearly as to the value of planting vegetable crops in trenches on heavy land. In light, deep ground the plan, no doubt, answers very well; but it does not do so where there is only a thin layer of good soil on the surface. For several years after I took charge here I had to grow all our crops of Celery on the surface, because, if I planted in trenches in the ordinary way, the roots quickly came in contact with the lower stratum of bad soil. To give the plants the benefit of the little good soil there was, I used to heavily manure a certain space and dig the surface flat, the same as for any other crop. To receive the Celery plants, an ordinary drill was drawn about 3 inches deep, and the plants put out in the ordinary way. I found this plan answered admirably, except that the rows required to be about 9 inches farther apart, and that it gave us a little more labour in earthing up. But I grew as fine Celery that way as I ever did in trenches, and this is easily accounted for, because the roots being near the surface, they had a wider feeding-ground than is the case when they are confined in a trench. If the ground is well manured, I am quite sure that no one need hesitate to plant Celery on the surface in the way I have stated. The same remarks hold good with regard to Peas or any other crops where the soil is heavy; but there are several crops which I like to sow in drills sufficiently deep to allow of space being left open as a channel to receive any water that may be given to the plants. The principal crops I like to deal with in this way are dwarf French Beans, summer Lettuces, and Turnips. The crops so treated last longer in good condition in dry weather, and the produce is more tender than that from plants that have suffered from the want of root-moisture.—J. C. C.

Peas, Potatoes, &c.—The admirable condition of the soil prior to the recent hard weather naturally tempted the sowing of early breadths of Peas, chiefly Sangster's No. 1, Day's Sunrise, and William the First. But for the frost and winds also, very many of these would have been showing in the drills. As it is they have done but little good, and have again served to show that those who, ignoring the teachings of the seasons, make haste to be early, are often found last after all. Sowings made of early kinds the moment the frost disappears will without doubt, because the plants from the first will have no check, give crops as early as those the seeds of which were sown early in February. Last year many early-sown breadths of Peas came up badly owing to the harm done by the heavy fall of snow which afterwards covered the earth. Of whatever good snow coverings may prove to living plants, especially in protecting them from the cold wind, it is very evident that the cold snow water which results from thaws are harmful to seeds sown, and especially to those just germinating. Potatoes have in many

cases, because the soil was so light and dry, been got in unusually early, and should the soil remain dry, possibly little harm will have been done to the sets if planted deep enough. The temperature, however, has not encouraged growth, and probably the tubers are still as restful as if still on the store shelves. On the whole, it is poor policy to plant Potatoes earlier than the first week in April for the general crop, as even then the tops come through only just late enough to escape the late spring frosts, and frosted tops of Potatoes are almost as bad for the crops as frosted tubers are. Even *Magnum Bonums* have been planted in some fields, but these would naturally remain restful in the soil.—A. D.

GARDEN FLORA.

PLATE 640.

CARNATION APRICOT.*

THIS *Carnation*, which we have flowered for the two past seasons, is a remarkable addition to our beautiful "border" varieties. In *THE GARDEN* we have long fought for these, and claim for them that they are more effective and beautiful in colour than the flaked and striped, and otherwise marked kinds, which have hitherto mainly been thought worthy of the attention of florists. The bizarre or the strange has hitherto struck the majority of raisers of flowers, and any variegation or stripe has always had special honour, although in Nature such things are rare. In the eyes of educated people their beauty is seldom so great as that of the more simple colours. We try to, as far as we can, show the beauty of these self-coloured *Carnations* and their splendid quality for our gardens, and we have no doubt that by-and-by they will have a fair place in them, and that future florists will pay at least as much attention to good selfs as to other kinds. In the open air the self-coloured or uni-coloured kinds are generally much more effective and hardy than the striped ones.

Vigorous as the *Carnation* is in most colours, there has always been a distinct weakness in those of a yellow colour and all shades coming near it. *Apricot Self*, although not a yellow, is near enough to that hue to make one surprised at its vigour. We flowered it from 3 feet to 4 feet high. It is hardy and effective in the garden. It will be the type of a new race of *Carnations*. Its colour is more like that of a cut *Apricot*, and as a cut flower there can hardly be anything more lovely, especially seen in the house. The buds here shown were drawn in the house at Gravetye, with a background of old Oak panelling, by Mr. Moon.

Of this *Carnation*, which was sent to us by Mr. Nowell, a gardener in Cheshire, we had at first only one plant, which, though moved about during various changes, bloomed well the first year. Last year in the hot summer the plants surprised us by their great height. Now we have many plants in a large bed, and hope to have a great bloom this year. The *Carnation* has had a number of names given to it—*Gravetye Gem*; *Terra Cotta*—

* Drawn for *THE GARDEN* at Gravetye Manor, August 2, 1887, by H. G. Moon, and printed by G. Severeys.



CARNATION APRICOT SELF

which is not at all like it in colour; and Flame Gilliflower, because the colour of the first flower that we saw, carefully compared by an artist friend of ours, was found to be as nearly as possible the colour of flame; also Mrs. Reynolds Hole. In gardeners' parlance "flame" means scarlet, but it is not so. The colour being so distinct among Carnations, we, after careful consideration, think by far the best way is to call it by the simple name of Apricot or Apricot Self. We hope there will be others of its colour raised better, perhaps, in habit, or later or earlier, or more continuous in bloom.

FRUIT GARDEN.

MELON GROWING.

THERE are few gardens of any extent in which the cultivation of the Melon is not attempted during the summer, and in most large places a succession of fruits from May to October is usually kept up, and yet, notwithstanding this general cultivation, it is an exception to meet with really good-flavoured Melons. I always think the judges' task at exhibitions of deciding the merits of Melons by tasting a most unenviable one, owing to the great difference in flavour, inferiority in this respect usually predominating.

The question arises, Is this large proportion of medium-flavoured fruits over the good due to defective cultivation or to inferior varieties? I am inclined to the opinion it must more often be attributed to the former than to the latter cause. There are, no doubt, some varieties which no system of cultivation or strict attention to their requirements could render really good; on the other hand, useful kinds are often spoilt through mistakes and errors in their treatment.

The Melon is a very accommodating plant, and can be successfully grown in a variety of ways. Its wants are simple and few, but constant attention is required to ensure the best results from the time the plants appear as seedlings until the fruit is ripe.

In the following remarks I will endeavour to point out some of the details of culture requiring close observance. Small houses, pits, and frames are all suitable for Melons, and they may be also well grown in pots standing on the stages of Pine stoves. The structure I like best, and to which I will confine these notes, is a three-quarter span pit, 10 feet wide, with a sunken pathway at the back, and divided into compartments 12 feet long. A pathway of 3 feet will suffice, the remaining space forming a pit wherein provision is made for bottom-heat.

If the plants are grown in pots, a solid foundation should be made for them to rest on. If planting out is preferred, the roots must be confined to prevent them running into the fermenting material. This can be accomplished by dividing the pit with a brick partition down the centre, the space nearest the front to be used for the plants, the other for fermenting material. Two rows of pipes should run under the bed for providing bottom-heat, over which should be placed brick ends and rubble, on which the soil, consisting of sods of turf and good sound loam, will rest. Positions for the plants are raised sufficiently above the level of the bed to allow of subsequent surface-dressings without burying the lower part of the stems.

The plants are raised by sowing the seeds singly in small pots and placing them in a forcing pit. Upon their first appearance above the soil a light position should be assigned to them, and care should be taken not to place them where there is any danger of red spider, mealy bug, or similar pests obtaining a footing upon them. In a few days the young plants will require a shift into pots a little larger, and when the roots touch the sides of these pots is the best time for planting them out where they are to fruit.

Before planting, the mode of training to be followed must be decided upon; the one I prefer is to plant about 2 feet apart and train each plant with a single stem straight up the trellis, fertilising the flowers on the first laterals as soon as these can be obtained stout enough for the purpose. I have noticed that the fruits which swell on these laterals are always more netted and finish off better than those obtained when the plants have made considerable growth. When planting keep the plants well above the level of the bed, so that water can be given to the roots without coming in contact with the stems; some cultivators place small flower-pots with the bottoms knocked out, or cylinders of zinc round the stems as a prevention against canker, but I have found such precautions unnecessary if the plants are planted as above described and care is exercised in watering. At planting time, sticks reaching from the bed to the trellis are provided, and to which the stems are secured at short intervals by light ties. It is no unusual sight to see young Melon plants falling about in all directions through inattention to this simple operation; nothing can be more productive of injury, as it checks the growth and causes bleeding and other evils. A brisk-growing temperature is maintained until the blossoms are beginning to expand, when more air is given for a time and the atmosphere is kept somewhat drier, avoiding extremes of dryness, which defeat the object in view, viz., the fertilisation of the flowers. Every day the blossoms which open are fertilised, at the same time taking the point out of the lateral bearing the bloom. When the desired number of fruits are seen to be set and swelling, gradually increase the temperature and moisture and commence giving the plants weak liquid manure.

Every encouragement should now be given to the swelling fruit. At intervals of about ten days the bed is dressed with an inch of loam, with which has been mixed some fertiliser, with the object of encouraging surface roots, and liquid manure is given at every alternate watering. The house is closed early, allowing the temperature to rise from 90° to 95°, and all laterals are kept stopped at the first joint. As the fruits approach ripening, discontinue the liquid manure, but do not go to the extreme of withholding water altogether. Many people cease watering as soon as the fruits show signs of ripening, with the object of improving the flavour, but the reverse is the case. At no time is a healthy expanse of foliage more desirable than at the time the fruits are ripening, and withholding water suddenly will soon bring about disastrous results. The proper treatment is to give more air, leaving the ventilators open a little all night, and still treat the vines as growing plants, but only supply them with clear water.

The fruits may be cut soon after a change in colour is observed, and when the characteristic odour is distinctly perceptible. After keeping them in a dry, warm place for a few days they will be fit for the table.

As to varieties, I will only say that Victory

of Bath and Blenheim Orange represent first-class kinds of their respective sections.

Hindlip.

A. BARKER.

THE RAINFALL & FRUIT TREES.

SINCE the protracted drought of last summer the rainfall has been far below the average, and the year 1888 has up to the present been extremely dry, as we have not had a single day during which the rain has been enough to stop out-door work. Under these conditions the roots of fruit trees must be very dry, and although we may see no ill effects for some time to come, I would urge on all who expect fine fruit to set about supplying their trees with the requisite moisture, for the lack of which they frequently fail not only to set, but to mature a crop of fruit. We all know that far more water is now given to fruit trees of all kinds that are grown under glass than was thought necessary some twenty years ago, and to this, I think, may safely be ascribed the much less frequent cases of bud-dropping. I well remember the days when there were only a few stated periods when it was thought safe to water Peaches and other fruits under glass, but now they get perfect deluges compared with what was then thought safe to apply to them, and certainly the increased crops and healthier trees all point conclusively to the fact that an abundant supply of water is the very secret of fruit culture. One improvement in modern gardens is that of the easier method of applying water, for the hose does the work so easily and efficiently, that what looked like a good soaking from the old, laborious system of applying it with the water-pot is only a sprinkling compared with the steady, penetrating stream that is run on to a fruit border through the hose. Now, many will think there is plenty of time to look out for the effects of drought, and so there is with many crops; but there is not a day to lose with fruit trees, as they are already swelling up an abundant crop of flower-buds and the strain on the trees will soon be great, and if the roots do not find plenty of liquid food, or even if they have run short of it at any time, it is useless to look for the fruit to set. I have watched fruit trees closely for many years, and am confident that spring frosts are not nearly so destructive as they are generally supposed to be, as in the most genial springs and in the most favoured positions, where the thermometer never went down below freezing point, I have seen trees fail time after time to set their fruit.

I do not imply that dryness at the root has been the only cause, but I am convinced that it is a very fruitful source of failure; and I would urge on all who have any doubts as to the condition of the soil about the fruit tree roots to lose no time in making a searching investigation, as nothing but actually digging out the soil to the level of the main roots of large trees can satisfy anyone as to how much rain it takes to penetrate two spits deep. I have frequently examined the soil about fruit trees that have been grubbed up after very wet winters and found the soil still quite dry. How much more then may we expect that they are suffering now, when the rainfall has been so much below the average for months past that a water famine is imminent, even in some of our usually wettest districts.

Under glass we are all pretty well agreed as to the advantages arising from an unstinted supply of water, but it is to wall trees in the open that I would now direct special attention. In the first place, wall trees, owing to the sheltered position they are in, are the first to start into growth, while the wall that shelters them absorbs a good deal of the rain, and unless artificial watering is resorted to, the soil close to the wall where the roots congregate will be found much drier than it is in the open. Borders, too, are frequently raised considerably, and a good deal of rain runs off into the footpaths and lower ground, and I have no hesitation in saying that a good soaking of water would do an immense amount of good to the great majority of fruit tree borders in the kingdom. When we come to examine trees we find that while the trees are leafless they generally get a good supply, or enough to carry them through a good

portion of the summer; but when the foliage becomes thick it takes a good shower to reach the soil, and the evaporation through the leaves is so great, that unless watering is liberally done the trees fail to swell their fruit satisfactorily. I have tried the comparison between trees liberally watered all through the season and those left to the varying rainfall, and I can testify to the marvellous difference in the crops.

Gosport.

JAMES GROOM.

THE BEST MULCH.

FOR newly-planted fruit trees Mr. Barker in his useful remarks on this subject in *THE GARDEN*, February 25 (p. 171), omits what is considered by many the best of all materials for this purpose, viz., rather rough Cocoa fibre refuse. This may be bought in many districts at about £1 per truck-load. Two, or at most 3 inches thick of this refuse will suffice to exclude frost from the roots. Its lightness endows it with exceptional powers of resisting the ingress of cold or the egress of heat to or from the roots. The same quality renders it a most free and rapid conductor of rain; hence it seldom produces that inertness and sourness of surface which Mr. Barker justly attributes to the indiscriminate use of manure.

There is also another objection to the use of the latter which is not referred to by Mr. Barker. These manurial mulchings often surfeit the surface soil with an excess of food as well as sour it by retaining too much water, and few things are more antagonistic to the successful culture of superior fruit in our climate than either of these evils singly, while the presence of both may be said to render it well-nigh impossible. We must, therefore, be especially careful not to over-feed newly-planted fruit trees by the use of manurial mulchings. Mr. Barker will bear with me if I point out what I consider a misconception of facts in the following sentence:—

I should not think of covering the roots of established trees for the purpose of protection, however near to the surface they may be, and those of newly-planted trees are not more tender.

They assuredly are, and for the all-sufficient reason that they are far more active. Now it is activity of growth rather than character or constitution that regulates and determines the hardness or tenderness of plants. Hence, though the roots of a recently moved tree or plant might not be closer to the surface than those of undisturbed ones close at hand, the roots of the former are far more sensitive to cold than those of the latter. The solution to this is simple, and invariably the same. Root-disturbance stimulates them to abnormal activity, and their quickened condition as to growth renders them more susceptible to injury from cold. Were it otherwise, there would really be but few valid reasons for the general practice of mulching newly-planted fruit trees.

Though a second reason for mulching may be found in the fact that the roots of newly planted trees are mostly placed closer to the surface than before, it is found in practice to be a wise and prudent precaution to protect these roots from being frozen, through the use of a surface mulch. Roots detached from the soil are also more tender than such as have not been disturbed. Besides, however skilfully performed transplantation may be alike in mode and times, it is at best an unnatural operation, and produces an abnormal state of top and bottom growth. And these states continue until the roots obtain a new grip of the soil. So soon as this takes place, mulchings, either as fosterers or conservers of root-growth, may be dispensed with, though it by no means follows that they may not be continued for cultural or other reasons.

HORTUS.

Fruit prospects.—We have lately been having a severe spell of winter in the shape of bitterly cold east winds, sharp frosts at night, with occasional snow showers, but in this last visitation we have come off very lightly, for the whole fall has barely been enough to cover the ground. I need hardly say that with a dull leaden sky fruit trees are making but little progress towards blooming, and on

this we may congratulate ourselves, as it must be a late spring now, and this is all in favour of a good fruit crop. There is an abundant show of fruit-buds on all kinds of trees, Pears being especially noticeable for their large, plump flower buds, and where the trees did not suffer from drought last summer, there is every prospect of a good crop. Bush fruits are looking well where the owners have been able to keep birds from them, but in the neighbourhood of towns sparrows have become so numerous, and are so difficult to contend with, owing to their being more daring than most of the feathered tribe, that, unless exceptional means are taken to keep them off, the buds are gone before one has time to adopt any precautionary measures. We always defer pruning until the buds are just bursting into leaf, and in the case of Gooseberries we leave the wood pretty thick, as when the greater part of the crop is gathered green, the bushes do not need such severe thinning as when fine ripe fruits are desired. Strawberry beds at present look very bare, the withering winds having quite destroyed the old foliage, but this is no criterion as to the forthcoming crop. As I have frequently observed, the most prolific crops follow when the plants looked most miserable at this period.—J. G., *Hants.*

JARGONELLE PEAR.

THERE is no disputing the fact that this is one of the most delicious Pears in cultivation, and if flavour alone is to decide the selection, it may well head the list given in *THE GARDEN*, Feb. 25 (p. 159). Unfortunately, the Jargonelle is of the worst habit of growth imaginable, and that is the greatest objection gardeners have to it. A pyramid worthy of the name is very rarely met with, and the only presentable standards I have yet seen were obtained by re-grafting old trees of less approved varieties with the Jargonelle. Nor are good horizontal trees of it easily grown; in fact it would appear to object to almost any set form of training. When once this is realised and the trees allowed to have their own way somewhat, an improvement is soon effected both in the quality and quantity of the fruit. What a Jargonelle Pear tree needs, and what it must have, is plenty of head-room. We have five trained trees of the Jargonelle and one standard, the former including a triple branched oblique cordon, an horizontally-trained, and three fan-shaped. The latter, I find, is the nearest approach to formal training this variety will stand. I treat the trees much in the same way as I should fan-shaped Plums, the system simply consisting in laying in a branch wherever there is space to be filled, allowing these branches to grow unpruned till the limit is reached. It is the young, well-ripened growths that give the most bloom and the finest fruit, the former, at least, invariably being formed on the unpruned two-year-old wood. By far the finest fruits, however, are produced on a comparatively young tree planted against a high wall of my dwelling-house, the aspect being south-east. Seven years ago this tree was about 12 feet high; now it covers a wall space 30 feet by 18 feet, and is gradually becoming a very handsome specimen of free, unfettered training. Compared with other varieties, even this tree is not free-flowering, but then the bunches of blooms are of great size and beauty, the fruit, should it luckily escape injury by late frosts, requiring to be thinned out. This tree produces many fruits 6 inches long and of proportionate girth, these being gathered only a short time before they are eaten.

I find the Jargonelle will not fruit satisfactorily on either a north or north-east wall, in this respect failing where Marie Louise, Louise Bonne, and other Pears succeed. The best way to form good standards is to cut over the head

of some less valued tree, grafting all the points with the Jargonelle. Four seasons ago I cut back a large standard Autumn Bergamot, not leaving a single twig of the latter. On the numerous shortened branches were placed one or more grafts, scarcely any of these failing; vigorous growth resulted, and none of the branches having been shortened, these were soon bristling with fruit-buds.

This brings me to one other fault the Jargonelle has, viz., its habit of flowering earlier than most Pears, being as a consequence more often damaged by frosts. A tree well set with fruit-buds would always pay for some kind of temporary protection. Trebled fish-nets suspended over the trees, and kept clear with the aid of long poles, will frequently save the crop, but not if so severe a frost is experienced as that which destroyed all the bloom on the fruit trees last spring.

W. IGGULDEN.

BEURRE DIEL PEAR.

NOTWITHSTANDING—or rather, perhaps, in consequence of—all that has been said or written for and against this popular Pear, it ought certainly to take a prominent place in any selected dozen of valuable varieties. Its size, form, colour and general appearance are all that can be desired. Besides, for very many years it has held its own, and been generally appreciated during the months of October and November, when good Pears are almost as plentiful as Blackberries. Any Pear that can do this through a long series of years must possess very substantial and tolerably constant merits; and it has, though occasionally its large size and deterioration of quality have caused it to be characterised as inferior, third-rate, and coarse. Very much depends on our standpoint for comparison.

Taking Winter Nelis as our ideal of Pear flesh and flavour, Beurré Diel will seldom, or never reach up to it. Nevertheless, it will bear favourable comparison with most other Pears. But such comparisons are somewhat misleading. What is really needed, if it could be had, is that each variety of Pear at its best should form the standard for that variety. Such standards can only be reached through great experience. There are, however, few good practical gardeners accustomed to handle Pears through a series of a dozen or score of years who could not pronounce a sample of Beurré Diel, or any other well-known Pear good, bad or medium at sight or taste. Not that I approve in any way of judging Pears ultimately and finally by sight. True, the eye often leads the way to quality, but this lead ought ever to be tested by tasting before a final decision is given.

But each Pear should be judged on its own and not its neighbours' merits, that is to say, let Beurré Diel be judged as such, and not with the flavour or flesh of Winter Nelis, Jargonelle, or Golden Beurré still lingering in our memories or mouths. Were this just and equitable standard of judgment more generally acted upon, we should hear of fewer rash and disparaging judgments against not a few of our finer Pears.

For example, few of our more experienced Pear growers will be found to deny that Beurré Diel at its best is one of the most useful and delicious of Pears. The flesh is sufficiently sweet, tender, and melting to satisfy the most fastidious; its form, size, and colour of soft yellow variegated with dots, and more rarely splashes of russet, are all that can be desired in an attractive table Pear. The size and appearance vary considerably, being one of our largest table Pears when grown on a wall, and over medium size on espaliers, pyramids, or standards. Unlike Marie Louise and other choice varieties, the Beurré Diel is mostly of the finest quality from walls, and well endures the heat of a south wall without deterioration of quality. The tree is hardy and fertile whether on the Pear or the Quince, and there are few better doers or certain croppers than the Beurré Diel. Perhaps no Pear is more generally

grown, though of late years it seems somehow to have lost some of its old fame. This possibly accounts for the silence hitherto of most of your correspondents about the merits of Beurré Diel to rank as seventh or even eighth among the best dozen.

Almost the only fault of Beurré Diel is its proneness to fall a prey to brown or black fungus that attacks the fruit when on the tree and disfigures and hastens its decomposition towards the middle or end of October. This is very provoking, and not only shortens the season of Beurré Diel, but mars its beauty and lowers its quality. Various so-called remedies have been tried to check or cure this fungus, but without much effect. It seems most prevalent on old trees, and when once established appears to become chronic or hereditary. Fortunately, Beurré Diel, if used before it is over-ripe, is a capital stewing Pear, and the fungus-spotted fruits are as good as the best for this purpose. Not a few, however, of the older connoisseurs in Pears would pronounce it little less than sacrilege to degrade a dessert Pear of such high excellence into a sweet drenched in syrup. In not a few modern establishments more Pears find their way to the stew-pan than to the table, and it is an additional merit of the Beurré Diel that it is almost equally well suited for either purpose.

D. T. F.

Peach Grosse Mignonne.—This Peach having on different occasions been spoken of as being not only a very shy fruiter, but an absolutely worthless sort, would certainly lead some to believe that there are under that name, or at all events have been, two different varieties, viz., an utterly worthless one and a really grand Peach of the highest excellence. With us it has proved to be one of the most free-flowering, and sets its fruit well, while the flavour is excellent. In the autumn of 1884 I had to remove some old trees from two houses here and replant them again. Amongst those which I selected for planting were a Grosse Mignonne, and the others included Royal George, Bellegarde, Stirling Castle, Waterloo, and a Pitmaston Orange Nectarine. The Royal George and Pitmaston Orange Nectarine were selected as standards to temporarily occupy the centre of the roof until the others filled the lower part of the trellises, and thence to be removed, the former to take the place of an Early Beatrice in the early house. The tree in question at the time of its removal from the wall was of good size, having for a few previous years borne fruit, and being at a considerable distance from the Peach house, was when planted without a particle of soil adhering to its roots. The ends of those roots which were broken or in the least damaged were tipped, and the rest were subsequently spread evenly over the border and covered up to the depth of 8 inches. When the trees had been planted each received a thorough watering to settle the soil. In the following spring they were not forced into growth, but all started well, and the Grosse Mignonne and Stirling Castle being the larger of the lot flowered most profusely, set an abundance of fruit, and finished a capital crop. Since then all have done exceptionally well, and especially the one under notice. My object in writing these few lines is not altogether to favour this Peach, but to give an idea of how much there may be gained by planting trees in bearing and how little they feel the shift. In fact, I believe they are considerably benefited by it, as it checks rank growth and causes them to bear more freely. Never before have I seen trees, both in and out of doors, look more promising than they do this season.—H. MARKHAM, *Mereworth Castle*.

Bramley's Apple.—I could not resist to-day sending you a few Bramley's Seedling Apples. For cooking they are most excellent, and for soundness at this time of year they cannot be surpassed, and they are not to be despised for dessert. The tree also is hardy and a free cropper, and should have a place in every orchard.—W. NEWTON, *Hillside, Newark*.

*** Tested March 10, this fine and distinct Apple was found good in flavour both for eating and cooking. It is therefore a very valuable late Apple, probably not quite so late as the excellent Reinette Grise sent

us by Mr. Barker and noticed last week, but it will be one of our standard kinds, and we shall call it Bramley's Apple, not Bramley's Seedling.—ED.

Fruit trees and bushes.—Whilst all ground crops, inclusive of Spinach, Turnips, Savoy Cabbages, and Purple-sprouting Broccoli, are wearing such a wretched aspect, and Wallflowers, Violets, and similar hardy flowers have a dried-up appearance, giving no bloom at present, all fruit trees and bushes look exceptionally well and promising, and growers console themselves over the hard weather and its hindrances by expressing a belief that the check given to the trees will prove of great value to the coming fruit crop. Such early Gooseberries as Crown Bob had burst their buds half an inch in length, and would ere now have been in full leaf and bloom; these will now open in due course in better weather. The buds of later kinds had started so far that they were almost beyond the power of birds to harm them. Currants especially have very large, plump buds, the bushes having a most promising aspect. With all taller trees, Apples, Pears, Plums, Cherries, &c., the promise is excellent, the only drawback being found in the dimensions of the buds on some of the trees which suffered from the drought last year, but generally the buds are plump and solid. Some of the early Pears have three weeks since lost the bud scales, and in ordinary weather would have been in bloom now. Their prospects of being fruitful are now better than before the hard weather set in. The dry condition of the soil seems to have induced far more liberal prunings of the large trees than usual, and as a result the lightened heads will doubtless carry a better sample of fruit. Some uneasiness naturally is felt because of the comparatively dry condition of the soil, even deep down, and the lack of rainfall to compensate for the absorption going on during the past two years. As there seems now to be no prospect of any considerable fall of moisture taking place before the summer, there is reason to fear that the fruit trees will suffer even more at the roots than last year.—A. D.

THE ORCHARD HOUSE.

TREES—FIRST YEAR'S MANAGEMENT.

THE Peach being looked upon as the king of the orchard house, the following remarks will apply principally to the formation of the trees and their management. As maidens cannot be expected to bear fruit the first year, the most important work will be pruning and training them into pyramids, bushes, or cordons. When the houses were low-roofed the bush tree stood first; but since large structures came to the front, the pyramid, the best of all shapes, is grown wherever head-room admits. A well-grown maiden, as I have before remarked, will stand from 2 feet to 4 feet in height when potted and the stem quite straight, will be well furnished with side shoots with wood, and sometimes flower-buds upon them. Of the latter I would not take notice, as they rarely set fruit, and if they do the roots are not in condition for forcing it to maturity. Potted in the autumn, the end of January is a good time to prune, as a matter of course, after the trees are housed. Each shoot must then be cut back to within a few inches of the stem near its base and to a single bud near the apex, the shortening or non-shortening of the leader being regulated by its condition and ripeness. The house being temperate, watering, syringing, and airing properly attended to, young shoots in due course will push freely from every part of the stem, save a few dormant buds near the working. When these have made four or five leaves, each point must be pinched not only to keep the tree in shape, but also to induce the base buds to break. If all goes well, each shoot will soon throw out a lateral, which in its turn must be pinched at the third leaf, and so on until the end of July, by which time the body of the pyramid will be well formed; but the base shoots being weak, they will not require pinching, whilst the leader, according to the height of the house, may be stopped when it has grown 10 inches—first, to induce the formation of more side shoots; and second, to concentrate the sap so essential to the

production of flower-buds. As these become prominent and growth less active, treatment favourable to the thorough maturation of the wood will result in handsome pyramids fit for forcing the following year.

CORDON TREES.

Although I do not care for Peaches on the spur system, the cordon sometimes comes in useful for covering the back wall of the lean-to orchard house in a very short time or testing a great number of varieties not only quickly, but upon a limited area. Like the pyramid, it is formed by incessant pinching, only much closer home, and as this class of tree is generally planted out in narrow borders, raised or otherwise close to the foot of the wall, uniformity should be secured by the selection of a number of the straightest and best furnished maidens of equal height and substance. The most perfect set of cordon Peaches I ever saw is at Hindlip Hall, near Worcester, where, under the able management of Mr. Barker, they form perfect ropes of spurs and fruit some 16 feet in length, 2 feet apart, and following each other in an oblique direction. Although I have not been able to try the experiment, simply because I could not get the trees, I should much like to see the Almond used for working this kind of tree upon, as the warm border formed against an internal wall would just suit it. When the maidens are planted and watered home they should be left intact with all the spray upon them until the buds show signs of swelling in February, when each shoot should be cut back to a single bud, the closer to the main stem the better. Then to ensure an even break from the lowest bud upward they may be bent down to an angle of 45°, but not permanently, as once started an upright growth favours straight leaders and an even development of spurs on both sides of the stem. If, as often happens, the young shoots some 18 inches from the working are too thick, they should be well thinned out at the winter pruning, as spurs less than 6 inches apart are not only superfluous, but detrimental to the development of the flower-buds and the production of fine fruit. When growth sets in all the strongest laterals should be pinched at the third or fourth leaf, not counting the one or two incipient leaves near the base, and this manipulation must be incessant until all the lower buds have started. As the strongest buds from the centre to the point of the leader will strive for the lead, each sublateral must be pinched and repinched as soon as one or two perfect leaves are formed quite up to the end of July, by which time fruiting spurs will be formed, when light, warmth and plenty of air will favour perfect maturation of the trees. Freedom from insects being imperative, the syringe must be plied twice a day throughout the summer, especially against south or west walls, and the roots must never feel the want of water. If straight and well ripened, the leaders at the winter pruning need not be shortened, otherwise they may be cut back to a good bud, and rapid extension being the crowning advantage of the system, the young leaders forced forward by the incessant pinching of the side-shoots will most likely be furnished with laterals as they grow. If they do not, the removal of the point-bud will produce the desired effect, when a fresh growth in a few days will be advancing. As this mode of pinching checks the trees, a good mulch of rotten manure should be kept constantly on the borders.

BUSH TREES.

so frequently met with, are formed by cutting back a maiden to within 12 inches of the union of the bud with the stock, all lateral shoots, if any have been formed, being pruned close home to ensure an even break from the main stem. The finest maidens, as a matter of course, form the finest bushes, but the cutting down being absolutely necessary, clean straight stems best adapted for forming pyramids and cordons first of all should be selected, when the remainder may be set aside for growing into bushes. The dormant buds when the trees are started will break freely enough, but all will not be of equal strength; consequently, an even balance in the formation of the framework of the tree being very important, all the strongest

shoots must be checked by pinching when they have made eight to ten leaves, whilst the weak ones must be encouraged by being left alone. Indeed, it often happens that the lowest shoots do not make more than a foot of growth with a wood bud at the point and another at the base, all those intermediate being flower-buds, and as these shoots naturally lack vigour, they must be strengthened by being left intact and the repression of those above them. In this way the roughest and least kindly, but nevertheless healthy and vigorous maidens may be grown into nice fruiting bushes with five to seven shoots each the first season, but when and where to pinch for this framework is a matter which must be gained by experience. Pears, Plums, and Cherries can be grown into pyramids, cordons, and bushes in the same way, but unless house space is abundant and not otherwise occupied, they can, as I have previously observed, be manufactured just as well under annual root-pruning in the open air.

ARRANGEMENT OF THE TREES.

A light, airy structure of moderate height and dimensions is preferable to a very large one the first year, and as each tree, if tree it can be called, has been so closely pruned, it is very easy to fall into a mistake by setting them too close together. Light and air being so necessary to a short-jointed growth, each pyramid should stand 2 feet or a little more from its neighbour in the row, and as it will be necessary to get in amongst them, the rows should be 3 feet apart. Cutbacks may stand much closer, and, of course, in the lowest part of the house, and as none of the trees must be allowed to root into the border, they can be shifted from time to time as growth renders more room necessary. When all the trees as well as the pots have been washed and the apertures of the latter have been examined to ascertain that the drainage is clear (for, much as the Peach likes water, it must have free egress), place them where they are to stand, then raise them one by one, and introduce two clean bricks perfectly level, but not quite close together, as the opening just beneath the aperture will favour the free passage of water and the inlet of air. In the formation of orchard house floors or borders it almost invariably happens that good fruit-tree compost is used, but unless hardy vines or some of the trees are to be planted out, this expense is quite unnecessary, and for this reason: The rich soil in due course moistened by syringing and watering, soon attracts the crock roots, which get away when the trees become rampant and unmanageable; hence my advice, in all cases, to introduce bricks no matter how poor the border. Anyone wishing to buy experience may test this theory in a single season, and the result will be as follows: The roots of trees placed upon the border will soon strike downward, when the compost in the pots will become sour and unhealthy. The growth will be strong and the foliage dark, but flower-buds will be few and late in ripening. Removal of the trees in the autumn will leave the fibrous roots which might have been in the pots in the border, and fruit the following year will be conspicuous by its absence. Trees cut off from the border, on the other hand, will fill the pots with roots; they will take top-dressing and liquid, the growth will be moderate and studded with flower-buds, and they will be ripe enough for removal to the open air early in the autumn. I have gone out of my way in order to fully explain this apparently trifling matter of detail, as I know rooting into the borders is the beginning of serious disappointment when pot culture which is not pot culture at all is voted a sham and a failure. Having so often given every detail in the cultural management of fruiting trees, it is only necessary to say none of the trees will require re-potting the first season, neither will they derive much benefit from over-rich top-dressings so necessary when they commence bearing fruit. Still, as growth proceeds and hungry spongioles find their way to the surface, they must be covered with thin layers of good loam and bone dust, and weak liquid may be given occasionally. Early in September the foliage will show signs of changing, and when a few of the leaves begin to part on being touched, the trees may be

placed out of doors where they can be regularly attended to with water and receive the cleansing benefit of autumnal rains. Should the autumn be dry and warm, a good syringing on fine evenings will keep the foliage fresh and clean, and the pots being literally crowded with roots the watering-can must be freely used, otherwise the trees will cast their buds when taken in for forcing in the spring. Although I have said the trees will not require potting the first year, a word of warning to the amateur who is excessively fond of using the knife and transferring his plants to larger pots may here be seasonable. Do not disturb a fruit tree that has filled its pot with roots until it has borne one crop at least, as a pot-bound condition must be secured before it can be depended upon. Protect the roots from hot sun and drought by casting a little loose straw or fern amongst the pots when placed upon the border, or drop each tree into a second pot with enlarged aperture, and a size or two larger than the one in which it is established, and on no account allow the balls to become dry at any time. As Peaches and Nectarines will ripen their wood in a temperate house, fire-heat is not absolutely necessary; still, when they are intended for early work the following year, it is a good plan to get the cut-back maidens into growth by the 1st of March and to warm the pipes whenever ordinary Peach house temperature cannot be maintained without it. The syringe and the water-pot, as a matter of necessity, play a very important part, and the trees occasionally will require fumigating. Cordons trained against back walls being fixtures must have an abundance of air when the wood is ripe, and equally imperative is a thoroughly moist condition of their narrow and well-drained border throughout the winter. Readers of the foregoing may assume that the manufacturing orchard house the first season may be fruitless, but this really is not the case, as pot Strawberries, early and late sorts, may be grown to perfection, and the Tomato, also in pots, will pay wherever standing room can be found and the foliage does not shade the future occupants. Plums, Cherries, and Pears, too, obtained with the maiden Peaches and well set with flower-buds, if potted up before November, will set and swell very good fruit, but not quite equal to that which may be expected, when, like the Peaches, they have filled their pots with thousands of mouths ready to devour an unlimited quantity of the stimulating food best suited to their nature.

VARIETIES OF PEACHES AND NECTARINES.

The lists of these are very long, and contain many varieties, if not bad, certainly in some way inferior to others which ripen with them. Moreover, nomenclature, although greatly improved, is still unsatisfactory, and not unfrequently leads to loss, disappointment, and annoyance. Nurserymen, it is only fair to say, have raised the manufacture of trees of all kinds to a fine art, and do their very best to supply their patrons with the best of the sorts they order. But when it is borne in mind that their operators are liable to make mistakes in the nursery, and many of them are dependent upon private gardeners for their stock of buds, it is only surprising that varieties which so closely resemble each other are not more frequently mixed together. This unsatisfactory state of things should not exist, but until gardeners as well as the trade make themselves thoroughly acquainted with the few simple rules or forms of structure by which they can divide them into classes or sections, our fat Peach lists will remain imperfect and unreliable. Peaches and Nectarines, in the first place, are divided into two classes by their flowers, which may be very large, light-coloured, bright and beautiful, or small, dark-coloured, and inconspicuous. The fruit may be rich and melting, separating freely, or hard, tough, and inseparable from the stone. The first is a freestone, the second a clingstone. The leaves, a never-failing guide, however, are most reliable, as we find one section with serrated, but glandless leaves; another with crenated leaves and globose glands; and a third with crenated leaves and reniform or kidney-shaped glands. All these varieties are classified, and all one has to do is to learn his lesson, when, with the

greatest ease, he can often tell when he has been supplied with the wrong tree if he cannot always be sure that he has got the right one. I should like to go further into this matter, but books, which all young men should study, are to be had at a cheap rate; therefore, I shall confine myself to one illustration. I purchase two trees—Grosse Mignonne and Bellegarde. The first, when it develops its leaves, shows round glands; the flowers are light and large, and although I know it is a Mignonne, I must wait until the fruit is ripe to prove that I have the true variety. The second also has round glands—quite right—but the flowers are large; whereas they should be small, and I know I have not got the best large, flattened, dark purple-fruited variety.

EARLY PEACHES (FIRST QUALITY).

Early York	Large Early Mignonne
" Silver	A Bec
" Grosse Mignonne	Doctor Hogg
Hale's Early	Alexandra Noblesse
Condor	

EARLY PEACHES (SECOND QUALITY).

Alexander	Early Louise
Amaden June	" Rivers
Early Alfred	" Leopold
" Beatrice	Waterloo

MIDSEASON PEACHES.

Grosse Mignonne	Royal George
Violette Hative	Old Noblesse
Crimson Galande	Belle Beauce
Magdala	Dymond
Stirling Castle	Bellegarde

LATE PEACHES.

Barrington	Late Admirable
Sea Eagle	Lord Palmerston
Prince of Wales	Nectarine Peach
Walburton Late Admi- rable	Gregory's Late Desse Tardive

EARLY NECTARINES.

Lord Napier	MIDSEASON NECTARINES.
Advance	Eltuge
Hardwicke	" Stanwick
Murrey	Violette Hative
	Pitmaston Orange
	Pine-apple

LATE NECTARINES.

Albert Victor	Humboldt
Victoria	Lord Byron

W. C.

MANURE FOR FRUIT TREES.

At this time of year, when in gardens both large and small the work of cropping the soil or preparing it for future crops, either by forking manure around the roots or placing it on the surface in the form of mulching, is in active operation, it may be well to point out the difference in the methods that are adopted. In the first place, I find many put a certain portion of manure to each tree or bush, packing it close up to the stem. Now this does very well for freshly-planted trees, but for those that have grown to any size it is of very little service, for the main feeding roots have travelled out in all directions in search of food. If the trees have been allowed to extend in a natural manner it will be found that most of the feeding roots are out quite as far as the spread of foliage extends, and it is a remarkable provision of Nature that the foliage which forms a kind of natural umbrella should carry the rain-drops to the very spot where they can do the most service.

When looking over an amateur gardener's collection of fruit trees and bushes in Sussex a year or two ago, I was struck not only with the remarkable crops, but, above all, with the excellent quality of the fruit, and I was not at all surprised when the cultivator showed me the list of prizes he had carried off in competition with much larger holders of land from all parts of the kingdom. His plot was under half an acre. Now his general mode of culture was not different to that of most other gardeners or amateurs; but the whole secret of his success was due to his placing plenty of rich food between the rows of trees quite clear of the branches, but within reach of the feeding roots. In addition to a large quantity of good horse manure, road-scrappings, and fresh soil, he annually buried a large

number of bodies of birds, animals, &c., as, being a naturalist and bird-stuffer by trade, he had a large quantity of refuse to get rid of, and he did this and enriched his fruit-tree soil at the same time. If you plunged a fork into any portion of his garden, it was, from the amount of bones in it, more like a Vine border than an ordinary kitchen and fruit garden. Many of his Apple trees were pictures of fertility and good health, and I feel convinced that it is to poverty of soil that we owe half the ailments that fruit trees are heir to. Bush fruits and wall trees were all alike, the oldest and the youngest being covered with such fine fruits of their respective kinds, that they made one no longer wonder how the owner could successfully compete with those with far larger resources. I would, therefore, counsel all who are enriching their soil in the vicinity of fruit trees to remember that it is not only the crop they are going to grow that they will benefit, but they will get ample return from the trees in the shape of finer and more abundant fruit. Do not neglect the mulching round the stems, and give plenty of manure for the extremities of the roots to revel in.

J. GROOM.

Gusport.

STOVE AND GREENHOUSE.

THE CAPE HYACINTHS.

LACHENALIAS are sometimes called Cape Hyacinths, and deserve all the praise and good culture that can be afforded them. *L. pendula*, *L. luteola*, *L. Nelsoni*, and one or two others are now plentiful and effective in our gardens. As a window plant, *L. luteola* grows and flowers luxuriantly, and the late Rev. J. Nelson, of Aldborough, once told me that some old ladies in his parish grew these Cape Hyacinths to far greater perfection in their sunny windows than did the London nurserymen in warm glass houses. Again, Mr. Barr tells me of a lady in Oporto who makes quite a speciality of Lachenalias and grows them to perfection. One point in his relation of this amateur's achievements struck me as worth notice here. Even under the hot, clear sunshine of Oporto the bulbs require full exposure to the sun's rays after flowering and until the leaves have died away. In this way, or as so treated, but few offsets are produced, and the bulbs attain an enormous size, more like Hyacinths than the little bulb clusters we usually see. I have thought out a plan of meeting this ripening difficulty in our comparatively sunless gardens, and my plan will enable the cultivator to thoroughly ripen up or finish off the bulb growth of these choice Lachenalias, some Irises, and many other half-hardy and tender bulbs from hotter countries than our own when grown in pots for greenhouse or even window decoration. My plan is a simple one, consisting of a series of shelves fixed horizontally a foot or so apart on a bit of sunny wall. At each end of the shelves is an upright bit of scantling, or the edge of the terminal upright plank or board, to which the shelves are partly fixed, will do on which to hinge a couple of spare glazed frame-lights to form glass doors in front of the shelves like a cupboard. The whole thing can be put up by any handy man, carpenter, or amateur for himself, and will be found an efficient aid in good gardening, and especially serviceable in the culture of choice Lachenalias, Freesias, Narcissi, rare bulbous Irises, and many other things.

But what I am now anxious to know is this: Where are the ten or twelve species known in books to be obtained? I mean such gems as *L. unifolia* with its one chalice-based leaf and graceful spikes of turquoise-tinted blossoms. There are at least two forms of the erect

green or purplish brown shaded *L. orchioides* figured in the *Botanical Magazine* (t. 854 and t. 1269). *L. contaminata* (*Botanical Magazine*, t. 1401) looks like an *Ornithogalum* or a white Squill, and is not showy, but *L. pustulata* (*Botanical Magazine*, t. 817), having leaves somewhat like those of a *Gasteria*, viz., green, warted with white, might be liked by some people, although its greenish white flowers are not very showy. *L. purpureo-cerulea* (*Botanical Magazine*, t. 745) also has warted leaves, broadly ovate, and not linear or strap-shaped, like those of *L. pustulata*, and its spikes



Lachenalia pendula.

of flowers are very effective, not unlike those of *Scilla campanulata* in shape, but sky blue, tipped with wine colour. *L. lancifolia* (*Botanical Magazine*, t. 643) is quite suggestive of an *Haworthia* or some *Aloes* in habit and general appearance, but the leaves are thinner in texture, pale sea green, blotched with darker green. In the *Botanical Magazine* it is called the "Copperas-leaved Lachenalia," and it bears a gracefully undulated spike of small, open green flowers, edged or lined with claret colour. The exquisite little *L. unifolia* has only one spathe-

like leaf, red or rosy at its base, barred with claret, the margins of the caudate and green portion of the leaf being clear rose or red. The flowers are globular in form, with an expanded mouth, and in colour are turquoise-blue at the base, white at the apices of the perianth segments, each petal tip being also lined with a touch of brown. It is said to be nearly hardy. *L. tricolor*, as figured in the *Botanical Magazine* at t. 82, is what we call *L. luteola* to-day, and is quite distinct from what is figured at t. 1020 as *L. tricolor* var. *luteola*, which is a plain green-leaved form of what we now call *L. aurea*. This last species is one of the best when well grown, its flowers being larger and shapely, five to fifteen on a stout purplish green scape, while the blossoms themselves are of a rich self golden colour, the outer segments only being tipped with green. *L. pendula*, here figured (*Botanical Magazine*, t. 590), is, when well grown, almost a fine-leaved or foliage plant, and its great, erect, stout spikes of flower vary from 7 inches to 15 inches in height. The flowers are vermilion-red marked and tinted with sea green and purple at their apices.

L. QUADRICOLOR is a gem amongst these flowers, but is rarely seen in cultivation where the so-called *L. tricolor* and now and then other species even, as *L. pendula*, do duty for it as a substitute. Two forms are figured in the *Botanical Magazine* (t. 588 and t. 1097) under the name of *L. quadricolor*. The first form has plain green leaves and a more slender green unspotted flower-scape. The flowers are large and pendulous, of a clear golden yellow colour, shaded at the base with vermilion-red, and each petal is tipped at its apex with bright rose, shaded into a crimson blotch, which, in bold contrast with the golden colour, is most effective. It first flowered at Vauxhall with Mr. Woodford in February, 1801, it having been introduced from the Cape the preceding year. The form figured on t. 1097 is larger, with more flowers on a spike, and it has blotched foliage. The colouring is similar to that of the last, but is not so clear and pure, owing to a greater amount of green shading on the yellow petaloid segments. Both these plants would be very desirable additions to our collections.

L. RUBIDA (*Botanical Magazine*, t. 993) has at the first glance a *Veltheimia*-like look about it, but its broad, erect leaves are blotched in orthodox Lachenalia fashion. The flower-scape is erect, dotted and blotched with red on a pale green ground, its apex being crowned with eight to ten horizontally-disposed flowers. The flowers are red, minutely dotted and tipped with pale green, but clear and brighter and darker than those of the *Veltheimia*. Mr. Lindsay kindly sent me seedlings of this rare species from the Edinburgh Botanic Garden, but they have not as yet bloomed. *Lachenalia lucida* (*Botanical Magazine*, t. 1372) has the appearance of *Hæmanthus albiflos*, the leaves being broad, short, and dark green, and the flowers white and sub-erect on a short green scape. *L. unicolor* (*Botanical Magazine*, t. 1373) is similar in beauty to the last, but with narrow, undulate foliage and a more lax spike of pinkish white flowers. The stamens are also much exerted.

There are other species and varieties of this genus figured in more recent numbers of the *Botanical Magazine*, to which, for the moment, I have not access, but perhaps our Kew friends, Mr. Watson or Mr. Dewar, will look them up and tell us what they are and how they differ from each other. We have here a genus of greenhouse bulbs worthy of especial culture, and just awaiting the loving and careful handling of some enthusiastic amateur who will

collect them from other gardens and from their native habitats at the Cape of Good Hope. No doubt some, if not all, of the species will hybridise freely, and, judging by the rich success of Mr. Nelson's experiments, the wonder is that more has not been done in this direction. They lend themselves admirably to pot or basket culture, and in mild localities near the sea and on dry, sandy soils they are hardy, but increase too quickly to flower really well. I shall be extremely glad to hear of any of the above or other rare species and seedlings or other varieties being in cultivation in Britain or elsewhere.

VERONICA.

Begonia odorata.—To the three varieties of *Begonias* named by "W. H. G." (p. 161) as good winter-flowering kinds I should like to add *odorata*. It is one of the best kinds for winter flowering, as it bears large trusses of fragrant pure white flowers on stout footstalks. The flowers do not last long in a cut state, like those of other winter-flowering *Begonias*, but upon the plants they remain fresh for a considerable time, even when the plants are used for house decoration. It flowers freely in small pots, and the cultural details are simple. Anyone possessing a warm house during the winter months may have this variety in good condition.—S.

Begonia Gloire de Sceaux.—A good many of the winter-flowering *Begonias* are partly shrubby in habit, and amongst the number is *Gloire de Sceaux*, which, although by no means widely distributed as yet, should be made a note of as one of the finest in its section. It is of Continental origin, having been raised by MM. Thibaut and Keteleer from a cross between *B. socotrana* and *B. subpeltata*. The leaves are large, thick in texture, and of a dark metallic green tint. The habit of the plant is stout and vigorous, and without being stopped it naturally forms a compact, pyramidal-shaped specimen, well furnished with foliage, provided it is allowed ample room in which to develop. The flowers are large, borne freely in clusters, and of a pleasing shade of deep pink. Small plants in pots 5 inches in diameter will bear several clusters of their showy blossoms. Even in a smoke-laden atmosphere this *Begonia* retains its foliage during the winter better than any other variety I am acquainted with. As a rule it flowers from January to April, and immediately afterwards commences to grow freely, when, if desired, the shoots then produced can be taken off and will soon strike. They may be grown into good-sized plants before winter.—H. P.

Eriostemon densiflorum.—This at the present time is very attractive, being thickly covered with its pretty fine-pointed, star-shaped blossoms, while the orange anthers stand out conspicuously from the pure white of the rest of the flower. There are several species of *Eriostemons*, through all of which runs a strong family likeness, and all are desirable greenhouse shrubs, that with ordinary care and attention may be depended upon to flower freely. They are all natives of Australia, and the blooms of the whole of them are either white or pinkish. In the case of the *Eriostemons*, thorough drainage is absolutely necessary, and a good compost for them is open fibrous peat, with an admixture of silver sand and a little loam. *Eriostemons* can be struck from cuttings of the half-ripened shoots, but the weaker-growing species do not make very rapid headway, and the better way in their case is to graft them on to young, vigorous stocks of *Correa alba*. These *Eriostemons* may be stood outdoors during the summer months.—T.

Rhododendron Veitchianum.—Notwithstanding the large number of hybrid *Rhododendrons* now in our gardens, this species from Moulmein, which was introduced into this country many years since, still holds its own as one of the finest white-flowered greenhouse *Rhododendrons* now in cultivation—that is to say, when a good type of it is obtained. Where seedlings of it are raised in quantity there is often considerable variation to be found among them in habit, freedom of flowering, and in the size and texture of the flower, some having the edges of the petals very much

crimped, while in others they are quite smooth. This last is known as *R. Veitchianum laevigatum*, but it is not so showy as the crisped-edged flower. *R. Veitchianum* does not form such neat little specimens in small pots as some kinds do, for its habit when young is rather straggling, the tendency of the plant when small being to run up thin, and on that account it should be somewhat freely pinched when in that stage. In any case, however, as it grows up it forms a very handsome shrub with exceptionally dark green leaves. That this *Rhododendron* is by no means a novelty is borne out by the fact that I have a note of its having been first exhibited by Messrs. Veitch in 1857. It has not been largely used by the hybridist, the principal varieties claiming it as one of their parents being *R. exoniense* and *R. Forsterianum*. The first of these has before now been illustrated in THE GARDEN. It is the result of a cross between *R. Veitchianum* and *R. ciliatum*, the dwarf, branching habit of the latter showing itself in the progeny. It forms a compact, much-branched specimen, and is very free-flowering. The blooms are white, with just a dash of pink here and there on the exterior, and they are also agreeably scented. From its compact habit, combined with its free-flowering quality, this is a very useful *Rhododendron*, and it can be readily forced into bloom early in the season. *R. Forsterianum* was raised by Mr. Otto Forster in Austria between Veitch's *Rhododendron* and *R. Edgworthi*, so well known as the parent of many garden varieties. *R. Forsterianum* is tall in growth, but bears magnificent blossoms, which are white, tinged with lemon in the centre.—H. P.

THE DOUBLE WHITE CHINESE PRIMULA.

I IMAGINE that there is no plant gardeners generally find so much trouble in managing as the fine old double white Chinese *Primula*, one of the most useful of winter-flowering plants. Originally, two varieties were obtained from China, the white and the purple, but the latter is only occasionally cultivated, and, indeed, is said to be very difficult to manage. Successful cultivators of the double white fail to succeed with the double purple. I think it is useless for anyone to attempt to cultivate the double white unless they can give it what it requires, viz., a small house of medium temperature in which the atmosphere is warm and dry, or a warm pit where ample ventilation can be given as required. This *Primula* suffers much from what is known as rot, a decay that sets in near the crown of the plant, and at the point of the junction of the leaf-stalks with the main stem. I know one grower of this *Primula* who keeps the outside leaves of his plants cut away directly they show any signs of decay, and for this reason: This cultivator says the rot travels along the leaf-stalks to the main stem, and when this is reached and it becomes affected decay is certain. Since my informant has adopted this plan he has scarcely, so he told me, lost a plant.

As a matter of course, at this time of the year, although the plants are in bloom, the soil about the roots must be kept fairly dry, still, not dry enough to starve the plants in any way. What is required is a genial dry atmosphere. Undoubtedly the plants do best when they can be grown by themselves in a suitable temperature, and gardeners who attempt to cultivate the double white *Primula* in a house where there is a collection of plants invariably fail; it is so difficult under the circumstances to keep this variety free from damp.

There are various ways of propagating this plant, but that followed by the grower referred to above seems to me to be one of the easiest and safest. About the month of April some fine *Coccoloba* fibre is heaped up about the stems of the plants, covering, as a matter of course, those of any side growths, and it is kept moist by being occasionally sprinkled with water. The result is that the roots are put forth by the stems of the side branches into the fibre, and when the roots have well laid hold upon it, a cut is made across the stem by means of a sharp knife. They come away with balls of roots and *Coccoloba* fibre, and they are at once potted into

suitable sized pots. In this way all trouble of taking off the cuttings and striking them in bottom heat is avoided, and good plants are obtained in a short space of time. It would appear that plants so obtained are generally more robust than those raised in heat from cuttings, and this is a point that should not be lost sight of.

What is the best compost for the double white *Primula*? One of the best lots I ever saw was growing in old *Chrysanthemum* soil—soil in which specimen plants had been grown and flowered. It was made up of good yellow loam, a little leaf-mould, some well-decomposed manure, fine ashes from a fire of vegetable refuse, and some crushed bones. In this the *Chrysanthemums* were potted. When they had ceased to be of service, the plants were turned out of their pots and allowed during the winter to be operated upon by frost and snow, rain and wind, after which the soil was sifted and employed for potting double *Primulas* in May and June.

R. D.

Oxera pulchella.—When on a visit to Algeria in February, 1880, by the kind invitation of my employer, to see the gardens in that country I was most fortunate in having the assistance of M. Durando, a teacher of botany in the college at Algiers. He drew my attention to the above-named plant in one corner of the public gardens of Algiers. I shall not soon forget this beautiful *Oxera* with its numerous bunches of white flowers covering the branches, the main stem running up about 20 feet high. I purchased a small plant and brought it home, but it was such a miserable specimen that I failed to succeed in growing it.—W. O., *Fota, Cork*.

Nepenthes.—I am desirous of growing some few species of Pitcher Plants (*Nepenthes*), but am assured by an acquaintance who should know that *Nepenthes* cannot be successfully cultivated unless a properly constructed house is put up for them. Is this so?—M. J.

** Your acquaintance cannot know anything about the cultivation of *Nepenthes*. That this advice is absurd can be proved by a stroll through any of the leading London nurseries. Suffice it to say that Pitcher Plants may be grown in any stove which contains such plants as *Allamandas*, *Palms*, *Anthuriums*, *Ixoras*, *Marantas*, &c. If possible, it is best not to mix them with blooming plants, as the frequent syringings which the *Nepenthes* enjoy are not conducive to the preservation of flowers.—G.

Ochna multiflora.—A member of a very small Order of plants, to which this genus gives its name. It was introduced, I believe, by Mr. Williams, of Holloway, with whom I recently saw it in flower and fruit. It requires the temperature of an intermediate house, and is exceedingly ornamental for a long time. Mr. Williams says that it produces from its pendent branches quantities of deliciously sweet and bright yellow flowers. When the petals fall the calyx at once reflexes and commences to grow, and changes to a deep red colour and forms a fleshy bed, from which hang the seeds, which at first are green, but which afterwards change to deep plum colour. These two colours (red and plum colour) being scattered all over the bush, render it very effective. It is said to thrive in turfy loam and leaf mould, to which some sharp sand should be added.—W. H. G.

Primula floribunda.—This little gem among *Primroses* is one of the brightest features in the greenhouse just now, as we have a number of plants in flower which in a mass present a very charming effect. They are the product of seed sown a year ago. The seed having been sown as soon as it was ripe, it quickly germinated and yielded a crop of plants. The young plants were in time potted off, and as the summer advanced the strongest were shifted into larger pots. In the autumn most of these commenced to flower, but the dense fogs which we in the neighbourhood of London have to contend with at that season destroyed all the blooms and severely injured the foliage. So much indeed did the plants suffer, that not one of the flowering specimens survived the winter. Among

small plants which were still in the $2\frac{1}{2}$ -inch pots into which they had been potted, the loss was not above 25 per cent., and they having been now shifted on are yielding a good show of bloom. In the case of those that had begun to throw up their flowers in the autumn, the old stem—when the blooms were injured by the fogs—formed the seat of decay, while of the small starved ones in which the blooms were not developed the majority survived the winter.—H. P.

The New Zealand Clematis (*C. indivisa*).—Many a greenhouse at the present time is adorned with this delightful evergreen climber, which invariably sends out its clouds of starry white flowers before even winter has left us. This year, owing to the spell of cold and sunless weather, it is later, but in mild seasons it blooms as early as the first week in February. Those who do not possess this plant deprive themselves of a great treat at this season, for nothing in the way of greenhouse climbers can surpass its chaste beauty and gracefulness. At all seasons it is an elegant plant, as its foliage, which is leathery and of a shining deep green, is evergreen, and shows off the purity of the blossoms. It is admirable for cutting from, and though rather too large as a button-hole flower, may be used in all kinds of floral decorations, and for the dinner table if nicely arranged with suitable foliage, such as a groundwork of Ferns, it is charming, and the tufts of red-tipped stamens are seen better by artificial light than by day. It is a plant of the simplest culture, and is almost hardy in the climate of London and quite so in Devonshire, where it flowers freely out of doors. There is a variety with its leaflets lobed, and is called *lobata*, and some say it is a freer grower and flowerer than the original, but there is little difference between them if grown side by side. It may be seen in flower at Kew at the present time in the greenhouse No. 4.—W. G.

Hebeclinium atrorubens.—This is not so often met with as its near relative, *H. ianthinum*, yet it is, from an ornamental point of view, superior to that very useful plant, and as the points of difference between them are well marked room may in most gardens be found for both. They are bold, free-growing subjects that require to be liberally treated in order to see them at their best; indeed, conditions under which *Salvias* thrive during the winter will suit them perfectly. The general appearance of these *Hebecliniums* is that of an enlarged *Ageratum*, the flowers being borne in large terminal corymbs. Those of *H. ianthinum* are of a pale lavender tint, while those of the other are darker, the exterior of the calyx being covered with dark coloured hairs, which are also present on the leaf-stalk, the midrib of the leaf itself, and on the young shoots. Both plants are very easily propagated and grown, the principal points to be observed being that the plants do not get drawn up weakly at any time (but more especially during their earlier stages), and that they do not suffer from want of water, as should this happen a good deal of the foliage will turn yellow. These plants are now, I believe, included with *Eupatorium*, but it will be years before the name of *Hebeclinium* is dropped. Some of the *Eupatoriums*, again, are valuable for flowering throughout the winter, as they are of a robust constitution and will bear cutting with impunity. *E. riparium* and *Weinmannianum* are two of the best, and give very little trouble if they are planted out during the summer and lifted early in the autumn before frosts set in. Not only do cuttings strike in a few days, but self-sown seedlings often come up in large quantities.—H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

Camellias for cutting.—Which are the two best *Camellias* for cutting from? was the question I asked Mr. J. Woodbridge the other day when looking through the houses at Syon House. He replied, "The old double white and the red imbricata." He had these growing against the back wall of one of his houses, and he informed me he found them most useful. In spite of the many new *Camellias* introduced of late years these two fine standard sorts still hold their own.—R. D.

Anthurium Leodiense.—This is one of the seedling hybrid forms of *Anthurium Andreanum*,

resembling *A. ferriense* in habit of growth, and producing by far the highest coloured spathe of anything I have yet seen in *Anthuriums*. The spathe is large and smooth, and of an intense deep crimson-scarlet colour. If it should prove to be a free-flowering kind it will be certainly one of the best. It is now blooming in Mr. Williams' nursery at Holloway.—W. H. G.

WORK IN PLANT HOUSES.

STOVE.—ANTHURIUMS, FINE-LEAVED.—The different kinds of ornamental-leaved *Anthuriums* are to some extent epiphytal in habit; consequently the roots do not require a very great depth of soil, and, in addition, the material should be of a loose, open description. I have always found that the plants do best in a mixture of fibrous peat, broken crocks, and sand, with much of the earthy matter shaken out of the peat. In this the roots luxuriate, and do not perish in the way that more or less occurs when they are in heavier material. It is safer to re-pot *Anthuriums* annually, as however fresh the soil that they are in may appear, the large amount of water they require and the hot, close atmosphere in which they are grown cause the material to decay so rapidly, that before the end of the season it is liable to get sour. The best time to re-pot is just before the plants begin to grow, and all the old material should be discarded. If pots of the ordinary shape are used, one-third their depth should be filled with crocks, and in potting keep the collars of the plants well up above the soil. If the surface is covered with a little chopped *Sphagnum*, it will improve the general appearance of the specimen.

ANTHURIUMS, PROPAGATION OF.—These plants are increased by division of the crowns, or by the sucker-like growths they produce from the collar. These will usually be found to have formed independent roots. When separating the suckers the roots should be secured with as little mutilation as possible. Put them singly in pots large enough to hold them, using soil of a like description to that already described. The suckers should be secured to one or two sticks inserted in the soil until the roots have got well hold of the material, and if there is any indication of the leaves flagging, the plants must be kept close. Syringe them freely, whether large or small, at the time of closing the house, as they are somewhat liable to the attacks of red spider. These *Anthuriums* enjoy a light position, but require shading when the weather is bright.

ANTHURIUMS, FLOWERING.—Seedlings of *A. Scherzerianum* and the kindred kinds that have been raised from seed sown last summer should now be put singly in $2\frac{1}{2}$ -inch pots. The soil that suits them best is such as used for *Orchids*, consisting of fibrous peat, chopped *Sphagnum*, crocks, or charcoal and sand. The pots should be stood on some moisture-holding material, such as sand, shell gravel, or fine coal ashes. If the plants are on bare shelves or stages, the soil dries up too quickly and the atmosphere around them is too dry to admit of their making the necessary progress. Large specimens that are not pushing up their flowers will require abundance of water. These also should be syringed freely overhead daily; this will not injure the flowers in whatever stage they happen to be.

BILLBERGIIAS.—The time for potting these plants varies according to the time at which the different kinds flower. In the case of those that bloom early, it is better to defer shifting such as require it until after they have bloomed; whilst those that flower later on are better potted now. I have grown *Billbergias* in both peat and loam, but prefer the latter when it can be had of a free, open character and with plenty of turfy matter in it. More sand should be mixed with it than is necessary for ordinary plants. The drainage must be perfect, as the roots will not bear anything in the shape of stagnant moisture about them. Over-potting must be carefully avoided, and a night temperature of 60° or a little over will answer for most of the species. A thin shade is necessary in bright weather, without which the leaves have a yellow, sickly appearance; otherwise, owing to their hard texture, they do not

suffer from exposure to the sun so much as softer-leaved subjects.

BILLBERGIIAS, PROPAGATION OF.—These plants are propagated from suckers, but as most of the species produce them sparingly, they are slow of increase. The suckers soon get established, but they should not be taken off before they have attained considerable size and strength, and without this their progress is slow. Suckers that were produced early in the growing season last year should by this time be large enough to take off. Some roots will in most cases have been formed at the base, and these must be preserved. Use no larger pots than is necessary to hold the suckers, putting them in singly. The soil used should be such as recommended for the established plants. If the pots can be plunged in a brisk bottom-heat, it will accelerate root-action. It is not necessary to keep the suckers close in any way, shading from the sun being all that is requisite. In the case of the stronger growers, if the pots are full of roots the plants may need moving into others a size larger later on in the summer.

TILLANDSIAS.—Like *Billbergias*, most of the *Tillandsias* require soil of an open nature that will allow the water to pass freely through it, as some of the species are epiphytal and do best in soil such as used for *Cattleyas* and other *Orchids* of a similar nature. Small-growing kinds, such as *T. Lindeni*, *T. splendens*, and the different forms of *T. zebrina*, should be confined to proportionately small pots, whilst the larger growers, such as *T. musaica*, require much more room. It is best to re-pot the plants before they start into growth, and as much of the old soil should be got away as can be done without injuring the roots. The weaker growers especially are spare rooters, and suffer severely from any breakage of their feeding fibres. *Tillandsias* are increased from suckers, which should be allowed to remain on the old plants until they have attained considerable size. By this, time is saved in getting young stock on, for though small suckers will root, they move slowly afterwards; whereas if attached to the plants they make double the progress. When strong, some of the suckers will have made roots, and, therefore, will feel less of the check received in separation. These may at once be put singly into from 3-inch to 6-inch pots, according to the kind and the size they have attained. Suckers that have no roots should have a few of the lower leaves removed and be put into pots just large enough to hold them. Give water sparingly until roots are formed, and if a bottom-heat of about 80° can be given them they will more quickly become established. *T. Lindeni*, the flowers of which are of a lovely shade of blue, is by far the most effective when the suckers are allowed to grow until the specimens consist of ten or a dozen growths, which, when all are in flower, are more telling than several small examples. When grown in this way larger pots must be given as required.

CELOSIA PYRAMIDALIS.—This is one of the best of all small-growing flowering plants either grouped with other things in warm conservatories, or stoves, or when the flowers are used in a cut state. There is one important matter which those who are about to commence growing this *Celosia* will do well to bear in mind, and that is, the necessity for procuring seed of a good strain that can be relied on to produce feathery flowers, bright and diversified in colour. The plant seeds sparingly, consequently that which is really good remains high priced, yet it is much the cheapest in the end, as when once plants of the right character are obtained by saving seed from the best, no further outlay is necessary. The flowers last a long time, but to keep up a supply to the end of the year, several sowings should be made. A little seed may be put in now; loose, open material, such as a mixture of sifted loam, leaf mould and sand, answers best, as when the time comes for potting off, the little plants can be moved without breaking their roots in the way that occurs when soil of a closer nature is used. Shallow boxes, or large seed-pans that will admit of the seed being sown thinly are the best, as then the seedlings do not get drawn in the manner that occurs when they are crowded. Cover the seeds

thinly, and stand in an intermediate or cool stove temperature.

PELARGONIUMS.—Plants of all the large-flowered section of Pelargoniums, and also the fancy kinds, should now have the requisite sticks put to them for support, but in no case use more than necessary to keep the branches from hanging about in a way that gives the plants a straggling appearance. Beyond this it is well not to lose sight of the fact that every stick that is put into the soil, even when thrust no deeper than necessary to keep it in position, breaks a number of roots, the loss of which is so much injury to the plants. The flowers will now be formed, and the roots will have filled the pots, so that manure water should be given regularly every week. Assistance of this kind is essential, as however rich the soil in which the plants have been potted was, it will by this time have lost much of its fertility, and unless this is made good by stimulants, the flowers will be wanting in size and quantity, while the bottom leaves will also turn yellow and die before the flowering is over. T. B.

TREES AND SHRUBS.

W. GOLDRING.

THE MYROBALAN, OR CHERRY PLUM.

(*PRUNUS CERASIFERA*.)

OF late years the Cherry Plum has become well known among planters, not so much as an ornamental tree as for its use as a hedge plant and for covert planting. A few years ago it was a good deal written about. Some even said it

when first planted and subsequently looking well to pruning, a hedge that would prevent a hare or rabbit from going through it will be formed in about three years. It must be

best Cherry Plum hedges I have seen is in Mr. Wilson's garden at Wisley. It was planted about eight years ago. It is now as tall as a man, and nobody would attempt to break



The Myrobalan Plum (*Prunus Myrobalana*), showing branch, fruit and flowers.

planted in the same way as Quick, viz., in a double row with the plants about a foot apart and alternating in the rows. In hungry soils some good rotten manure should be dug in

through it. Mr. Wilson has made his hedge highly ornamental, inasmuch as he has at intervals of about 10 feet or 12 feet allowed strong single stems to rise above the hedge and upon these he has grafted various sorts of Plums, and these spreading standards rising out of the hedge have a fine effect, and are moreover useful.

As a covert plant it has been planted largely on some estates, and I was told not long ago by a forester that it promises to turn out a most valuable covert, as it is dense and spreading in growth, and yet not too dense for winged game. As the plants can be bought by the thousand cheaply there is no reason why it should not be tried, especially in dry gravelly soils unfavourable for other covert shrubs.

The Cherry Plum is seldom planted for ornament, though it possesses considerable merit on account of its being one of the earliest of all trees to flower in spring. It bears a profusion of small white flowers, which are remarkably beautiful if they escape the late frosts. It is but a medium-sized tree even under the most favourable conditions of growth, and, like the common Plum, makes a compact spreading head. It does not fruit freely in this country, though in some seasons, when its blossoms have escaped the frosts, one may see an old tree with a scanty crop of its Cherry-like fruits of the size shown in the illustration. They are of a dull, reddish colour and astringent. The new *Prunus Pissardi*, now becoming so popular in gardens both large and small, is nothing more than a purple-leaved variety of the Cherry Plum; but as it is so distinct that no one would mistake the one for the other, it is convenient to keep to the name *Prunus Pissardi*, or Purple-leaved Cherry Plum. As this is a beautiful shrub when forced into bloom early there is no reason why the Cherry Plum itself should not be employed for a similar purpose. The Myrobalan is used also as a stock for the edible sorts of Plums.



The Myrobalan Plum (*Prunus Myrobalana*).

made the finest of all hedges, the result being that some nurserymen began to grow it on a large scale for hedges and coverts. Though it will perhaps never surpass the Hawthorn or Quick as a hedge plant, it is unquestionably well adapted for this purpose, and if planted properly and the soil suits it, a dense impenetrable growth results in a few seasons. It grows freely in the poorest of soils, which is a great recommendation to it, and if the young plants are managed properly by cutting them hard in

deeply. It is a good plan to cut the plants down almost to the ground after having been placed in position, and if well rooted they will the first year send up strong shoots, which if pruned back the following winter will, during the second season, make bushy specimens. I do not go so far as to say that it makes a more ornamental hedge than Quick, but the leaves are greener and altogether different, and this is very desirable when hedges form conspicuous objects in the landscape. One of the

Sequoia sempervirens.—Although that well-known Conifer, *Sequoia* (*Wellingtonia*) *gigantes*, is by no means so largely planted in this country as it was for some twenty years after its introduction, it still finds a great many admirers, who, whilst objecting to its extreme formality, are yet glad to have a Conifer that so rapidly assumes large proportions. I should like to call the attention of any

in this difficulty to the special merits of the tree named at the head of this note—*Sequoia sempervirens*, the Californian Redwood—either as a single specimen for a large lawn or as one of the trees that should always be included in the pinetum. I have occasionally met with specimens that have not seemed thoroughly at home, but given a suitable soil and situation, *Sequoia sempervirens* (introduced by Hartweg in 1846) grows with wonderful rapidity, and forms a very handsome tree. Where the plant is in good health the growth is dense. The particular specimen in the grounds here was planted in 1848, and is now 70 feet high, and from its general appearance is likely to attain very large dimensions. I shall be glad if any tree-loving readers can give some idea where similar specimens are to be found in England.—E. BURRELL, *Claremont*.

Calceolaria violacea.—A large-sized bush of this grew for years in the gardens at Ravensdale Park, Co. Louth. The position of these gardens is elevated (several hundred feet). The plant grew at the foot of a south-east wall, and was further protected by big bushes of *Eugenia apiculata* and similar things to right and left of it; it bloomed freely every season; the soil being ordinary granitic loam. There is a good plant at Narrowwater, Co. Down, growing in a well-sheltered hollow with a southern exposure; this garden is about a mile from the sea. I have never seen *C. hyssopifolia* come safely through the winter outside.—T. SMITH.

Spiræa Bumalda.—Among all the shrubby *Spiræas* there is not a neater and brighter little bush than this, which has only of late years become known in this country. It is very dwarf, the full height not exceeding 15 inches or 18 inches, and its slender stems make a dense mass, almost every one being in summer tipped with a flat cluster of tiny carmine flowers, reminding one of the *atrosanguinea* variety of *S. callosa*. It is sure to become a popular hardy shrub, and already it has been planted largely. Mr. Anthony Waterer for one believes in it, so that one may be sure it is a good thing. As an edging to masses and larger shrubs it is useful, but it is beautiful anywhere. It is a Japanese plant, and probably one of the several varieties of *S. callosa*.—G.

The Kentucky Coffee Tree (*Gymnocladus canadensis*).—Mr. Burrell alludes to the rarity of this and other fine North American trees, which are to be found only in old places. Nurserymen now-a-days tell us that it does not pay them to keep trees they are so rarely asked for. It is not the fault of the nurserymen, but of those who are responsible for much of the tree planting done in the country. Many indeed would be admirers of this and other trees did they but have the opportunity of seeing them in their gardens. In spite of all that is written about their beauties, planters seem content to go on putting in the trees that form the common stock of most tree nurseries. I have lately tried to get a good specimen of *Gymnocladus*, but it was not even known in the nursery, though a large one.—W. G.

Albert's Spruce and Cryptomeria.—I saw recently in Mr. John Waterer's nursery at Bagshot one of the most effective accidental combinations of Conifers that I have yet met with. A plantation of young trees of *Abies Albertiana* of different heights, ranging from 6 feet to 20 feet, had in front of it a mass of about a dozen large specimens of *Cryptomeria elegans*, whose winter foliage is of the brightest coppery hue. The contrast of the deep green of the pyramidal Spruce and the bright colour of the conical *Cryptomeria* as seen by the slanting rays of the late afternoon sun, impressed me greatly. The mixture was, of course, purely accidental, but it showed what beautiful landscape effects can be produced by the association of these two Conifers. I mean to give effect to the idea this spring.—W. G.

Abele Poplar.—I observe that Mr. J. B. Webster in *THE GARDEN*, March 10 (p. 232), recommends this tree for poor sandy soils. Last summer, when even the Sycamore and Beech lost their leaves from drought and the dry sand here was like dust, this tree remained as green and fresh as ever. It is also a very orna-

mental tree when the lower branches are allowed to grow.—NORTH-WEST CHESHIRE.

The early Honeysuckles (*Lonicera fragrantissima* and *L. Standishi*) are generally in bloom before this date, but the cold weather prevented them flowering in February. On sunny walls and even in snug shrubberies they are delightfully in bloom; their flowers, though modest, shed a delicious fragrance around, and in this still flowerless time are enjoyable. These two Honeysuckles are a good deal alike; so much so, in fact, that one is apt to confuse them. They are like twins whose distinguishing features are only discernible to those who are familiar with them. In botanical language one would describe the leaves of *L. fragrantissima* as oblong-obovate, acute, and nearly glabrous (smooth); while those of *L. Standishi* are ovate-oblong and ciliate (hairy). Both have small ivory-white flowers, produced in pairs on the branches, which are yet unclothed with new leaves, though a few of those of last year still hang on. Both come from China, and, though perfectly hardy, are always more satisfactory when planted against a sunny wall. I should plant one close to the windows, so that a whiff of their fragrance can be had when the windows are thrown open on sunny days. Both these Honeysuckles grow about 6 feet high, and as they make only a thin covering for a wall, one might mingle with them a plant of the yellow Jasmine (*Jasminum nudiflorum*). These go well together both in growth and colour.—W. G.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

MARCH 13.

THE career of the Royal Horticultural Society at South Kensington has virtually ended, but reminiscences of the many pleasant gatherings that have taken place in the spacious conservatory will remain. The last of the meetings of the floral and fruit committees to be held in the old quarters was that of Tuesday, when there was again a creditable show, though there were few to see it. Daffodils made a brave display of colour, as two large banks of these were staged, the Trumpet section predominating. Hardy flowers of choice kinds were also a feature, and, in spite of the keen, biting wind, there were numerous Orchids and other hothouse subjects.

First-class certificates were given to the following:—

SAXIFRAGA FREDERICI AUGUSTI.—If this is not a variety of *S. sancta*, it bears an affinity to that spring-blooming Saxifrage, though there can be no question as to its distinctness. It is far more free-flowering, the mat-like growth is less dense and also slightly encrusted, and it is earlier in bloom. The flowers quite hide the tufted growth, and are borne in a close corymb of from five to seven on a peduncle rising about 2½ inches. The colour is sulphur-yellow and the anthers golden—a cheerful contrast of two decided hues. It is a capital kind for pots, and scarcely before January is out makes a creditable display in the rock garden. From Messrs. Paul and Son, Broxbourne.

VIOLET THE BRIDE.—The great advantage of this variety seems to be that it continues in bloom all through the winter, but the flowers lack that delicious sweet fragrance that makes the common wayside Violet so great a favourite. The plant is a compact grower, the foliage dense, deep green, and shows off the pure whiteness of the medium-sized single flowers, which stand up well, so that they can be easily gathered if required. It has many good points, and those who appreciate white single Violets will possibly consider it an acquisition. From Messrs. Veitch and Sons, Chelsea.

UTRICULARIA RHYTEROPHYLLA.—Such a lovely Bladderwort as this ought to bring these flowers into a popularity that they have not hitherto enjoyed. It is not brilliantly showy, but has a quiet beauty specially inviting, and a few specimens in the plant house would make a most attractive feature. The plant was in a basket, and had comparatively few narrow pale green leaves, forming a tufted mass

from which appears the slender, graceful spike, bearing towards the apex a few finely-coloured violet flowers. The lower lip measures over an inch across and is undulated, the upper one being much smaller. A relief to the violet is the rich yellow blotch on the palate, or kind of raised crest such as we find in the common Snapdragon. The spur is whitish, and the flower has a slight fragrance. From Sir Trevor Lawrence, Dorking.

Hardy flowers are now asserting themselves in the garden, and a silver medal was given to Mr. T. S. Ware, of Tottenham, for his excellent display of Daffodils and other things of interest. Amongst the Narcissi the following were noticeable: *Albicans*, a beautiful variety in the way of *moschatus*, the flowers drooping, pale sulphur changing to white; single *Jonquil*, with a fragrance as enjoyable and powerful as that of the *Stephanotis*; *N. incomparabilis* Sir Watkin, a bold, massive, richly-coloured flower; *N. cernuus* Bishop Mann, like *albicans*, but more drooping and with a shorter trumpet; and *N. spurius coronatus*, a very handsome and telling flower of decided colour.

Messrs. Paul and Son, Broxbourne, had several uncommon alpine, such as *Saxifraga oppositifolia* *superba pyrenaica*, a plant that scarcely rises above an inch, the dense, spreading growth studded with large bright rose-purple flowers about the size of a halfpenny. *S. o. major* is smaller in all its parts, but must take its place amongst choice alpine for the rock garden. *S. Burseriana* is always welcome, and was especially well shown, and a word must be said for the dense, close-growing *S. hypnoides* *variegata*, the leaves distinctly variegated. Hardy *Cyclamens* look well in pans, as they are now generally shown, and in this collection were *Cyclamen coum zonale*, brilliant rose-purple, the leaves having a zone of greyish green; also *C. Atkinsi* roseum, *Galanthus* *Shallocki*, recently described in *THE GARDEN*; *Leucojum carpathicum*, *L. vernum*, and the interesting *Drabacnœtica*, the leaves forming a cheerful green rosette, tipped with a bunch of *Onosma taurica*-like flowers. A bronze medal was given.

A similar award was made to Messrs. Barr & Sons, who had a large display of Daffodils, including such gems as the white *N. triandrus albus*, or, as it is popularly called, *Angel's Tears*; the diminutive, but pretty *N. minimus*; *N. Golden Spur*, a showy Trumpet Daffodil; William Goldring, a drooping white flower of great beauty; the popular bicolor *Empress*, than which there are few better; and William Wilks, a handsome flower, the trumpet short and rich yellow, the segments white.

Messrs. Veitch, of Chelsea, had a small group, for which a Banksian medal was given. Several specimens of an *Azalea* of the ponticum race, named *altaclarensis*, were shown, each branch tipped with a cluster of large, bright yellow, sweetly-scented flowers shaded with orange. It would only require a few such plants to render the greenhouse gay. A curiosity is *Trillium discolor atratum*, the deep crimson-maroon flowers showing well in the setting of three variegated leaves. *Primula obconica* was represented by a basketful of plants one mass of delicate lilac flowers; and there were examples of *Boronia heterophylla*, a plant of delightful appearance, the brilliant carmine-red flowers showing with exceeding brightness through the narrow pale green foliage. There were several plants of *Aucuba japonica fructu-albo*, a variety with creamy-white berries, occasionally tinged with pink; but it is far less effective than the red-berried kind, and has no ornamental value; and of *Rhododendron Early Gem*, which is, judging from specimens shown, an exceptionally useful variety; they were covered with rose-pink flowers that appear just above the deep green glossy foliage.

There were a few Roses, and Messrs. Paul and Son showed a variety named *Lady Alice*, a sport from *Lady Mary Fitzwilliam*. This bears a great resemblance to the type, but the flowers are more globular, and the colour is not so deep, the petals well formed, and shading to almost flesh colour; the fragrance is also delicate. Another new Rose of a kind that we might see more of is one called *Red Pet*, belonging to the *China Fairy* group. The

plant makes a neat bush with abundant foliage, and the flowers, by reason of their neatness, fulness, and rich deep crimson colour, together with their long stalks, are most excellent for cutting. Mr. Crook, of Farnboro' Grange, Hants, had cut blooms of the richly apricot-coloured variety, W. Allen Richardson, Fortune's Yellow, buff, shaded with carmine; Niphotos, and Rêve d'Or. Also exhibited by the same grower were a good form of *Primula obconica*, the beautiful *Rhododendron Lady Fitzwilliam*, *Tremandra ericæfolia*, the slender stems wreathed with lilac flowers, and the old, but handsome, *Fuchsia Dominiana*.

There are not many flowers that can exceed the beauty of those of the old, but seldom seen, *Beaumontia grandiflora*, and those shown by Mr. Anning were an example of skilful culture. The plant from which these had been gathered is grown in a pot in the East Indian Orchid house, and has borne upwards of 450 flowers. These are of fine texture, white, deliciously, but rather too powerfully fragrant, and borne from five to seven in a bunch. Messrs. R. Veitch and Son, Exeter, sent pot plants of *Tecophylæa cyanocrocus* and also seedlings, but these had not the deep lustrous blue—like that of *Tillandsia Lindenii*—of the type. They were of various shades of blue, one named T. Leichtlini being about the best, the *Crocus*-like flowers blue, with the lower half of the segments white. It must be a fine flower to surpass the richness of colour seen in the type, but it is worth while trying to raise a race of new forms, as the *Tecophylæa* is a lovely thing. A seedling *Rhododendron* in the way of R. Edgeworthi was shown by Mr. J. W. Machattie, Dalkeith, the flowers produced in a dense cluster and yellowish in colour.

ORCHIDS were an interesting feature. Sir Trevor Lawrence, Bart., sent several kinds, including the following: *Angræcum Saudeianum*, a useful addition to the genus, as it is most free-flowering, the small plant shown bearing several racemes of the long-spurred pure white flowers, these thickly set and in bold contrast to the glossy leafage. *Cœlogyne sparsa* is a free-blooming kind, apparently of the ocellata section; it is very free, the flowers white save a horse-shoe-shaped ring of yellow on the lip, and crowded amongst the abundant leafage. *Phaius tuberculatus superbus* is a magnificent form of a handsome Madagascar Orchid; it bears a larger flower than that of the type, and has a splendid open lip, brilliantly coloured with rich, lustrous brown veined with orange, the front portion crested, and the disc enriched with a raised orange crest; the white sepals and petals intensify the vividness of the spoon-shaped labellum. A group of *Odontoglossums* came from Mr. Jacob, Stamford Hill, and comprised forms of *O. Alexandra*, an Orchid that varies greatly, and we have now so many excellent forms that it must be a really good thing to deserve special distinction. One named May's variety was of robust character, the flower massive creamy white, the lip sparsely spotted with crimson, and another suffused with rose was also noteworthy. From Mr. Cowley, gardener to Mr. F. G. Tautz, Studley House, Hammersmith, came three varieties of *Cypripedium*, comprising *C. Dauthieri marmoratum*, the dorsal sepal striped with green and brown, the lip and petals being of the latter colour and also yellow; *C. Measuresianum* has an orange-yellow lip, brown and yellow petals, and a greenish dorsal sepal, margined with white. The great character of *C. Harrisianum vivicans* is the peculiar polished appearance of the flowers; the rich brown lip is quite shiny, also the sepals and petals. All these Lady's Slippers are rare and beautiful, and worth a place in collections. Two fine spikes of *Cyrtopodium Saintelegierianum* were sent by Mr. G. W. Cummins, gardener to Mr. A. H. Smee, The Grange, Wallington. They were remarkably robust and good varieties, the flowers brilliantly coloured and making a great show. The sepals are barred with brown on a yellow ground, and the petals are wholly of a rich shade of the latter colour, the lobes of the lip being dull crimson at the lower half, the other portion yellow, and the margin frilled. From the same exhibitor also

Came a small plant of *Cœlogyne cristata* (Hackbridge var.) bearing a large bold flower, clear white, except the yellow frilling in the throat of the lip. A choice exhibit was that of Mr. H. M. Pollett, Fernside, Bickley, who showed a well-flowered specimen of that gem of all *Odontoglossums*, *O. blandum*. It had seven dense racemes, and is not very often seen in such first-class condition. The individual flowers are small, but extremely pretty, as the narrow sepals and petals are creamy white, spotted here and there with crimson; the lip also of the same colour, with the crest yellow. *O. crispum rubro-maculatum* also came from Mr. Pollett. This plant bore a raceme of three or four flowers, conspicuous for the boldness of their markings; the form is good, and the sepals and petals richly blotched with brown on a white ground.

A very fine specimen of *Dendrobium Wardianum* Lowi—a form of this popular Orchid, but showing no great difference from the type—was exhibited by Mr. D. East, gardener to Mr. F. Wigan, Clare Lawn, East Sheen. The plant was well grown and a mass of brightly coloured flowers; indeed, *D. Wardianum*, if seen in anything like good condition, is the finest of all *Dendrobiums*. A good example of *Dendrobium Cooksoni* (Greenlands variety) was shown by Mr. H. Perkins, The Gardens, Greenlands, Henley-on-Thames. It is much like the ordinary type, but the flowers seem to have a more drooping character, which detracts rather than adds to their beauty. A small plant of *Lycaste plana*—a fairly showy species—was sent by Mr. G. C. Raphael, Castle Hill, Englefield Green.

Fruit committee.—There were few fruit exhibits. Mr. John Crook, Farnborough Grange Gardens, Hants, showed a small collection of Apples, comprising excellent fruits of the delicious Cox's Orange Pippin, Lord Burghley, Besspool (highly coloured), Flanders Pippin, Blenheim Orange, Ribston Pippin, King of the Pippins, and Keddlestone Pippin, a small, neat, yellow fruit of good quality, and also bunches of Lady Downe's Grape from Vines that had been grafted on the Cannon Hall variety. The berries were large, firm, and well coloured. Mr. Divers, The Gardens, Wierton House, Maidstone, contributed good fruits of Knight's Monarch from bush tree grafted on Pear stock, Catillac, and Chaumontel Pears; and Apples Cellini, Northern Greening, Cheshunt Pippin, Ribston, Blenheim, King of the Pippins, and Winter Quoining. Mr. Hudson, The Gardens, Gunnersbury House, had a dish of excellent fruits of the Golden Noble Apple to show its useful keeping qualities. The neat handsome appearance and clear yellow colour of this fruit should make it a great favourite, especially as it keeps so well.

Council meeting.—A meeting of the council was held on Tuesday last, when the privileges to be given to the Fellows according to the rate of their subscription were finally settled. Nominations were received of thirty-six new Fellows. The council interviewed several of the candidates for the assistant secretaryship, and appointed Mr. Charles J. Grahame, of Coombe Road, Croydon, and late of the Stock Exchange. The agreement for the premises, 111, Victoria Street, was finally adopted, and the seal of the society was ordered to be attached to it. Sir Trevor Lawrence, Professor Thistleton Dyer, Dr. Masters, and Mr. Veitch were appointed a deputation to wait on the Lord Mayor with reference to the projected show in the City of London this year. The by-laws, as altered and amended by the sub-committee, were ordered to be printed and circulated before being presented for adoption. The following gentlemen were requested to act as an exhibition committee to draw up a programme for the present year, viz., Messrs. G. Bunyard, Barron, Douglas, Haywood, Laing, G. Paul, Rivers, Turner, Veitch, Walker, and Wildsmith, with power to add to their number. The council will meet again on Tuesday, March 20.

The employees of the Royal Horticultural Society.—It has been suggested that the occasion of vacating the South Kensington premises by the Royal Horticultural Society is one that should be

taken advantage of to invite the *employés* of the society at South Kensington and Chiswick to an entertainment, by way of expressing some sense of the uniform courtesy and attention they have at all times shown towards exhibitors, members of the committees and others. Those employed at South Kensington in a subordinate capacity have to leave the service of the society consequent upon a change of home, and it is rumoured that the *employés* at Chiswick may have notice to leave, although the order may not be enforced at present. Before they are dispersed, it is thought they should be invited to a supper; and I shall be very pleased to receive the names of gentlemen who would be willing to co-operate by forming themselves into a committee to carry the proposal into effect.—RICHARD DEAN, Ranelagh Road, Ealing, W.

NOTES OF THE WEEK.

Mr. Frank Miles.—Some of the "society" and other papers having inserted reports of the death of Mr. Frank Miles (who has been very ill for some time), we are authorised to state that there is no foundation for them.

Specimen Eucharis.—I have a bed of *Eucharis amazonica* 40 feet by 4 feet, and there are 333 spikes, one having ten flowers, another nine, and a few bear eight blooms. The average number of flowers on the spike is seven. The plants have not been rested or moved for five years and are in excellent health, the flowers being about 5 inches across.—W.

A pretty combination, one of the most pleasing I have seen this year in the open air, is that produced by the blue *Scilla bifolia* and the Spring Snowflake (*Leucojum vernum*). A mass of these intermixed covering some three or four square yards may now be seen in the rock garden at Kew. The Snowflake bells just over-top the Squill and the colour effect is charming. Snowdrops and *Narcissus minor* go well together and flower at the same time in some seasons.—W. G.

Eupatorium atropurpureum is the name by which this Mexican plant is now known at Kew. It is probably best known under its synonym *Hebeclinium*. It is a first-rate plant for the greenhouse at this season, being of bold habit and showy in bloom. It has large leaves and a stem rising some 2 feet high, carrying a widely-branched cluster of flower-heads of purple-lilac, while the flower-stalks are enriched with a velvet-like covering of deep crimson-red. It is easily grown, and one that we might go so far as to say is indispensable for the greenhouse in spring. A group of fine plants in the No. 4 house at Kew has a very fine effect.

Dendrobium Brymerianum.—A very fine form of this handsome Orchid was recently in bloom at the Chelsea Nursery of Messrs. Veitch. The plant was in a small basket and bore three large flowers, having the sepals and petals of a rich shining orange-yellow colour, such as we find in few other Orchids. But the colour was not the great feature in this form; it was the splendidly developed lip, which resembles an example of delicate lace-work. It was lengthened out considerably, the upper part being orange and finely quilled, and the front portion like a mass of fine rootlets, the whole of the same brilliant colouring.

Snowdrops are the flowers of the season, and, together with the *Crocuses*, make bright patches of colour on the rockery and border. At Kew there are several beds of Snowdrops near the herbaceous ground, and these heralders of spring and the tufted Winter Aconite peep up through the Grass on the mound near the Cumberland Gate. In this piece of wild garden there are the common *Galanthus nivalis* and *G. Elwesii*, the flowers of the former being almost as large as those of the latter, but the bolder, wider, and more drooping segments of *G. Elwesii* are the most conspicuous. In a large batch it is noticeable how the segments of some of the flowers of this species turn back, as in *Narcissus cyclamineus*; and there were also one or two double forms, but these we can only regard as ugly monstrosities. There are also the major form of *G. Elwesii* and *Imperati*, plicatus, and other kinds, amongst which was one known as *G. poculiformis*, a dwarf Snowdrop, the flowers of the purest white, devoid of the arched inner segments, and with several rich

golden anthers seated at the very base of the bloom. It is a dainty flower, more like a small white Crocus than anything we can compare it to.

A variegated Camellia that may be noted as a useful thing is one known as *C. albo-marginata*, the mottling of green and creamy white having a bright effect, especially when there are several specimens in a house. In the Rose house at Gunnersbury Park there are two or three small plants, each bearing a single red flower of fair size and substance, but the foliage is what this Camellia is most valued for. Mr. Roberts intends to plant it round the central bed, composed chiefly of Camellias, and no doubt it will make a fine show in contrast with the green-leaved varieties. A large specimen must be a handsome object, but unfortunately it does not do well in pots.

Phajus grandifolius is a noble Orchid that is far too seldom seen, considering its striking beauty when grown into a large specimen. It is evergreen in character, and has bold, Curculigo-like leaves, vigorous, abundant, and handsome, from amongst which the tall flower-spikes appear, each bearing several finely-coloured blooms. The sepals and petals are pale brown, the reverse side white, and the tubular lip is coloured with rich mauve-pink at the front, this bright colouring giving great beauty to the flower. It blooms well in a small state, is easily grown in a cool house, and is valuable at this season when even Orchid flowers are none too plentiful. A very large specimen is at the present time a feature in the Chelsea Nursery of Messrs. Veitch.

Dietes Huttoni.—This rare plant, now in flower in the Cape house at Kew, is quite as beautiful in its way as the commoner *D. bicolor*, which has showy white and purple flowers as large as those of *Iris levigata*. *D. Huttoni* has such narrow, erect, incurved foliage, as to be almost Rush-like. The flowers are as large as those of *Iris pseud-acorus*, the common native Flag, and not unlike them in shape. The colour is a soft lemon-yellow, with the outer petals conspicuously speckled at their bases with black. It is, we believe, a South African bulb, and as it flowers in the latter part of our winter, it would be desirable to have it imported in quantity.—W. G.

Sparmannia africana.—This is a handsome and unfamiliar conservatory plant, now a mass of flowers where it has been grown with skill. There are two or three large standards at Gunnersbury House, and it is the practice of Mr. Hudson to cut them back every spring after the flowering season is over, and place them out of doors for the summer. The starvation treatment seems to be the best to secure plenty of bloom. The plants in the conservatory at Gunnersbury House are loaded with the beautiful and distinctly-shaped flowers, pure white, save the mass of golden and crimson anthers. The leaves are not very large, but this is no fault, as very often rank foliage is produced at the expense of bloom. A few specimens are very useful at this season for cutting from.

Rhododendron Early Gem.—Truly early and quite a gem is this little shrub, which is one of the flowers of the week, for even out of doors it is blooming in London gardens. It is earlier than the Daurian *Rhododendron* (*R. dahuricum*) when grown side by side, and blooms about the same time as *R. præcox*. It is said to be a hybrid between the latter species and the evergreen variety of *R. dahuricum* named *atrovirens* or *sempervirens*. Its habit of growth is dwarf and compact, and the flowers, which are large for the size of the bush, are of a bright rosy purple colour, and are, moreover, produced abundantly. With very little forcing it may be had in bloom by the beginning of the year, but the flowers are always larger and brighter if they expand when the days lengthen. It is invaluable for the greenhouse, for though the peculiar tint of colour of this and *R. dahuricum* is not admired by some people, if intermixed with white flowers or colours that blend with it some pretty colour effects may be produced. The old and well-known *R. dahuricum*, which has been a favourite in gardens for over a century, is in flower out of doors in many warm spots, though the cold winds of the past fortnight

have seared the tender buds. The flowers always open best and last in beauty longest if the bush is under a thin shelter of other growth, as this is sufficient to ward off frosts. It grows wild in the Siberian woods of Pine and other trees; therefore, shelter is natural to it.

A beautiful wild garden.—Herewith I send you a sketch of *Cyclamen coum* growing on a bank amongst the Grass intermixed with Snowdrops. At this early season of the year their bright warm tints in contrast with the rich green leaves nestling in the Grass form a most pretty picture. They are growing on a slope in a south aspect, with a background of trees and shrubs, and are the result of a few corms planted here some eighteen years since. They have reproduced themselves from seed and increased until they now cover the greater part of the bank, and during all those years have never had the slightest attention. They have been quite gay for the last month, notwithstanding severe frost and snow. We have them growing in a variety of positions, but none look so happy as these amongst the Grass.—R. GILL, *Tremough, Cornwall*.

A very pretty sketch, showing a lovely example of true wild gardening.—ED.

Lycaste Skinneri.—Mr. F. G. Tautz, Studley House, Shepherd's Bush, has sent us some very fine forms of this grand Orchid, which, as is well known, varies greatly in the depth of its crimson colouring and massiveness. One of the flowers received was that of the variety *Imperator*, which shows an advance over others; the flower is not only very striking by reason of its substance and size, but has the two petals vividly coloured with crimson; the other flowers were from plants of *L. S. Imperator leucoglossa* and *L. S. Cowleyana*, both showing how important the *Lycaste Skinneri* race is becoming, as in both forms we have fine colouring in the petals, while the flowers have a robust character specially commendable. Amongst the hundreds of Orchids there are in cultivation we should have to go far and wide to meet with such handsome flowers as those of *Lycaste Skinneri* and its lovely progeny. Their very appearance denotes an excellent use for them, viz., cut flowers for the drawing-room.

Cypripedium Rothschildianum.—A Lady's Slipper of the quality of this one does not appear every day, and we may expect *C. Rothschildianum* to have a leading place in the genus which it represents. It is one of the importations of Mr. Sander, St. Albans, and a plant in his nursery was recently carrying a spike with about three flowers, the character of which is novel. The lip is like that of *C. Stonei*, but deeper in colour, and the column is covered with a fur of bluish grey so as to give to it a peculiarly powdered appearance; the broad, rigid petals stand at almost right angles and are yellow in the centre passing to almost pale lilac at the margins; the dorsal sepal has the same rigid expression as the petals and is very symmetrical, the marking resembling that seen in *C. Sanderianum*, with the difference that there is a band of pale purple down the middle. The foliage is broad and the plant robust in habit.

Market garden notes.—The unusually prolonged spell of hard weather which closed February and opened the present month proved very harmful to labour, for a general cessation from work in the market gardens was almost universal. I have rarely seen at the beginning of March—usually a very busy month—such stagnation as was seen this year. It is true we have had otherwise a very open winter, and being also so dry, work had been continuous and the soil largely prepared. The recent hard weather has been in many districts accompanied by heavy falls of snow, which in thawing may have helped to moisten the soil, but here snow has fallen thinly, and has disappeared almost as soon as it fell. Thus the earth is, in consequence of the harsh winds which have prevailed, even drier than usual, but not baked, because we have had no rain to saturate the soil. The wind has, however, seriously crippled or withered vegetation, and especially has all the Cabbage tribe suffered. Very possibly a return to soft weather may bring with it some renewed

vigour in the green crops, but at the present moment they look bad enough. As a result, there is little to send to market, but nevertheless manure is being brought home liberally. Some of our large market growers draw from 1000 tons to 1500 tons of manure during the year, and also purchase large quantities from other sources besides making hundreds of tons at home. The soil is, as a rule, as heavily dressed as is that of our best private gardens, but the deep cultivation is lacking, as deep ploughing, or even subsoiling, is but an indifferent operation when compared with deep trenching. Generally, because the soil is indifferently worked, the rich stores of nutriment in the subsoil are not tapped as they should be.—A. D.

The Chrysanthemum Annual.—This useful annual appears in an enlarged form this year, and contains trite articles from able pens on the various phases of Chrysanthemum culture, besides general information of a kind most acceptable to the ardent grower of this gay winter flower, now in the zenith of its popularity. A feature is an excellent likeness of Mr. Saunderson, the president, and Mr. Holmes, the hon. secretary of the National Chrysanthemum Society, and the history of this flourishing body will prove interesting reading to many. Accounts of Chrysanthemums in the north, midland and south-western counties show the cosmopolitan character of the book, and a list of varieties certificated between 1859 and 1887 is invaluable, as testifying to the progress of the flower. It is a cheap shilling's-worth to all who take a keen interest in the Chrysanthemum. It is edited by Lewis Castle, and can be obtained at 171, Fleet Street, London.

BOOKS RECEIVED.

"Bulletin of Miscellaneous Information of the Royal Gardens, Kew." No. 15.

Papers read before the members of the Preston and Fulwood Horticultural Society.

"How to Make the Most of the Land." By Sampson Morgan.

"How to Grow and What to Grow in a Kitchen Garden." By E. D. Darlington and L. M. Moll. Published by W. Atlee Burpee & Co., Fifth Street, Philadelphia.

"The Flora of West Yorkshire, with a Sketch of the Climatology and Lithology in Connection therewith." By F. Arnold Lees. London: L. Reeve & Co., Henrietta Street, Covent Garden.

Book wanted.—Would you kindly inform me if there is a good work published on the Auricula?—W. T. G.

Ferns for case.—Will any reader give a list of, say, twenty fine-leaved Ferns which are hardy, but not deciduous, and suitable for a Fern case looking east?—G. R. R.

Tufted Pansies.—In answer to "Subscriber" in THE GARDEN, March 10 (p. 231), no doubt seeds of good white, yellow, and blue kinds could be got, but as they do not come true from seeds, no dependence could be placed on that method from a 5s. packet of either colour. "Subscriber" might perhaps obtain one plant that came up to his idea of what a good kind should be. He could propagate that one, and in course of years he would have sufficient to plant his border. Can he wait?—T. SMITH.

Names of plants.—*H. W. H.*—1, *Lastrea patens*; 2, *Cibotium princeps*; 3, *Blechnum latifolium*; 4, *Adiantum Ghiesbreghtii*; 5, *Microlepia hirta cristata*.—*T. T.*—1, *Adiantum Pacottii*; 2, *Asplenium pulchellum*; 3, *Adiantum fulvum*; 4, *Lycopodium dendroideum*.—*G. T. W.*—1, *Leucopogon lanceolata*; 2, *Asparagus decumbens*.—*Mand.*—1, *Selaginella Kraussiana*; 2, *Phlebodium sporocarpium*.—*W. B.*—1, *Epiphyllum Russellianum*; 2, *Dendrobium amulum*; 3, *D. moniliforme*.—*Casarea.*—*Oncidium Cavendishianum*; the other is *Rodriguesia crispa*.—*G. Gough.*—1, *Odontoglossum triumphans*, and a very good form; 2, same kind, and the *Dendrobium* is *D. Wardianum*.—*Seed in small box.*—*Physostigma venosum*, the Ordeal Bean of Old Calabar. —*Aylsham.*—*Leucojum carpathicum*.—*Anon.*—1, *Polemonium ceruleum*; 2, Cinnamon plant (*Cinnamomum zeylanicum*); 3, *Pteris longifolia*; 4, *Adiantum Sanctæ Catherinae*.

Names of fruit.—*Henry Parker.*—Apples, 1, not recognised; 2, Wellington.

WOODS & FORESTS.

FORESTRY.

THE past exceptionally dry, warm summer has been favourable to the increase and development of various species of insects destructive to the health and growth of forest and ornamental trees. In order, then, to lessen the number of these pests, the woods and plantations should be examined at this season of the year, and all dead and dying trees cut down and removed, thus depriving the insects of their favourite breeding ground, and enabling the wood to be sold or turned to account before it gets damaged to any serious extent by rot. In cases, however, where the wood cannot be sold or used at the time on the estate, the trees had better be dragged to the roads and the bark carefully removed from the trunks in order to prevent wood-boring beetles from depositing their eggs. When branches and dead wood cannot be sold for firewood or turned to account in some other way, they had better be collected and burned, because they are not only favourable to the increase of insects, but also retard and check the growth of young trees. Wood ashes is a very safe and valuable manure, and may be used with advantage for a great variety of purposes. In a paper before me it is stated that wood ashes contain all the required elements of plant nutrition except nitrogen. "100 lbs. of wood ashes contain 16 lbs. of potash, 3½ lbs. of soda, 67 lbs. of lime and magnesia, and 5½ lbs. of phosphoric acid." A great many insects are already on the move, and the sooner that branches and rubbish lying about in plantations are gathered and burned the better. That little active bird, the woodpecker, now appears to be very busy searching the trunks and branches of dying trees for the insects on which it feeds. Although the bird is but small in size, yet it is one of the most efficient assistants the forester has, and should, therefore, be protected in every way possible. Gamekeepers in particular should protect them during the breeding season, and try as far as possible to prevent the destruction of their nests. In addition to the removal of dead timber, all clumps of shrubs and underwood planted for covert should be overhauled by cutting away dead wood, removing dead plants, and having the empty spaces planted with fresh stuff from the nursery. The pruning of shrubs can now be prosecuted without risk of damage by long-standing, severe frosts; consequently covert plants that are getting too high should be cut back and trimmed in such a way that sportsmen can have no difficulty in shooting over them. In the formation of new groups of covert plants, preference should be given as far as possible to such species as are not liable to be eaten over and peeled by hares and rabbits, and in this respect *Rhododendrons* may be said to stand at the top of the list. It is sometimes desirable to plant clumps of shrubs in open places where they can be seen from the principal woodland drives, and, in doing so, some of the best hybrid *Rhododendrons* may be used, as well as *Kalmia latifolia*, which I have grown for many years as an ornamental covert plant where vermin was plentiful, and have never seen it peeled or molested in any way. Rich, boggy soil, free from lime, is most suitable for both species. The Spurge Laurel (*Daphne Laureola*) is another hardy evergreen covert shrub that is never attacked by hares and rabbits, and is quite at home under the shade of trees as well as in open, exposed places. It is not particular as to soil, and in dry, shady places it reproduces itself, even in cases where the surface is covered with the fallen spines of the

Scotch Fir. The Holly-leaved Mahonia (*M. Aquifolium*) is another rabbit-proof covert plant, and being an Evergreen is well adapted for that purpose. It is quite hardy or nearly so—at all events I have planted it with success at an elevation of about 900 feet above sea level. I may, however, state that I have had the plants occasionally damaged during severe winter weather, but they always recovered in spring.

M. japonica is another excellent evergreen shrub for ornamental covert. I have used it as such for a number of years, and it is almost proof against the attacks of rabbits and hares. It thrives on any average soil, including Moss, and may be planted with success in shady places, more especially where the site is screened from the strong noonday sun. It flowers and fruits early, and is then very attractive. As soon as the berries are ripe, the seeds should be sown, choosing a piece of sandy or mossy ground for the purpose. During severe winter weather the young plants had better be protected by a few Fir branches. *M. Darwini* may be propagated in the same way, and the plants used for the same purpose as the above. Bare rocky places that are seen from the drives may be improved in appearance by planting the *Gaultheria Shallon* on the ledges, shelving cliffs and pockets of the rock. *G. procumbens* might also be introduced in some cases with advantage. Both are quite hardy and thrive under the shade of trees. The common Ivy, including the purple-leaved variety, which changes to a bronzy colour in autumn and winter, may be introduced here with advantage. The following may likewise be planted in suitable places: *Periwinkles* of sorts, Sweet Brier, *Cotoneaster microphylla*, *Crowberry* (*Empetrum nigrum*), *Honeysuckles* of sorts, Box tree, Butcher's Broom of sorts, double-flowering Whin. In places where it is desirable to introduce the common Whin, the seeds had better be sown on the spot. It is a useful and highly ornamental plant, and capable of forming a very efficient hedge. The young shoots when bruised and prepared are very nutritious for feeding horses. In planting bare rocky places it is sometimes necessary to add a little fresh soil where the plants are inserted. Plants for such a purpose should always be prepared in a home nursery, by which means they can be planted fresh from the ground without exposing the roots for any length of time, which is a matter of much importance in attaining success.

J. B. WEBSTER.

Trees in Ireland.—The silly tinkering with Ireland still goes on, wasting time in special legislation instead of unifying and simplifying the laws. This is what we read for the whole country:—

The Chief Secretary for Ireland has introduced a Bill for conferring upon every tenant of a holding with a statutory term under the Land Act of 1881 the same rights and privileges as are conferred by the Timber Acts on tenants for years exceeding 14 unexpired. These Timber Acts are six in number, which were passed between the years 1735 and 1783, for encouraging the planting and better preservation of timber trees in Ireland. The Acts are also extended by the Bill, so as to include fruit trees. Mr. Nolan, M.P., has also introduced a Bill on the same subject. This would also confer the rights and privileges of some of these Timber Acts on such statutory tenants, as if they had been tenants for lives renewable for ever, as regards trees planted by them in future. The Bill also extends the provisions of the Acts to fruit trees and Osiers. It is also provided that trees and Osiers planted and registered by a tenant may be deemed improvements so as to entitle him to compensation under the Land Act of 1870. Where a lease is for more

than 31 years, or if made before 1870 for lives with or without a concurrent term of years, and it has existed for 31 years, the tenant is, according to this Bill, to be entitled to compensation in respect of trees and Osiers. Another clause would repeal the section of the Irish Act of 1783 for the encouragement of planting timber trees that prevents the Act from extending to tenants evicted for non-payment of rent. And another would deprive a reversioner of certain privileges under that Act as to buying trees, as long as the interest or term of any tenant is subsisting.

Collecting cones.—The cones of the Scotch Fir, Larch, and other hardy coniferous trees being now ripe and thoroughly matured by frost, should, if not already done, be collected at once, and the seeds extracted to be ready for sowing in April. The best cones of the true Highland Pine should be preferred, and may be had in the natural forests of Braemar and the north of Scotland. The collector should only gather such cones as are of full size and the produce of healthy trees. The seeds may be extracted by placing the cones in the sun or by laying them upon wooden boards in a warm kiln until the scales of the cones open up, when the seed will fall out with little trouble. In gathering Larch cones, the collector should be particular not to gather those from trees affected with rot, blister, ulceration, or disease of any kind. Some districts in the north of Scotland produce good sound Larch, while in some other places every other tree is more or less affected with ulceration. In many parts along the east coast of Scotland, where the climate is dry and bracing, the Larch is not healthy; therefore the collector had better not visit this district. Trees, however, in the west of Scotland, where the climate is of a moist, humid character, are in a fairly healthy condition when planted upon soil suitable for their requirements. I have never found the Larch in Ireland affected with ulceration; therefore, I prefer Irish seed, and such as is produced in the best plantations in the west of Scotland. The Larch seed is not so easily extracted from the cones as that of the Scotch Fir. In cases where a small quantity of seed is wanted the cones may be split up mechanically, when the seeds will fall out, but in cases where larger quantities are required, it is better to subject them to a moderate heat in a kiln, allowing them plenty of time to dry gradually, after which they should be removed, placed on a dry floor and beaten with fials.—J. B. WEBSTER.

Self-pruned forest trees.—I have read J. B. Webster's remarks on pruning forest trees attentively, and quite agree with him. The value of the article would, however, have been greatly enhanced had definite instructions been given as to the best distances to plant different kinds of trees so as to enable them to prune themselves most effectually, and ultimately yield the most timber of the best quality in the shortest time. I think it only fair to add, as the result of considerable experience and very extensive observation, that the majority of our plantations seem far too thin of plants, thus encouraging the production of side branches and dwarfing the boles—the only profitable part of the tree—to the most puny dimensions. Some few days ago, in measuring a number of Oaks and Elms of great age and large size, I found that not one of them gave more than 30 feet of bole fit to measure as timber. Nearly the whole of these trees had a little forest of top useless for every purpose but firewood. Boles of Oak from 20 feet to 25 feet long have been the rule; longer ones quite the exception. Short boles are less prevalent in plantations of Scotch and other Firs. This arises partly from the more vertical habit of the trees, but chiefly from their being planted closer and left closer together to form timber. No one can pass from the timber-growing districts of Great Britain to the forest of Fontainebleau, in France, without being much astonished at the contrast in the character of the timber. Boles straight as arrows, and almost touching each other through their close proximity, shoot up to heights of from 50 feet to 70 feet or more without a single bend, and one is compelled to ask whether our excessively thinned forests are a national blunder, if not a crime.—CALEDONICUS.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES FROM SCARBOROUGH.

CARNATION CLARISSE.—This Carnation, I am told, was sent out many years ago by Messrs. Carter, and has been grown for about eighteen years in a Yorkshire garden. I do not know if it is "in the trade," but I believe that Messrs. Veitch will shortly have plants to dispose of.

LUCULIA GRATISSIMA.—One point in the care of this unrivalled winter-flowering shrub omitted by writers who recommend it is that the soil it thrives best in is exceedingly calcareous. Those who complain that the soil in which they grow it gets soddened and waterlogged, should try planting it in a mixture of quarry refuse from any limestone formation with an equal quantity of good loam. The vigour and profusion of flowers shown under such conditions surprise all who have not tried it. Another cause that interferes with success is the difficulty of keeping the plant free from thrips in summer. Certainly the easiest way of doing so is to grow it in a large tub, which should be placed out of doors in a somewhat shaded situation all summer, but syringing will be required during hot and dry weather, and exposure to autumnal fogs will be found most beneficial. With us it thrives in a cool greenhouse during winter, and I should not advise anyone to give it a winter temperature of more than 50°.

NARCISSUS PALLIDUS PRÆCOX.—No modern introduction, to my mind, surpasses this, adding as it does quite a week to the early beauty of the bulb garden. This year's first blooms out of doors opened here last Friday under the influence of unusual heat and sunshine; and the exquisite beauty of their boldly-flanged lemon and cream trumpets, contrasted with the blue and white stars of *Chionodoxa Lucilia*, made a picture hard to surpass at any season. Certainly no garden should be without these two gems, which may be planted together.

Eucryphia pinnatifolia is quite hardy here, but grows very slowly in our strong soil. I lifted it last autumn and replanted it in a bed of sand and peat to see what effect that would have. *Calceolaria violacea*, *Mitraria coccinea*, *Embothrium coccineum* and *Berberidopsis corallina* have never survived two seasons out of doors, in spite of all I could do to make them thrive.

Cytisus racemosus (major variety) or *Genista fragrans* seems almost impervious to the bitterest sea winds when planted in a dry corner among lime rubbish. The "major" variety is much hardier than the type.

E. H. W.

Snowdrops and the season.—I never saw the Snowdrop beaten by the spring before. I have very

many, and they look miserable. There is no remedy, I fear. I have often seen them with big seed-vessels a month before this.—H. S.

FRUIT GARDEN.

W. COLEMAN.

OUR FRUIT ROOMS.

"It is to be feared that these structures in many places will now be nearly empty, but where late Apples are still keeping sound, a low, even temperature is absolutely necessary to their preservation. Light and air being unfavourable to the maintenance of flavour and specific gravity, the windows and shutters from this time forward may be kept constantly closed. If properly constructed with double or thatched roof and hollow walls containing hit-and-miss ventilators near the ground line, fluctuations for some time to come will be hardly perceptible, whilst the smallest opening at the base and apex will prevent the atmosphere from becoming too damp or, worse still, too dry." These remarks no doubt are sound, but how many of these stores are properly constructed? If we look into the matter we shall find that the sheds which do duty for these structures in three-fourths of the gardens in the country are quite useless as stores for late fruit, and far from satisfactory for autumn and early winter varieties, which might be kept fresh and good over a longer period were they properly housed. This fleeting occupation of the shelves in great Apple districts is not much felt, as many growers in October and November have more fruit than they can find room for; but one thing is certain, the room that will not keep autumn Apples till Christmas must not be expected to contain sharp, fresh fruit in April and May. I do not condemn the lowly shed; quite the reverse, as many ornate and expensive buildings are equally unsuitable, if not more so; indeed, if I were called upon to construct another Apple store I would drive a heading into the steepest and driest bank I could find convenient. The doors should face the north or west. I would drain and ventilate and face the sides of the excavation with hollow walls, raising them a little above the highest external surface. Upon these walls the thatch of straw or Heather should rest, and whatever ornamentation might be required should be a superstructure. Apples not infrequently are stored in lofts or upper rooms through which drying winds whistle and through whose roofs the stars can be seen, but no sooner are they carried upstairs than loss of sugar and moisture sets in, when the time quickly arrives for carrying them down again. Pears keep better than Apples in these elevated rooms, but they should be protected as much as we protect ourselves in bed by the use of upper and under blankets or other flavourless woollen materials. In this way I have kept the old Crassane, a November Pear, until February, and although the temperature of the room was sometimes very low the conserving covering prevented shrinking, and the flavour to the last was excellent. Apples in dark frost-

proof stores do not require covering, and on no account should straw or mould-generating substances be placed beneath them, but Pears are improved by warmth, especially when they begin to change for ripening. Planting and grafting within the past few years have made rapid strides, and all who have the best interests of producers and consumers at heart are exerting themselves as revisers of obese lists, as selectors of the cream of Apples and Pears that will extend our fruit season and enable us eventually to hold our own in our own markets. As advisers, they might repeat the Scotchman's sage injunction to Jock, with this variation, "Stick in trees, which will be growing whilst orchardists are rebuilding and improving unsuitable fruit stores."

THINNING FRUIT BUDS.

The fruit buds on the Pear are now very prominent, and those on the Apple will soon be easily distinguished from the wood buds. Judging from present appearances, the blossom on all kinds of fruit trees this year will be abundant. Where a superabundance of bloom is observed a few hours occasionally may be profitably spent in relieving the trees of a portion of the fruit buds where this has not been done at pruning time. It requires a practised eye to distinguish in the autumn and winter between the fruit and the wood buds, but now they cannot be mistaken, and the work can be performed with less fear of overdoing it. Trees on walls, pyramids, bushes, horizontal and vertical cordons are all within easy reach of manipulation, and a good many trees can be looked over in a short time. Not only will the thinning of the fruit buds now lessen the necessity and labour of thinning the fruits later on, should the conditions of the weather prove favourable to a good set, but the fruit which sets on a tree with a fair amount of bloom is always stronger and swells with greater freedom than that on trees which have been crowded with blossoms.

I think I am right in saying that the production of pollen when the blossom is abundant is a great strain upon the energies of the tree, so much so, that trees presenting a mass of white or pink at blooming time often fail to set a crop of fruit from no other cause than want of vigour, the energies of the trees having all been put forth in the effort of blooming. Trees which have been root-pruned or transplanted with the object of checking wood growth and inducing fruitfulness are particularly liable to exhaustion from this cause before they become re-established; what were previously wood buds are often through the effects of the check given to the trees transformed into bloom. To allow this mass of buds to expand is to destroy the chances of a crop of fruit, besides resulting in a loss of power to the trees which might have been preserved.

I fancy I hear some of my friends who have lately been complaining of the ravages committed by the birds saying, "No need to talk of thinning the buds when the birds are doing it for us," but so far, with us, these bud-destroyers have confined themselves to standard Plums and Gooseberries, and a good dusting of lime and soot to the latter when the bushes were wet has proved effectual in stopping their ravages. The Pears they have left for us to do, and some trees require thinning freely. The other day I was thinning some pyramid Pears which were transplanted the autumn before last, and the leading shoots of which have not been

shortened this winter. I was surprised to find that not only the terminals were fruit buds, but the young wood of last year's growth was full of buds of the same character. No doubt this was caused by the heat of last summer following so closely upon transplanting, as I do not recollect having noticed the same thing before to any extent.

Plums and Apricots are best thinned by reducing the spurs, but Peaches may be lightened of their burden by drawing the finger and thumb up the sides of the shoots before nailing them in, thereby removing many of the smallest buds. Apples may be treated in the same way as Pears.

Grapes, although of a different character, may be included under this head, for nearly all Vines show a great many more bunches than are needed, some kinds two or three on one lateral; these should be thinned to one, not necessarily the largest bunch, as those of medium size are the most serviceable, but the cultivator must here be guided by his requirements. Many of the weaker laterals should have all the shows removed from them; deferring the removal of these shows until after flowering can only be regarded as a wasteful practice, contributing, as it does, to check the growth of the Vines and retard the development of the berries, which it is desirable should swell quickly immediately fertilisation takes place. A. BARKER.

Hindlip.

WALL FRUITS AT BROADLANDS, ROMSEY.

I HAD frequently heard of the excellence of the wall fruits at Broadlands, and last August, when they were at their best both as to foliage and fruit, I availed myself of an invitation from Mr. Thirlby to see them, and found that, good as I had been led to expect to find them, not half had been told me as to how fine they really were. I made notes at the time of a few of the most remarkable trees, but circumstances have prevented me putting them into form till now. First of all, I must say that the garden is well sheltered, too much so, in my opinion, and the soil, a moderately stiff loam, light rather than heavy. Mr. Thirlby, however, owns to the necessity of having the soil, particularly for Peaches and Apricots, very firm, so that he artificially makes good the lack of marl, or clay, by well treading the ground immediately surrounding the base of the trees, while 3 feet or 4 feet of the border are never disturbed, but are held sacred to the roots, and, as a matter of course, by treading alone to work amongst the trees, the 3 feet or 4 feet width has become very hard; consequently roots made in such a border having, as it were, had to fight their way into it, the resistance has tended to the producing of a large proportion of side or lateral rootlets, which are the real feeders of the trees. The trees are liberally supplied with manure in the form of mulchings, and having an abundant supply of water, it is put on without stint both in the form of syringing the trees and, if thought necessary, by watering the borders. It will thus be seen that Mr. Thirlby has two advantages in respect of wall-fruit culture that many gardeners have not, namely, a suitable soil and an unlimited supply of water, and that he makes good use of them the trees are the best evidence. There are other sides to the picture which, in justice to Mr. Thirlby, I ought to name. The first is restricted labour, for the agricultural depression has been felt at Broadlands, and the second is, there are neither coping to the walls nor permanent protection. The difficulty acent short-handedness is got over by allowing departments of lesser consequence, to some extent, to take care of themselves, and the protection is of home manufacture and put up by the garden men, and consists of temporary coping boards fixed to 2-inch square uprights that are driven into the ground 3 feet 6 inches from the wall, and along the top of these slanting 2-inch uprights a single width of canvas, 100 inches wide, is fixed. This completes the protection, and to

prove that it has answered, Mr. Thirlby states that during the whole nine years he has been at Broadlands the crops of fruit had always been equal to those that I saw in August last.

On putting the question, How do you keep your trees so free of spider? the answer was, "Soap-suds applied just as they come from the laundry is a better cure, as well as a preventive, than any insecticide I have ever tried," but, he added, "the liquid is of no use for fly; to destroy that pest we use tobacco powder, and on warm days use the hose freely, and so swill them away." I scarcely know whether to award the palm for general excellence and highly vigorous state of the trees and fruitfulness to Apricots or Peaches and Nectarines, both at the time of my visit were so fine? I think, however, that the latter must be placed first, if one takes into account the great contrast in labour between the two species. Pruning, disbudding, nailing, destroying and preventing attacks of blight on Peaches are something like ten to one as compared with Apricots; though, as done at Broadlands, these Apricots take up a lot of time, but they pay. Only fancy a tree covering a space of 18 feet by 10 feet 6 inches and perfecting 1200 fruits; these I saw, and counted till I was tired, Mr. Thirlby, on my behalf, completing the task next day. The variety was Blenheim, which I believe is synonymous with Shipley's, and which Mr. Thirlby believes to be the best, and with him is not so liable to die off as some other varieties in that mysterious way that Apricots are wont to do. I wish I could agree with him as to the dying off, but here it is on about a par with all the varieties, and the only remedy is to keep in stock a number of young trees to take the place of the old as soon as the disease gets troublesome. I was glad to find that Mr. Thirlby, who also holds this opinion, has quite a nursery of fine young trees ready to plant as permanent subjects as his other varieties die off, though, he added, "I intend eventually to have few trees of any variety except Royal, as I have never known a branch of this sort to die off." Can others agree with this opinion? I have but one tree, and therefore, my experience being limited, I will say nothing; but if others are able to confirm Mr. Thirlby in regard to this variety they should do so for the good of growers generally. St. Ambrose and Kaisha are also favourite varieties at Broadlands, and much to my astonishment, that popular variety, Moor Park, is held in least repute—another piece of evidence confirmatory of the variability of the same fruits in various soils and localities, and yet not sufficiently different as to justify such changes; for here, in the same county and with much the same treatment, Moor Park is looked upon as the very best variety, and certainly not more liable to the collapse of branches than are other kinds. I can only say of the Peach wall that it must be seen to be realised. There is scarcely a foot of space not furnished with fruit-bearing wood. The mode of pruning practised ensures this being the case from the very base of the tree. I shall best describe it by saying that during the winter the trees are unnailed, the shoots assorted, and those that are for the longest distance budless at the base or nearest the main branches are cut clean away, till the trees are thought to be sufficiently thin for air and light to reach all. Disbudding is rather freely done, so that the winter pruning needed is comparatively little. When disbudding, care is taken to leave at least one good wood-bud quite at the base of each shoot, this in the course of the summer being trained up between the fruit-bearing shoots, and in a general way—not always—takes the place of the fruit-bearing shoots the following year, thus keeping the trees constantly renewed with young shoots.

Perhaps the handsomest, though by no means the largest, as I saw it last August, was a tree of Rivers' Early York Peach, covering a space of 16 ft. by 10 ft., and bearing 220 fruits—large, too, for that variety. A tree of Early Louise was almost equal to it. A very handsome Peach tree—variety Stump the World—24 feet by 10 feet, was carrying a crop of 200 large fruit, not a dozen of them being below the exhibition standard. Many of the trees

were but a very little way behind this perfect specimen; some, in fact, were bearing larger fruit, among these being the varieties Goshawk, Stirling Castle, Walburton Admirable, Sea Eagle, and Barrington. All I have said about Peaches applies equally to the Nectarines, Mr. Thirlby's favourite kinds being Lord Napier (very fine and quite scarlet in colour), Pine-apple, and Humboldt. Morello Cherry and Plum trees have been grown in the same way as the Peach and Apricot trees; in fact, the entire stock of wall trees bespeaks at a glance that Mr. Thirlby's pet hobby in gardening is the cultivation of wall fruits. W. WILDSMITH.

Heckfield.

BARREN VINES.

THERE is a viney here just at the stage that it ought to be showing fruit, but instead it is going all, or nearly so, to laterals. Would you be so kind as to tell me the reason through your valuable paper?—F. H.

** In answer to the above, in the absence of one atom of information as to the age, past treatment, or doings of the Vines in question, it is quite impossible to say with any degree of certainty which of several defects in culture may be the cause of failure. It may be the result of over-cropping, of loss of foliage by scorching or spider before the past year's wood was ripe; or it may be that the roots have got out of the border into a cold, wet subsoil, in which the imperfectly ripened spongioses are worse than useless. When gardeners, especially young ones, find themselves in difficulties and wish to be delivered, numerous correspondents are always ready and willing to help them; but in nine instances out of ten they write off to the papers, apparently unmindful of the fact that they alone hold the key to the problem they wish and expect perfect strangers to solve for them. If readers of THE GARDEN who wish to benefit by it would only reflect for a few seconds and then write fully and freely to the editor, the correspondents to whom their queries are forwarded would not only give them sound advice, but having a few guiding details before them, they would have the pleasure of feeling that their answers were not misleading. With these remarks written in a kindly spirit, not to save trouble, but to prevent disappointment, we may say, once for all, that no amount of good management can make the Vines fruitful this year; but, provided the roots and border are in a satisfactory condition, and loss of foliage, want of water, or over-cropping, one or all, have enervated them, careful attention to the daily routine of syringing, watering, feeding if necessary, and ventilation will most likely restore them by next autumn. If, on the other hand, the roots have gone astray, and, as I suspect, are forcing a crude, gross, long-jointed or fasciated growth of wood whose shows, if any, rush off into tendrils, the only remedy is good treatment, as before suggested, through the summer, root-lifting and relaying in fresh compost in the autumn. Should this be the defect, the absence of fruit will favour daily syringing and generous treatment with or without stimulants to ensure a moderate growth of young wood, which should be ripe enough to justify lifting about the end of August. Having so often given minute directions for the performance of this work, I need not go into detail here; but one word of advice may not be out of place. Do not begrudge the Vines, because they are fruitless, the proper degree of fire-heat and attention to stopping, tying, &c., but treat them as kindly as though they were carrying a full crop of Grapes. Help them forward with all reasonable speed, especially if by accident I have stumbled upon the weak point, and lifting is decided upon. Do not wait for the leaves to fall, but lift and relay as soon as the wood is nut-brown and the foliage shows signs of changing.—W. C.

Hardiness of newly-planted fruit trees.—"Hortus" on p. 246 of THE GARDEN takes exception to a sentence of mine relative to the hardiness of the roots of newly-planted fruit trees. What I intended to convey by my remarks was, that a mulching of manure was not necessary for the purpose of pro-

tection, and I must still adhere to my opinion that the roots of newly-planted fruit trees are not more tender than those of established ones. Granted that the act of transplanting stimulates fresh root action, for the evident reason that in the process of moving the tree is robbed of its feeders and at once makes an effort to replace them nearer at home, it does not, I think, follow that this renders them more tender. Cold and frost will stop abnormal activity, but the roots will not be materially injured or killed from this cause; whilst a mulching of manure will be more likely to increase root-action for a time until the soil becomes saturated, when the roots, being of a soft and spongy nature, perish.—A. BARKER.

HARDY FRUITS.

THE frost of three weeks' duration, and now passing away, having produced a most decided check upon the flow of sap, fruit trees of all kinds, never more promising, are now quite as late, if not later, than we find them in average years. So far our prospects for the coming season are highly satisfactory, and the wood and buds being so thoroughly ripened, we may reasonably hope for heavy crops of fruit. Lavish, however, as Nature has been, it will not be safe or wise to neglect protection, as frost, hail, and sleet sometimes slay thousands and tens of thousands in a single night, often as late as the end of April and the beginning of May.

APRICOTS.

to which liberal supplies of water were given last autumn, are now bursting into flower, and so far there is no sign of bud-dropping, another convincing proof that ripe wood and a moist root-run are two cardinal points in the management of stone fruit trees. If not already done, these trees should be well protected with broad coping boards for preventing radiation through the night and for keeping the blossoms dry, as it is well known that the most tender flowers when free from moisture, will pass with impunity a frost that would decimate them when wet. The front covering may consist of treble-fold fishing-nets, canvas, frigi domo, or, lacking these, Spruce spray tucked in amongst the branches. Having tried all these materials in low, damp situations, I can strongly recommend the first, as once fixed it gives no further trouble. It admits an abundance of light and air, two important factors in keeping the young growths and flowers hardy, and it comes in for keeping off birds when Strawberries and other soft fruits are ripening. Canvas curtains, and other contrivances, on rings, rods and wires no doubt make trees unusually snug and warm, but they are expensive, and entail much trouble, as they must be removed daily to prevent the young growths from becoming soft, drawn and flaccid, a condition by no means desirable. Having had so little rain, the wall paths should be well littered down to keep in moisture, and steady supplies of pure water as soon as the fruit is set and swelling will complete the routine until the trees are ready for disbudding.

PEACHES.

These we commenced to nail in upon south walls the first week in March, but those facing west will not be ready for another fortnight. When this work is finished the walls will be coped with glass or broad boards and poled, but the nets will not be put up until the flowers begin to open. Some of my largest trees having covered 30 feet by 12 feet, the wall path has been extended to 5 feet, and this is as solid as an old pasture field, with roots feeding on the surface of old lime rubble, of which they receive 1 inch annually. This I find answers better than manure mulches, which keep the borders cold and force gross shoots, whilst the lime absorbs a great deal of sun-heat and supplies an important element when the fruit is stoning. If rain does not come within the next ten days, although quite wet enough, the borders will be well hosed before the blossoms open. It is not a good plan to water Peach trees when in flower, but at any other time a good soaking is beneficial to south borders. If any planting or re-arrangement remains unfinished, no time should be lost in getting the trees into their

places. Autumn is the best season for moving fruiting trees, as they do not produce one Peach the less for it the following year; but, taken all round, the Peach is one of our most accommodating trees, as I have moved large trees when in full flower and they have carried good fruit to maturity. I do not recommend this late planting, but merely wish to show procrastinators that it is not yet too late to put in trees, young ones especially, as the roots of such precocious growers are never at rest.

PEARS.

If the Pear does not rank higher than the Peach in quality, the main crop comes in early in the autumn, and continues the supply of most delicious fruit for several months when Peaches and all other soft fruits have passed away. Grapes and Apples, I may say, we have all the year round, but until we give more or resume former attention to Grapes, we cannot presume to claim them as hardy; consequently, Pears and Apples form the principal, if not the only, fruits within reach of the masses throughout the winter. Apples, of the two, are most wholesome and useful, but good Pears are not half enough grown and known, as very few, if any, of the very choice sorts are ever met with in the open markets. This being the fact, I cannot touch paper with pen upon Pears without repeating my request that all occupiers of gardens and outbuildings will increase their income and add to their luxuries by planting more choice Pears. I do not now refer to large standard trees which attain such enormous dimensions on our Herefordshire sandstone, but to pyramids, bushes, and cordons on the Quince stock. The space these trees take up is trifling, often no more than is occupied by a Gooseberry bush, and as for cordons, stems twice the length of one's walking stick trained against walls or fences will give one or two dozens of very fine fruit, where too often the Nettle or the antiquated Currant bush cumber the ground. When passing large farms and buildings presenting hundreds of square yards of bald brick-work to the eye, the planter who does not wish to interfere with other people's affairs is apt to sympathise with them in their neglect of opportunities and facilities for growing bushels of winter Pears, which at this season would be worth a great deal of money. Pears being early and the flowers more tender than those of Peaches, should be protected from sharp morning frosts; first, by broad copings to keep them dry, and second, by the use of nets, which may remain until the fruit is set and safe, or by canvas, which gives more trouble, as anything heavy enough to exclude light and air must be removed daily. Espaliers also may be protected, but pyramids and bushes, unless very small, often receive more damage than benefit from the use of rough-and-ready materials, especially in windy weather. If grafting is intended, the buds upon trees already shortened back should be closely watched, and when they show signs of swelling freely, the weather being mild, the scions cut when dormant may be put on. Anyone having inferior varieties upon the Quince may convert them into fruit-bearing trees in two years, and, strange as it may appear, hard-looking trees which never make a bit of fresh young wood produce vigorous growths when double grafted. Small trees of this class are quickly operated upon, the best method being that known as whip-grafting practised in nurseries. The scions should be tightly bound with good bast, clayed over at once, and daubed a second time to fill up cracks, as success depends upon keeping them moist and air-tight.

Autumn-planted trees making new roots will now require attention, much mischief and delay often being produced by wind-waving and chafing, or tied too tight by strangling. In the first case, plenty of Moss or other soft elastic material should be introduced between the stem and the stake; in the second the ties must be cut and replaced with new ones. Having run through the cycle of wet years, we must now prepare for a run of dry ones, of which the past was an impressive example, and, notwithstanding the fact that all writers do not approve of mulching, I am bound to do justice to my conscience by saying, mulch all newly-planted and heavy-bearing trees freely. If vigour is wanted, give them

good manure; if protection from drought is the only point, use non-conducting materials less stimulating. Bush fruits of all kinds, Raspberries, and Strawberries will take any quantity of good manure; poor and puny, hard and dry the fruit will be without it. Strawberries, by the way, may now be hand-weeded, lightly dusted with soot (old in preference to new), and raked over. We use a great deal of discarded vine-border compost for our Strawberries, placing it in rough ridges between the rows early in the autumn. In this position it gets thoroughly pulverised, and, being very rich, it is raked well into the stools before the crowns commence swelling. Where the formation of new plantations is contemplated, facilities for getting the soil into excellent tilth have been abundant, and the latter being now fairly moistened by melted snow and light rains, the plants should be put out at once, made very firm, and well mulched with short manure. Autumn, no doubt, is the best time to plant, but the drought interfered with the performance of many operations, and it is more than probable that many, like ourselves, deferred the work, as the Strawberry—a moisture-loving plant, moreover, a surface-rooter—should never feel the want of water. Autumn-planted beds must now be examined, and when all dead or doubtful plants have been replaced with the strongest and best from the reserve beds, a thorough treading on a dry day will put the frost-beared surface back to a solid condition.

FILBERTS AND COBS.

Figs excepted, these are the only trees which have not been pruned and top-dressed, but the catkins being forward, this and all other operations forming the tail end of winter work should now be disposed of. The majority of growers residing out of Kent do not sufficiently thin their trees, and many never prune at all, but if abundant crops of nuts of the best quality be the object, the centres should be well opened to let in sun and air, and the principal shoots closely spurred to keep them evenly furnished with short, twiggy laterals an inch or two in length, with cluster-producing buds at their ends. Good nut growers always have plenty of catkins for fertilising the female flowers; they keep each bush or tree on a clean single stem by the removal of suckers, and after drawing away a little of the loose surface-soil they top-dress with fresh compost. Nuts are not so extensively grown as they should be, for not only are they profitable, but being so easily managed, the veriest tyro who can prune a Currant bush can keep them in bearing condition for a great number of years. Cold, wet soils, although they may produce plenty of nuts, do not give rich ripe kernels in ordinary seasons; but, given a deep loamy soil, naturally drained, open to the south or west and sheltered, Cobs and Filberts of good average quality may be grown in all parts of the kingdom. W. C.

SHORT NOTES.—FRUIT.

Beurre Diel.—I fear Mr. Fish overvalues this Pear. I thought it very fine at one time, but its quality is rarely more than second-rate.—H. S.

Easter Beurre Pears from California are still bringing very high prices in the markets. Of English or French Pears there are none.

Pear Emile d'Heyst.—M. F. Jamia doubts the value of this, but we have to look at it in England, not in France.

Pear Marie Benoist.—I see your list of Pears is made up to eight. What do Pear growers say of Madame Benoist? It is a very good late Pear here—large and good, and keeps well.—E. PETERS, Guernsey.

Pear L'Inconnue Van Mons.—Our best for March is L'Inconnue Van Mons, from standard trees too, fairly melting and very good. The fruits are far before Beurré Rance, which they so much resemble.—W. CRUMP, Madresfield Court.

Nouveau Poiteau. Urbaniste, and Victoria also do remarkably well as free-growing trees, although fully exposed to wind and weather. Marie Louise, though good on the Quince, must here have shelter. It is far from being a Pear for the million.—A. D.

Pear Alexandre Lambre.—My favourite Pear is Alexandre Lambre, for with me it is not only a wonderful, but a perennial fruiter, and I would not ex-

change the few trees of it I have for a score of Jargonelle or Marie Louise, as none of these choice sorts will bear one-tenth so abundantly.—A. D.

Pear Thompson's.—I quite agree with Mr. Wildsmith as to the superb qualities of this Pear. It does grandly in this district as well as in others I know of.—J. MUIR, *Margam, South Wales.*

—This Pear fruited here on a west wall for several years, but the fruit was always hard, gritty, and flavourless.—J. C. C., *Somerset.*

* * A Pear should not be condemned from a trial in any one position, or from growth on any one stock.—Ed.

Preserving choice fruits.—Can any reader of THE GARDEN inform me what is the best mode of preserving choice fruits, such as fine varieties of Apricots, Peaches, and Plums—not making them into jam, but so that they may be used during the winter and spring months for dessert as nearly as possible in the same condition as when gathered.—X. Y. Z.

COPYRIGHT IN FRUITS AND PLANTS.

It must be either this or nothing, for if new Peaches and Plums are to be made sources of honour or profit by Act of Parliament, why not also Peas and Potatoes, Pelargoniums and Primroses? The thing is as impracticable as it would be injurious. Reproduction is so natural and easy in regard to plants, that each novelty would have to be accompanied with an army of inspectors to see that the copyrights of its raiser were not infringed. And who would pay the inspectors or the costs of the endless prosecutions under the new law of copyright in growing and increasing plants? The raiser has already had his reward in honour and in hard cash when he let out the stock, whether of Plums or Figs, at a high figure, alike on the ground of their novelty or their merit.

There is no analogy between such products and books, for example, unless it can be shown that every word or line of the latter could be made to reproduce the whole, a merit that even the most popular authors would be the last to claim. But the utter impossibility of enforcing a copyright in new vegetable products is sufficient objection to it. Crying for the moon, wiping the sea dry with a mop, are equally hopeful enterprises to the making and enforcing of such a law.

The public would have none of it; the raiser does not need it, as it would sap the foundations of horticultural enterprise and advancement. Nor do either of those classes and interests suffer by the present arrangement. The raiser of valuable novelties in fruits, vegetables, or flowers holds the stock until he makes a substantial profit. He is free to hold it as long as he pleases, and while in his possession it is absolutely his. He looks for his chief profit from his first sale and makes it. What more is he entitled to? To endow him with anything analogous to copyright over the property that he has sold to another would be tantamount to enabling one to have their cake intact after eating it. Besides, who would purchase if they could not also freely propagate? Why, it is this power and the prospective profit that lies behind it that furnishes the keenest, strongest motive for purchasing. The public also purchase novelties because they are new. But once grant a monopoly of propagation to raisers, and flowers, fruits, and vegetables will become old before they can be generally grown.

As to raisers' names being always and for ever attached to their products, there must be some limits of time and space in regard to this for the lightening of our labours of nomenclature and the reduction of our fat catalogues. Sufficient honour and reward are mostly given to the

raisers of high-class novelties while these are yet new. As years pass on the names of the raisers are apt to be dropped, though, as a matter of fact, no name has been more justly and generally honoured than that of the late Thos. Rivers and his sons in relation to the improved fruits raised by this firm. Generally, in regard to new or improved flowers and vegetables, we have such a bewildering excess of raisers or improvers' names as is likely to bring the wholesome maxim, "honour to whom honour is due," into disuse, if not contempt. Besides, if the raisers of new fruits are throughout all time to have their names attached to their products in every-day use, where is the practice to stop? at Roses, Pelargoniums, Chrysanthemums, or where?—HORTUS.

—I cannot see that to draft a Bill dealing thoroughly with this matter would be so easy as friend Burbidge seems to think; in fact, I fail to see either how or why it (copyright) could or should be established. There is no sort of parallel between the writer of a book or the painter of a picture (these are, no doubt, the results of brain work, and the owner of the brains gets the credit), while in many cases the raising of a new plant or fruit tree is the result of accident, more or less, or the work of a humble individual whose name is never heard of. We have it on record that many industrious inventors were not the patentees of the results of their years of labour. They had the brains, no doubt, but no other means, and other persons got out patents who only possessed the latter qualification. And I am afraid the same would happen in the case of plants if this patent right that is suggested is only to be the guinea stamp that is to mark for all time the raiser or introducer of any new plant or fruit. I am afraid that difficulties would only then begin.

Take a case. *Coprosma Baueriana variegata* was raised in a bed of typical *C. Baueriana*, the raiser being a dilatory sort of man, who habitually puts off till to-morrow what he ought to do to-day. A neighbour with a sharp eye looked over the garden hedge from day to day and begged the owner to make such a good thing known. The delay went on from week to week, until the sharp-witted man positively threatened that unless something was done at once with it he himself would take the initiative. Thus urged, the owner of the plant roused up and went off to Kew with a branch; the people there recognised its worth and asked him to leave it. That same night a sharp frost occurred and killed to the ground the original plant. The next morning all that remained was the branch left at Kew, which the Kew people struck, and in course of time worked up a stock. An enterprising nurseryman saw it there, got a plant, and in time worked up a stock and distributed it to the public. Whose are the brains in this case, and who should obtain the copyright? The dilatory man who raised the plant and nearly lost it, the sharp-witted man, or the authorities at Kew?

Take another case. *Calceolaria fuchsifolia* had been grown for years in the north of England, but the people who had it saw nothing in it more than in a Sunflower or a Sea Pink. The employé of an Irish nursery firm saw it, bought a plant, worked up a stock, got it figured, and in due time it was distributed to the public. To whom in this case should the copyright belong? to the slow-coaches who failed to see any merit in the plant, the firm who ultimately sent it out, or the more humble, but sharp-eyed individual who brought it all about?

Copyright in notable books or pictures is, no doubt, easy enough in a way; but what is it for, and in whose interest is it urged? The two cases are quite distinct. Why should the public at large be deprived of the enjoyment of good plants in order that he who skimmed the original cream should continue to skim the cream as it rises? Mr. Coleman put the case fairly when he said that there is nothing at all to prevent the raiser or introducer of any plant or fruit retaining the whole stock in his hands as long as he likes, but no doubt Mr. Rivers,

like all other traders, is anxious enough to send out a good thing at the earliest possible moment. He fixes the price, but is it not the fact that for one maiden Plum or Peach, or what not, of any new kind sold retail, fifty are sold to the trade? And why, may I ask, should Mr. Rivers, or any other distributor, be allowed to follow these latter and prevent their propagation or further distribution—in fact, hamper in any way the person who buys from him? As things are he can do so if he likes, but in his own interest he does not. There is nothing to prevent him sending out his productions under provisos binding the purchasers not to propagate and not to sell only at prices that he shall regulate, and plants that he shall supply. We have had a case of this kind recently—Fay's Prolific Red Currant. The stock of this was owned by a Yankee, who, thinking he saw a fortune in it, sent out his price list, containing an order form and declaration to be signed by every purchaser, who thus bound himself not to propagate for a series of years, nor to sell only such plants as were supplied, and at prices that would be regulated by the raiser—the most stupid thing ever done. This happened four years ago, and where is Fay's Prolific Red Currant now? The man was simply laughed at, and, instead of disposing right off probably of all his available stock, he was allowed to keep it to look at. If Mr. Rivers or any other raiser simply wants his name tacked on to his own productions, no one can have any objection, and, as a matter of fact, I think the whole horticultural world knows Mr. Rivers' productions by heart. No; I am afraid that in the future, as in the past, garden productions will have to be popularised through the shows, public prints, &c., and when the raiser or introducer has once parted with his stock, he will have to rest content, and in the best interests of himself and the public it should remain so.—T. SMITH.

A FRUIT GROWER'S DIFFICULTY.

TO THE EDITOR OF THE GARDEN.

SIR,—Mr. Coleman's article under the above heading in THE GARDEN (p. 183) brings a real practical difficulty to the notice of your readers. The increasing numbers of mischievous birds is a matter for the serious consideration of all who are interested in fruit growing. Gins and guns go a very little way towards reducing the numbers of the birds or saving our fruit-buds, while lime and soot soon lose their efficacy. Netting the bushes seems to be the only safeguard we have at present, and this, from various reasons, is in many cases an impossibility. Pears, Plums, Gooseberries, Currants (Black and Red) have been lately attacked here, several of the bushes being almost completely stripped of their fruit-buds. Under the Black Currants the ground is thickly strewn with buds, only the tender centres being eaten. I am puzzled to know why some young bushes of these escaped, though growing within thirty yards of those attacked and close to some Gooseberry bushes that have not a fruit-bud left on them. Old Gooseberry bushes, planted irregularly wherever there was room, have lost all their buds, except those at the base of the young wood in the middle of the bushes. Had these been trained thinly and pruned early the whole of the buds would doubtless have disappeared.

The naturalist or chemist who can tell us of a cheap preventive against the attacks of these marauders will earn the gratitude of all fruit growers.

Livermere.

JOHN C. TALLACK.

Work on the Auricula.—In reply to "W. T. G.'s" inquiry on p. 255, I would recommend him to procure a shilling book entitled "Gardening for Amateurs," published by A. Tesseyman, Whitefriars Gate, Hull. It contains two admirable and exhaustive papers by the Rev. F. D. Horner, one on the Auricula, the other on the Tulip. They are also comparatively recent papers, which adds greatly to their value.—R. D.

GROUP OF PLANTS IN ADELAIDE
BOTANIC GARDEN.

WE generally like to take examples from our own gardens of what is beautiful and artistic, but this photograph, sent us from the Adelaide Botanic Garden, seemed to us an eloquent illustration, and so we engraved it with the result that is seen. It shows the value of getting a complete impression of one type of plant rather than a showy mixture. It also shows in the background the true effects of plants of the Yucca tribe when developed in

one side of a walk, they are not happy till something similar has been placed on the other. They will not have odd corners; but I think a good many interesting features may be created in these odd corners. They form just the spots for groups of choice plants, such as Lilies, Tea Roses, Pæonies, and many other things which should be planted in groups to show their true character.—E. H.

ROSE GARDEN.

T. W. GIRDLESTONE.

PRUNING ROSES.

PRUNING, already the Rose grower's all-absorbing topic for the moment, must soon be the one

must be taken to meet them, and there are two possible conditions to aim at—either the new growth of the Roses must be sufficiently advanced to be able to resist the cold, or the plants must be so dormant as to be impervious to it; that is to say, they must either have been pruned so early that the young shoots will be of considerable length and consequent toughness by the middle of April, or else they must be pruned so late that growth shall not have commenced before danger from frost is past.

The obvious risk of the first course will be at once apparent. The new growth is not conspicuous after pruning before some three weeks



Aloe bed in Botanic Garden, Adelaide. Engraved for THE GARDEN from a photograph sent by W. B. Weger.

a warm country. We, on a previous occasion, engraved a beautiful view in the same garden, showing a more English style of landscape. We can only say that if the garden generally is as good as the views show it to be, it must be extremely interesting. Botanic gardens are not pretty, as a rule, and we are all the more happy in being able to show really striking aspects of vegetation in one.

Odd corners.—Some people, in laying out and planting their gardens, have a great desire to make everything balance. If there is a plant or a bed on

occupation in the Rose garden, and the annually recurring and never-settled question of when and how again arises. One point only appears to be gradually becoming more and more firmly established each year, namely, the desirability of pruning late. There seems no other way of contending with the inclement and increasingly bitter springs which show such determination to carry the winter on into that month of May reputed merry, but now more often witness of the burying of dead hopes and the wreck of fair garden prospects.

If there are always to be recurring and severe frosts in the middle of April or later, steps

have elapsed, but at the end of that period the pushing buds will begin to be liable to injury in case of a sharp frost. Now, of late years severe frosts have occurred about the middle of April. During that month in 1887 there were many frosty nights, the coldest being that of the 17th, when there were 15° of frost, and in 1886, about the 12th, there were some 12°. Where, then, Roses had been pruned at a time commonly recommended, namely, about the middle of March, they would have been exactly in a state least able to resist injury by these late frosts. Where they had been pruned still earlier they would have fared rather better, but the risk

would yet have been great, as, of course, the frosts might also have occurred earlier.

If, however, the plants were not pruned until quite the end of March or the beginning of April, they would pass through the most dangerous time in a state sufficiently dormant to be safe from all injury by frost, and, growing steadily on without a check, would probably be in bloom as soon as, or sooner than, plants which had been pruned three weeks earlier, and then had been thrown back and compelled to do their work all over again.

Of course, in saying that the plants will thus be sufficiently dormant to escape injury, reference is made to the actual buds to which the plants have been cut back, for by the end of March or the beginning of April buds at the ends of unpruned shoots will frequently have developed leaves, and occasionally even flower-buds. But, however full of young leafy growth the upper part of such shoots may be, they will be cut back to a dormant eye in each case, and these dormant eyes or buds will not have grown sufficiently to be liable to injury by an ordinary frost for nearly three weeks after pruning.

It has been often observed that when pruned late, Rose trees bleed a great deal; but while it cannot be contested that this bleeding is frequently very considerable, its after effects are not perceptible, and most growers have convinced themselves that it is followed by no evil results, and consequently, as an objection to late pruning, may be ignored.

Whenever pruning is commenced in a mixed collection of Roses, the Teas in the open should be left till last. Where the latter are grown against a south wall, and the young growth can be protected by means of canvas or other screens in the event of frosts, the plants will not require much pruning, and they will break into growth early and afford a few early blooms. But where the plants are unprotected in the open, the later they are pruned, even if not till after the middle of April, the better; for the young growth of the Teas is so succulent that it is less able than that of other kinds of Roses to resist frost. Nevertheless, there is no fear of their being late in flowering, for they grow so quickly that, although pruned last, they will probably be the first to bloom, and if thus grown on without being checked by frost, will be found to attain to perfection without being attacked by any of the usual Rose pests, such as aphides, mildew, red rust, &c.

Rose Red Pet.—At the last meeting at South Kensington on March 13 a pretty new miniature Rose called Red Pet, with very full, bright crimson flowers, freely produced, was exhibited by Messrs. Paul and Son. This miniature China Rose is said to be a sport from White Pet, and, like that attractive little Rose, to flower continuously throughout the entire season.—T. W. G.

Rose Fortune's Yellow.—A bunch of charming blooms of Fortune's Yellow was also staged by Mr. Crook. This delightful Rose, which is unique in its mingled shades of red and yellow, is worthy of far more extended cultivation, either indoors or out, than it at present obtains.—G.

Rose Lady Alice.—Messrs. Paul and Son also exhibited a round basket filled with plants in flower of their new Rose Lady Alice. This variety is a sport from Lady Mary Fitzwilliam, which it follows in perfection of form and freedom of bloom, differing only in colour, which is of the palest flesh tint, and will probably be found nearly white out of doors. A plant in bloom of Lady Mary Fitzwilliam was included in the basket, to show the distinctness of Lady Alice, which will evidently, like its parent, in addition to being one of the finest varieties for the exhibitor, make an invaluable pot Rose, easy to force and certain to bloom.—T. W. G.

DECORATIVE ROSES.

It will hardly be denied that decorative Rose-gardening, that is to say, the planting and cultivation of Roses with a view to their producing an effective *coup d'œil* in the garden, instead of their being relegated to some obscure spot and treated as mere cut-flower-producing machines, is still in its infancy. A good healthy tradition such as that which insists upon the necessity of Roses being grown only in a "rosarium" or "rosetum," or some such pedantically-styled situation, will not readily succumb, and Roses will, no doubt, still be planted "out of the way" in remote corners of kitchen gardens, or allowed only in more polite society when they can be safely secured from mischief within a good solid hedge of Yew, or such sort of cheerful plant, and duly decorated with iron pillars and clanking chains radiating from the central rustic arbour or summer-house. Why it should be necessary to have a Rose garden, instead of having a garden of Roses, is not clear, unless in the case of people who only grow Roses for the purpose of obtaining cut blossoms for exhibition. The one old objection that Roses were gay for ten days in the summer and a desolation for the rest of the year, is no longer valid. The cultivation on dwarf Brier stocks of the Tea-scented Roses has altered all that, and good flowers may now-a-days really be obtained out-of-doors from June to November in a favourable season. But the effective appearance of such plants will not be best secured by their being dotted along in straight lines and at wide intervals, even if they are shut by an evergreen hedge into a "rosetum," nor is the number of really decorative Roses, Tea-scented or otherwise, so great that rigorous selection can be dispensed with. The vital qualities of a first-rate decorative Rose are six in number: vigour, freedom, autumnal-blooming, erect habit of growth, purity of colour, hardiness; and as the number of varieties that can qualify under all these heads is limited, the object should be to find out which they are, and to plant considerable numbers of those alone. The extent of the group of each variety will of course depend upon the size and arrangements of the particular garden to be planted, but groups of from six plants upwards will make a telling effect. If the garden is extensive and there are numerous moderate-sized beds, it is a good plan to fill each bed with one variety, which will then be seen thoroughly in character, and consequently at its best.

In selecting the varieties possessed of most of the necessary qualifications, the Tea-scented Roses undoubtedly come first, and anyone who has observed the handsome appearance, not only in early summer, but throughout the autumn, of bold groups of well-selected Teas, would probably be disposed to dispense with any other kinds.

Most of the available sorts are so well known, that nothing beyond the enumeration of their names and colours is necessary, and those that can be most confidently recommended are, Marie Van Houtte, lemon and peach; Hon. Edith Gifford, pure white, blush centre late in the season; Anna Olivier, shaded yellowish rose, deeper base; Jean Ducher, shaded tawny yellow; Madame Lambard, rose colour, variable early in the season; Perle des Jardins, full rich yellow; Souvenir de Gabrielle Drevet, shaded yellow and flesh-tinted rose; Souvenir de Thérèse Levet, deep brownish crimson; and Caroline Kuster, pale yellow. The last-named has a good deal of the Noisette character, producing large clusters of flowers, and is commonly grown against a wall, where it always makes a fine plant; it makes a handsome bush, however, in the open, especially if it be pruned moderately hard, as then the growth is stout and strong, and the somewhat weighty trusses of bloom are carried quite erect. Souvenir de Gabrielle Drevet is a comparatively recent Rose raised by Guillot, and is a most free-flowering and charming Tea; the flowers are carried quite erect, and are of a delightful mixture of yellow and flesh colour, while the plant is hardy and free, if not a very large grower, and is a thorough autumnal. The same remarks apply to Levet's Souvenir de Thérèse Levet, excepting that its colour is a rich crimson, inclining to brown rather than to

purple, and when well grown it is innocent of any shade of dreary violet.

If another white be wanted in addition to Hon. Edith Gifford, the best of all white Teas in the garden, Innocente Pirola may be employed, although the plant is inclined to look a little thin owing to its moderate-sized leaves and the longish intervals at which they are inserted on the stems, and also the petals, being somewhat thin, are liable to stick together in wet weather, to the prevention of the full development of the flowers. There is another variety which, although its blossoms are somewhat pendulous, is so vigorous and so extraordinarily free-flowering, both early and late, that it seems ungracious to omit it, in case a few additional examples should be wanted: this is Nabonnand's Francisca Krüger, a very pretty coppery yellow Tea of fair size, the perfectly formed flowers being produced in the utmost profusion. Similarly, there are two other varieties against which the charge of being only semi-double may be urged, but of which, nevertheless, a group in flower presents so charming an appearance in the garden, that mention of them must be made. The first is Madame Chedane Guinoisseau, of a lovely colour much wanted, namely, a clear, pure yellow throughout, which does not fade appreciably as the flowers expand, and whose buds are well carried and freely produced all the season; the second is Madame Perny, a Rose that produces great clusters of tawny yellow buds, which, unlike those of the last named, develop into flowers consisting of almost white petals of great size, but which are in all stages most attractive.

These, then, are the best worth growing of the Teas (and consequently of all Roses), as fulfilling all the required conditions for the purpose of making an effective display in the garden; thus, last season they all survived exposure, without any protection, to 25° of frost on two consecutive nights, yet made a vigorous growth, were full of flowers by the third week in June, and still so in the middle of October, their flowers also being carried erect, and thus displayed to the best advantage on the plant. There is, moreover, another important point in which the superiority of these Teas over most other Roses for garden decoration becomes especially conspicuous late in the season, and this lies in the greater ability of the Tea-scented Roses to resist the attacks of mildew and red rust, the latter pest especially being hardly ever found upon them; and the full meaning and advantage of this, all who have ever seen their Rose-trees leafless, even as early as the middle of August, through the ravages of these troublesome fungi, will readily appreciate.

If climbers, again, are wanted for a continuous display, it is impossible to get far away from the near relatives of the Teas, such as the Noisettes and the Dijon race, which all flower freely in autumn, and are but little subject to mildew. Of the former, in addition to the well-known Maréchal Niel and William Allen Richardson of button-hole notoriety, there are Lamarque, the best and most beautiful of all autumnal white climbing Roses; Ophirie, whose great clusters of coppery buds are quite unique and immensely attractive, whether the plant be grown on a wall, on a pillar, or as a bush, with the additional advantage of being produced freely in August, when Roses in the south are least plentiful; Aimée Vibert, whose large trusses of little flowers are similarly useful from the lateness of their production; Fellenberg, fragile, but brilliant crimson in colour; Rêve d'Or, a lovely Rose and free autumnal, which even if it never bloomed would nevertheless, for the sake of its beautiful red shoots and young foliage, be worth growing on a pillar.

Of the Bourbon Teas, as they may well be called, the best are Bouquet d'Or, more beautiful in form than Gloire de Dijon; the pale yellow Emilie Dupuy, much hardier than Belle Lyonnaise; and Madame Berard; in addition to Gloire de Dijon itself. If these great Roses are not wanted as climbers, they are exceedingly decorative when grown as great bushes, not tied up to a post, but allowed to grow their own way, with a few stakes introduced as required to which the long arching

shoots may be just secured to keep them from blowing all over the place.

There are only two red Hybrid Teas at present that are not too dreary in colour to be worth growing as climbers, but of these, Reine Marie Henriette, which is generally the earliest Rose in bloom, and is also free in autumn, is most charming and is a first-rate Rose in every way, whilst Reine Olga de Wurtemberg, though only semi-double, is so bright, and makes such a magnificent plant with its glorious foliage, that it is well deserving of more general recognition.

The Hybrid Polyanthas are of course half Teas, and it is from the latter that they obtain their ever-blooming character. Two varieties are especially decorative and literally incessant-flowering, namely, Mignonette, a rosy pink, and Pâquerette, pure white, both producing immense trusses of bloom, though neither plant ever attains many inches in height.

Of other Roses that are free autumnals, and also tolerably exempt from mildew, the most effective are the common pink China and the Bourbon Queen—very free, pale buff or flesh colour, and Rev. H. H. D'Ombrain, a rich carmine-crimson, delightfully fragrant, most constant, invariably the earliest of all, being ready by the middle of June, yet reliable till autumn, and succeeding admirably on its own roots. It will be seen, however, that even these are of Tea blood, and that thus all the Roses that can be best depended upon to flower continuously, and to resist mildew and Orange fungus, either are, or are derived from Teas.

Of the Hybrid Perpetuals that are the most constantly decorative and least subject to mildew, Ulrich Brunner heads the list as a plant that is always as green as Leeks, and produces early and late extremely handsome rich carmine flowers; the well known La France and A. K. Williams, the freest of all crimson in autumn, come next; Boule de Neige, the exquisite Grace Darling (which must regretfully be admitted to be a Hybrid Tea, that is to say, for exhibition purposes a Hybrid Perpetual), Charles Lamb and Garden Favourite, two recent Roses of distinct and striking shades and very desirable, and dear old Anna Alexieff, a most delightful plant that annually covers itself with flowers that are still unique in their brilliant shade of pink. Anna de Diesbach is perhaps a trifle coarse, but fine in colour and very telling in a garden, a character which also applies to Julie Touvais, a charming Rose rendered especially valuable from its earliness in blooming. The best of the others are Baroness Rothschild, Dupuy Jamain, Général Jacqueminot, Gloire Lyonnaise, Glory of Cheshunt, Heinrich Schultheis, Henri Ledechaux, Jules Christien II., Jules Margottin, Madame Gabriel Luizet, grand and indispensable, but prone to mildew, Marquise de Castellane, Merveille de Lyon, Rosieriste Jacobs, good crimson autumnal, and Violette Bouyer, the best white Hybrid Perpetual till mildew makes its appearance.

In addition to all these there are a few Roses which, though they flower but once a year, make then so fine a display that it might almost be allowed to count for two. For instance, Madame Plantier when in flower is not to be surpassed for a mass of purest white in the garden; Blairi No. 2, allowed to grow its own way, makes a great mound which in June is covered with pretty blush flowers; and a bed or mass of Rosa mundi, the best and brightest of the striped Roses, is a charming sight when in full blossom. Of the Austrian Briers a striking group may be made of Persian Yellow, and the types R. lutea and R. punicea or the single yellow and copper Austrian Briers are even more telling and effective in colour. In fact, counting these two, there are half a dozen single Roses which ought not to be lost sight of in any tolerable collection, the others being R. macrantha, perhaps individually the most beautiful of all single Rose blooms, R. lucida with its gleaming leaves and brilliant wax-like hews when the rosy petals are gone, R. rubrifolia, the Rose tree of fairyland, and the glorious climber R. polyantha. In order to give a better idea than is possible in words of the immense decorative value of this Japanese species, a photograph

was taken of a plant in full blossom, and was reproduced in the *Gardeners' Chronicle* for Nov. 26, 1887, when the photo-engraving was no doubt seen by many readers of the "Year-Book." The plate gave a very good idea of the general appearance of the Rose climbing over a 13 feet fence, and any growers who are not acquainted with the species, and who missed the issue in question, cannot do better than refer to it if they care to make the acquaintance of one of the most ornamental climbers in cultivation.

There is a remark often heard in reference to some Rose or other, to the effect that "It is no use for exhibition: it is only a garden Rose." Now there is nothing more absurd than a prevalent supposition that a Rose which produces flowers sufficiently perfect for exhibition cannot be a decorative garden Rose, or that a garden Rose is merely one whose flowers are not individually beautiful enough to be worth exhibiting. On the other hand an inspection of the above rigorously selected list will show that, as far as the Teas and Hybrid Perpetuals are concerned, the best and most constantly decorative Roses in the garden are also, with some half-dozen exceptions, the best and most fashionable Roses for exhibition.

Of course there are some Roses which exhibitors will continue to cultivate in spite of some grave defect, such as lack of constitution or hardness, and there are also some Roses whose flowers may not be quite large or perfectly formed enough for exhibition now-a-days, which nevertheless are indispensable in the garden. But on that account to say either that exhibition Roses are not decorative in the garden, or that the mere fact of a variety producing flowers not fit for exhibition constitutes it a valuable garden Rose is misleading and most undesirable, in view of the no longer disputable fact that many of our most perfect Roses for exhibition are at the same time in the garden among the most strikingly decorative Roses.—T. W. GIRDLESTONE, in *Rosarian's Year-Book*.

ROSE PROSPECTS AFTER THE SNOW.

AFTER a dreary succession of snow showers and thaws, lasting a month or more, the dwarf Roses and the bare ground have once more appeared. Both are specially welcome, as the pruning season for the Roses is at hand. The snow seems to have chilled the Roses more than usual, and not a few of them have a bruised and starved-like look. This mostly happens when the snow covering has been scant and intermittent. Roses and most other plants are not only safe, but mostly succeed best when wholly buried under snow; but when the latter keeps falling and freezing through a series of days or weeks, the iced water proves a trying ordeal to all living plants. This is emphatically visible to-day in the kitchen as well as in the Rose garden. Cabbages and Parsley that went under covering as green as Leeks reveal themselves to-day almost as yellow as guineas; and this is not so much on account of their exclusion from the light as to the coldness of their frequent baths of snow water, for mere snow coverings not seldom enhance the verdure of Grass and vegetables.

The Roses went into snow quarters with their buds on the move; they come out of them with most of their foremost buds either blackened or checked back into dormancy. So far excellent, as a late start means fine Roses in June or July, and *vice versa*. A few of the more tender varieties, however, appear to have had rather too much snow water. Time, however, the great revealer, will show. While, however, waiting for further revelations of the doings of the cold among the Roses under the snow, the work of the day should consist in protecting any that may seem to need it from further cold; for whatever else these snow coverings have or have not done for our Roses, they have most assuredly made them more susceptible of cold, and nothing cripples or kills more Roses than a March frost on the heels of a snow chill or burial. Piercing winds, biting frosts under such conditions go deep and far to wreck and ruin the Roses. As the snow protection, imperfect as it has been, is now removed, the plants are placed at a serious disadvantage in their battle

with our climate throughout the remainder of the cold season; and as of late years the latter has often run far into May, it is most important rather to add to than remove protection now and also to defer pruning as long as practicable. The winds of March often remove the more flimsy protections from the heads or rootstock of Tea or other tender Roses. Frequent examinations and renewal are therefore needful, as intermittent protection is far more deadly than none. And for this very obvious reason, that all protection induces extra tenderness or susceptibility to injury from cold. For example, there are two rootstocks of Maréchal Niel Rose in the open; one has had no protection, the other a fair amount of dry Bracken. Early in the night a north-east wind searches through the protected top and succeeds in sweeping away the whole of the protection. A frost of 15° follows, and the two plants standing side by side are exposed to an identical degree of cold. The protected plant is, however, quite killed and the other but slightly injured. Why? Because the protected plant was made more tender through the protection. The latter—to put the matter in its most popular form—at the moment of its removal opened out the citadel of life for the more facile and sure ingress of cold. If all this be true—and it is—let those who were careful to protect their Roses in December be yet more careful to certify or renew that protection in March if they would have Roses in perfection throughout the Rose season of 1888.

D. T. F.

PROPAGATING.

ARALIAS.—These handsome-foliaged plants can be increased in various ways, for whereas some can be propagated by cuttings of the young shoots, in the case of others it is necessary to graft them, while some may be obtained from root cuttings. Among those that will not strike, but must be grafted, is Aralia Veitchi and its variety gracillima. The best stock for this purpose is A. reticulata, a stove species, that will strike readily from cuttings, so that stocks are easily procurable. After being struck the cuttings should be potted off, and when about the thickness of a straw they are then available for grafting. It matters little how the operation is performed provided the barks of the two kinds fit together exactly. By some the scions are cut in the shape of a wedge, and, the stock being split, they are inserted in this manner, but the method generally followed is that known as side-grafting. In this operation a slight incision is made in the stem just clear of the soil, then about an inch above it the knife is inserted and a sloping cut carried down to the first incision. The graft, which should consist of the top of a plant in a partially ripened condition, must then have the base fashioned in such a manner as to fit exactly in the spot from whence the piece has just been removed. It is necessary, then, to tie the graft securely in position with some soft material, such as coarse darning cotton. If then placed in a close propagating case, no wax or clay will be needed to cover the point of union. The stocks must not be allowed to become old and stunted before using them, as when young and vigorous the wounds made by the knife heal very rapidly. It is also very convenient to have the stocks in small pots, as they do not then occupy so much space in the propagating cases, and, furthermore, if in small pots and well rooted, it will be necessary to shift them on soon after after a union is effected, and an opportunity then arises to bury them rather deeper in the pot than they were before. The point of union is thus wholly or partially covered. When a plant becomes naked at the base, the top may, if desired, be taken off and grafted on the bottom, by this means making a dwarf specimen of it. When side-grafting is followed it is not necessary to cut off the stock at the point of union, but after the scion commences to grow the top may then be removed. Another method, which can be carried out where stout roots of any of the kinds are available (which, by the way, is not often the case), is to graft the shoot on to a piece of root in the same manner as

the various hardy Clematis are grafted. Several of the other stove kinds, such as *A. Chabrieri*, elegantissima, and *leptophylla*, though they can be struck from cuttings, are usually grafted, as in this way good-sized plants can be obtained in less time than if put in as cuttings; though where it is intended to propagate them in this way the cuttings should be formed of the current season's shoots cut off cleanly at a joint with a sharp knife, and two or three of the bottom leaves removed for the convenience of insertion. The better plan is to put each cutting singly in a small pot, which must be drained and filled with light sandy soil. After insertion a thorough watering should be given, when if the pots are plunged in a gentle bottom-heat in a close case, the cuttings will soon root. Should any of the latter be at all top-heavy, the safer plan is to secure them to a small stick before placing them in the case. The variegated-leaved *A. Guilfoylei*, which, after *A. reticulata*, is the most suitable stock for the stove kinds of *Aralia*, strikes readily from cuttings, which is the usual way of increasing it. Among the greenhouse kinds of *Aralia* the most generally grown is *A. Sieboldi*, or *Fatsia japonica*, as it is often called. Of this seeds are by no means difficult to obtain, and they should be sown as soon as possible after being gathered, for they then quickly germinate. The seeds must be cleaned before sowing, which should be done in either pans or boxes. Whichever is employed must be well drained and filled to within half an inch of the top with light sandy soil pressed down moderately firm and made level. The seed, having been sown and just covered with the same compost, should be placed in a structure kept at an intermediate temperature until germination takes place, when the boxes or pans should be removed to a cooler position. When large enough the seedlings should be potted off, taking care that the stem is buried nearly up to the seed leaves. The variegated variety does not come true from seed, so that other means have to be resorted to. Sometimes a few weak shoots are pushed out around the base of the plant, and when this happens they supply the best of cuttings, as they root without difficulty if taken off with a heel and inserted into small pots of sandy soil. They must be kept close till rooted, and a little bottom-heat will assist them in this respect. During the summer months the cuttings will strike in an ordinary garden frame. In the case of plants that have grown up tall and naked, the top may be taken as a cutting, and this operation will, of course, cause side shoots to be pushed out, which, when sufficiently advanced, may be utilised as cuttings; indeed, a few old plants may be depended upon to supply a considerable number, as no sooner is one removed than another is pushed out to take its place. The Japanese Rice-paper plant (*A. papyrifera*) can also be increased by root cuttings. Good stout roots should be chosen, and having been cut up into lengths of about a couple of inches, they should be dibbled perpendicularly into pans or boxes of sandy soil, and at such a depth that the upper part of the root is just covered with the soil. In cutting up the roots care must be taken that none of them are reversed, for this is a mistake that may easily happen, and if it is done they will not strike. The hardy *Aralia spinosa* will grow readily from pieces of the roots.

THE GOLDEN VINE (*Stigmaphyllon ciliatum*).—This ornamental stove climber, of which a coloured plate was given in *THE GARDEN* for Feb. 25, 1888, can be readily increased not only from cuttings of the growing shoots, but if some of the principal roots are cut up into lengths and placed under conditions favourable to growth they quickly form plants.

ORANGES.—It is easy to obtain a stock of Oranges by sowing the seeds, but as the plants take a long time to flower, other means have to be resorted to in order to obtain those pretty little bushes that flower and fruit so freely even in a small state. As cuttings do not root at all readily, the only course open is to propagate Oranges by means of grafting, and for this purpose the young seedling plants make the best stocks. They should be well established in small pots, and when the stem is of the

thickness of a straw to that of a lead pencil is a good time to carry out the operation of grafting. At all events it should be performed while the bark of the stock is still fresh and green; that is to say, before it becomes brown and rugged in character. The method usually employed in grafting the Orange is that known as side-grafting, and the scions should consist of good clean shoots about 4 inches or 5 inches long. The height at which it is to be grafted will, of course, depend upon the style of the plant that is required. Small standards are preferred by many, and the point of union must be at the spot where it is intended the head of the plant should branch out. Where bushy plants are needed the graft must be put on as near the ground as possible. The top of the stock may be shortened in, but must not be removed until a union is complete. In grafting great care should be taken that the barks of both stock and scion fit exactly, when they must be tied securely in position and then placed in a close propagating case, for if this is done no grafting wax or clay will be needed. If there is no deep case for their reception the standard plants may be laid down, for they unite just as well in this position as upright, the only care needed being to stand them up occasionally and water if required. In the case of all grafts that are to stand in a moist atmosphere, the tying material employed must not be raffia, for it decays quickly when always wet. A coarse kind of darning cotton is for delicate grafting a very suitable material.

LEMON-SCENTED VERBENA (*Aloysia citriodora*).—Though this is common, it is one of those plants that many fail to strike in a satisfactory manner, yet it is very easy to propagate if a few facts are borne in mind. The best cuttings are furnished by plants under glass directly they start away into growth in the spring, and the cuttings should be formed of the young shoots then produced while still in their soft succulent condition. If allowed to become half-ripened they take a longer time to root and some will fail. The cuttings should be dibbled in as soon as possible after being removed from the parent plant, as if allowed to flag they take longer to root than if this does not happen.

COPROSMA BAUERIANA VARIEGATA.—The best way to increase this is to keep the stock plants in the temperature of an intermediate house a month or so before taking the cuttings, as in such a structure its growth is rapid. The young shoots so produced make the best cuttings, that is, if they are taken from the plant, dibbled in, and placed in a close propagating case with as little delay as possible.

GAILLARDIAS.—These beautiful border flowers are not only easily increased by seeds, but also by cuttings of the roots taken at any time; but the spring is the best season. T.

Top-dressing lawns.—In the issue for March 3 (p. 200) you give particulars of top-dressing for lawns, the last one of which speaks of "trimmings from roadsides." Is this to be understood as road-scrappings from limestone or any other roads? Shall be glad of further information.—U. K.

Germination of seeds.—"Hortus" (p. 198) attempts to controvert what I stated with regard to immature seeds germinating irregularly by saying that some people hold exactly an opposite opinion. Now, what I quoted was not an opinion, but an ascertained fact. I quite agree that new seeds, if they are properly matured, do germinate more readily than older seeds, and the example I gave was rather to prove the exception than the rule. At the same time, I believe that it not infrequently happens that seeds are sown before they are thoroughly ripened, and consequently do not ger-

minate so evenly or so readily as they otherwise would do. On the other hand, it more frequently happens that seeds get hardened and dry through being kept too long, or by being subject to too much drying, and germination is thereby much retarded.—A.

ORCHIDS.

W. H. GOWER.

EVERGREEN CŒLOGYNES.

THIS is a genus of beautiful plants, and the various members which were grown in my younger days, and which had been allowed to slip out of cultivation, are now returning to favour. They are again being introduced and looked upon as rarities, whilst many new kinds have been found and introduced within these last few years. Orchid growers will find that *Cœlogyne* cannot be kept together under one



Cœlogyne speciosa.

regimen in the same manner as *Odontoglossums*, as I recently noted in a garden near London, for although all enjoy at least moderate heat and an abundance of moisture during the growing season, some of the kinds require strong heat all the year round. Thus some species are natives of high elevations, and these, of course, thrive best in a low temperature, or at least under conditions most in accordance with their natural surroundings; whilst those found in low situations naturally require a much greater amount of heat and moisture all the year round, and therefore I regard it as impossible to grow these plants side by side under cultivation. Where their natural habits are studied and their requirements attended to, few plants give larger returns than *Cœlogyne* for the pains bestowed upon them. Whatever the temperature the various kinds may require, I have found that they all should have thorough drainage, and should be potted in good rough fibrous peat, to which some living *Sphagnum*

Moss may be added with advantage, some kinds liking the latter better than others, but I approve of all being surfaced with this material. The kinds producing drooping racemes may be grown in hanging baskets, in which position the spikes of bloom display their beauties to the greatest advantage, whilst the other kinds should be well elevated above the rim of the pot. This is a somewhat extensive genus, and a great number of the species flower in winter, which, combined with the fact that the majority of the kinds produce white flowers, renders them doubly useful. The following kinds are all distinct, and deserve a place in a collection of orchidaceous plants:—

C. ASPERATA, more familiarly known as *C. Lowi* (having been introduced by Messrs. Low), used

light; and although it enjoys a copious supply of water, it should be administered with care during the dull winter months.

C. BARBATA.—In spite of what has been written about this species, it is truly a beautiful winter-blooming variety. One of the finest varieties I have seen was flowering during the past winter in Mr. Southgate's collection at Streatham. It is both a free grower and bloomer. The pseudo-bulbs are roundish-ovate; the scape is erect, bearing a raceme of large flowers, which in the sepals and petals are white; lip white, stained in the best varieties with black and bearded with a fringe of hairs of the same colour, while in the ordinary forms it is more of a sepia-brown. It was introduced some few years back by Mr. Bull, of Chelsea, from Northern India, and thrives well in an intermediate house.

C. CORRUGATA is a species from the Madras hills

too well known to need much description. It is a magnificent Orchid for winter blooming; it should be grown in a cool stove, and in the autumn placed in a little extra warmth to finish up the bulbs and induce them to push out their racemes of flower, which in the sepals and petals are pure white stained in the lip with orange. There are now numerous varieties of this species which differ more or less in the breadth of sepals and petals, that known as the Chatsworth variety, sometimes called *maxima*, being the best. In the variety *Lemoniana* the flowers are broad, as in the Chatsworth variety, but the lip, instead of being broadly stained with yellow or orange-yellow, is of a faint pale yellow; whilst in the variety *alba*, which I recently noted at Mr. Measures at Streatham bearing 170 flowers, they are of the purest white, without a spot of any colour. It is found growing wild in Northern India at an elevation of 5000 feet to 8000 feet.

C. DAYANA.—This plant is a native of Borneo, and commemorates one of the most enthusiastic of Orchid growers who has just passed away. The plant has long and narrow bulbs, which are more or less wrinkled and, like the leaves, deep green. The racemes come up with the young growth, and bear from one to two dozen flowers. This variety is pendulous, and therefore requires a hanging basket; it may be rested where it is grown, but should not be exposed to the hottest sun. The flowers, which appear in summer, are ochrous-yellow in the sepals and petals, blotched and bordered with brown on the lip.

C. ELATA.—A beautiful species of which I formerly used to have large plants, but it is now somewhat rare. It is a native of Northern India, in situations of 4000 feet to 9000 feet elevation, and consequently requires cool treatment. This plant grows to a height of some 2 feet or more. The scape rises with the young growth, and is erect, shorter than the leaves, and bears numerous large creamy-white flowers; the lip is stained with a V-shaped yellow streak, and has two raised crisp orange crests which extend to the base. It blooms in April and May.

C. FLACCIDA.—This species, as its name implies, produces pendent spikes, and therefore should be grown in a hanging basket; the racemes are very numerous, but the flowers are rather strongly scented when the sun shines upon them; they are white veined with crimson and yellow. It is a native of Northern India, thrives best in the Cattleya house, and requires good resting.

C. FUSCESCENS.—A winter-flowering species from Moulmein. The raceme is short and nodding, with yellowish white flowers, the petals being very narrow; lip chestnut-brown, bearing three raised streaks of orange from the disc to the base, the side lobes being dotted with rich brown.

C. GARDNERIANA.—This is a very old acquaintance which I recently saw in Mr. Buchan's collection at Southampton. Although large plants of this species were to be seen years ago, it is now rare; it has large bottle-shaped, blue-green bulbs, which bear a pair of broadly lanceolate leaves upwards of a foot long, and of an intense deep green. The raceme is pendent, the flowers being large, half-closed, and snow-white, saving the lip, which is tipped with lemon-yellow. At the base of each flower is a large deciduous brown bract. This plant must be grown in a cool intermediate house, and requires resting after growth is completed. It blooms during autumn and winter. Native of woods in Nepal and Khasya.

C. MASSANGEANA.—A grand species in the way of, but much superior to *C. Dayana*, and yet the two are excellent companions. It grows freely and increases quickly, the blossoms appearing twice in a season. Amongst the grandest examples I know of this species in the country, I may note as remarkable those in the collections of Baron Schröder, the Messrs. Measures, Sir Trevor Lawrence, Mr. Lee, and Mr. Southgate. The spike is pendent, upwards of 2 feet long, and bears two dozen or more flowers, so that it is necessary to grow the plant in a hanging basket. The sepals and petals are of a light yellow or buff colour, the lip being rich brown, the



Caelogyne cristata.

to be seen in our gardens as fine specimens, but is now rare. I saw a nice example recently in Baron Schröder's collection, and it also bloomed a short time since at Downside. It grows to a height of some 2 feet, the bulbs being oblong and stout. The raceme is about 1 foot long, bearing numerous flowers, each of which is from 2 inches to 3 inches over. Sepals and petals creamy-yellow; ground colour of lip similar; the disc ornamented with tawny orange, and streaked with yellow and brown. It is a summer bloomer. This is a native of Sarawak, in Borneo. It enjoys the temperature of the East India house all the year round. A little loam may be added to the soil for this plant with advantage. It requires abundance of heat and

at considerable elevations, and should be grown cool. It has not hitherto proved a free bloomer, but I imagine this arises from want of resting it sufficiently. The bulbs are ovate and much wrinkled; the flowers are pure white, saving a stain of orange and yellow on the lip.

C. CORYMBOSA.—This is another cool house species too seldom seen. It is a summer bloomer, producing large flowers nearly 4 inches across, which are white, saving the lip; this is ornamented with two yellow eye-like spots bordered with brown, and the disc is also stained with the same colour. It comes from Northern India at some 5000 feet elevation.

C. CRISTATA.—This plant (here shown) is now

middle lobe bordered with white, and the disc veined with yellow. It is a native of Assam, and thrives either in the East India or Cattleya house.

C. OCELLATA MAXIMA.—A beautiful small-growing plant which may be either grown on a block of wood or in a small basket. The flowers appear in early spring, and are borne upon pendent racemes. The sepals and petals are pure white and spreading; lip white, spotted with yellow on the disc, and streaked with brown in the throat, and on each side lobe there is a yellow eye-like spot, bordered with orange. It should be grown in the intermediate house. Introduced by Mr. Williams, of Holloway, from Northern India.

C. ODORATISSIMA.—This is a somewhat small-growing species. It was introduced with *C. corrugata* (a species previously mentioned) from the Neilgherry Hills about the year 1862. It requires to be kept in a cool house, where it grows freely and blooms profusely in the month of April. The flowers, borne several together upon slender, pendent racemes, are pure white, saving a tinge of yellow on the disc of the lip, and have a honey-like perfume.

C. PANDURATA is an introduction of Messrs. Low, of Clapton, from Borneo, and would appear to have flowered for the first time in this country with the Messrs. Loddiges, of Hackney, about the year 1853. A few years later Col. Butler, of Woolwich, used to exhibit a magnificent plant of this species, but of late years it has become scarce, and, judging from the difficulty there appears to be in establishing it in Messrs. Low's nursery, a great many more plants die than survive the journey. It is totally different from any other known kind of *Cologyne*; the flowers, produced in pendent racemes, are about 4 inches across, the sepals and petals being of a uniform light green; lip also green, blotched in front with black, and bearing several black fringed lines on the disc. It usually blooms in spring and early summer. As before remarked, it is a native of Borneo, where it grows upon the branches of trees in the neighbourhood of water; it, therefore, should remain in the same position all the year round and not be subjected to much drying.

C. PARISHI.—Although green flowers are not, as a rule, popular, I shall introduce this plant, which is another introduction of the Messrs. Low from Moulmein. The pseudo-bulbs are long and angular; the raceme is erect, borne upon a spike, which issues from the top of the bulb; the flowers are green, saving a few blotches of black upon the lip. It is a spring-blooming plant, and may be grown successfully with *C. pandurata*.

C. SPECIOSA.—This Javanese species (an illustration of which we give) requires strong, moist heat, and will continue in flower all the year round. The flowers appear almost immediately the growth is completed. They are large, deep olive-green; lip large, white, stained on the disc with very deep brown.

Raising Angræcums from seed.—I have just received some seeds from Madagascar of *Angræcum sesquipedale*. Any hint as to how to raise them will be very acceptable. I have all *THE GARDEN* from the first number, but cannot come across anything to the purpose.—**VULCAN.**

* * The best plan would be to sow your seed amongst the *Sphagnum Moss* in which you have a plant of the same species, taking care that this plant is in a fit condition to stand for some time without being disturbed. If you have no *Angræcum*, then try some other growing *Orchid* which does not require much resting, so that the *Moss* may be kept fairly moist all the year round. (You will find this system far better than preparing a special seed-pot.) Then mark the pot in some manner, in order that it may not be disturbed, and wait and watch for your seedling *Angræcums*. There is no other way that I am aware of. I have had no experience at all with *Angræcums* as seedlings, and should be glad to hear from you later on, if your seeds prove good, as to how long they took to germinate, &c.—**W. H. G.**

Calanthe Veitchi.—Is this *Orchid* a species or a garden hybrid? and does it reproduce itself from

seed or nearly so? The reason I ask these questions is, that a few days ago Mr. Crook, of Farnborough Grange, Hants, sent me flowers of what he called *Calanthe Veitchi*, but being so late in the season, I doubted whether the flowers were that variety, and the doubt was increased by the much deeper colour of the flower than is the case in the typical kind. The light purple-rose colour of the ordinary variety was, in this instance, several shades deeper, approaching, in fact, a deep purple-maroon. Apart from the late period of blooming and the deeper-coloured flowers, the variety possessed all the characteristics of *C. Veitchi*. I think that possibly it may have been a seedling from *C. Veitchi*.—**W. W.**

* * * *C. Veitchi* is certainly a garden hybrid, having been obtained by crossing *Limatodes rosea* and *Calanthe vestita*. It varies considerably in colour. We saw a few days ago a very good form of this plant in flower, but cannot say what the variety you allude to may be without seeing a bloom of it.—**ED.**

CHOICE SLIPPER ORCHIDS AT HOLLOWAY.

THE private collection of *Cypripediums* kept by Mr. Williams is so large and the quantities of forms to be seen in flower at all seasons so numerous, that I shall confine myself to recording a few of the most beautiful, foremost amongst which stands the rare *Morgania*, which has a fine tall scape bearing three gigantic flowers. I think for nearly twelve months this variety has been blooming in this nursery. I do not mean to infer that the same plant has been flowering so long, but the display has been maintained by a succession of plants. This shows the wonderfully free-flowering habit of the plant, which is superior to that of both parents as much as it excels them in beauty. It appears to require strong heat and moisture and full exposure to the light. Another rare and beautiful form is *tessellatum porphyreum*. The dorsal sepal is nearly round, the lateral sepal being similar, but smaller, and the petals are broad and slightly deflexed; ground colour creamy white veined with crimson, and suffused over the entire surface with fiery crimson, the petals being speckled towards the base with blackish crimson. The lip is large, much compressed, and yellowish white below, the whole front and sides being of the same fiery crimson as the sepals, which are veined and reticulated with a deeper shade of the same hue. It is the result of a cross between *C. concolor* and *C. barbatum*, and whilst the male parent has given the flower, size and colour, the flower retains to a great extent the shape of the seed-bearing plant, and also its slow-growing qualities. I imagine all the forms crossed with such kinds as *concolor* and *niveum* would be benefited by the addition of limestone to the soil. The true form of *C. selligerum rubrum* is also in great beauty at the present time. This is a *Veitchian* hybrid, between *C. philippense* and *barbatum*. It bears three flowers upon a tall scape, and in addition to the rich colours of the typical form is suffused with rich crimson. The flowers are larger and more handsome than those of *philippense* and are more freely produced, although the petals are not so long. This plant, like all the hybrids from the eastern island species, requires strong moist heat. *C. Sedeni candidulum* was obtained by Mr. Seden in the Messrs. Veitch's nursery, and by Mr. Osborn in the garden of Mr. Buchan, of Southampton, almost simultaneously, but I believe it flowered first at Chelsea. It is a lovely whitish form of *Sedeni*, that is to say, it is not snow-white, but of a soft creamy hue. Judging from a plant now flowering in this collection, it will prove to be a much finer variety than has hitherto been seen. Another fine form of the *Sedeni* type is *porphyreum*, which is very rich in colour, and the inside of the lip is profusely dotted with reddish brown. I had never been very favourably impressed with *C. politum* before my present visit to this collection, where it is flowering upon strong plants, and is a fine winter-blooming kind. It is the result of a cross between *C. barbatum superbum* and *C. venustum*. The flower is large, the dorsal sepal being ovate, white distinctly veined with deep green, and

suffused between the bars with reddish pink; petals long and broad, ciliated on both edges, and ornamented near the base with numerous black warty spots; lip large, suffused with purplish red over a yellowish green ground with deeper veining. *C. Williamsianum* is a fine, bold flower, 6 inches across. The flower is large, white, distinctly veined with bright green and flushed with pink. This variety has been obtained between *villosum* and *Harrisianum*, and blends the beauties of the two in a peculiarly happy manner. Other fine forms flowering at the time of my visit were *C. nitens*, *Dauthieri*, numerous forms of *Harrisianum* and *villosum*, *melanophthalmum*, *microchilum*, *Dayanum*, *Regnieri*, *callosum*, *Warneri*, *venixium*, and many others. I noted that specimens of those kinds of which stock is possessed were growing in a cooler temperature than the private collection, and this convinces me still more that the majority of these *Lady's Slippers* do not require the extreme heat with which they are usually treated.

W. H. G.

Vanda Goweræ.—I am very glad to see by the report by "X." in *THE GARDEN*, March 10 (p. 231), that this plant is now flowering at Kew. I must take an early opportunity of seeing it, as I had feared it was lost to cultivation. I imported thousands of this species without ever getting a living plant, and when live plants did arrive, it was only a very few that survived the journey. This species was named provisionally *Vanda Goweræ*, not *Goweri*, and now that the plant is in flower at Kew I hope the name may be confirmed. I have dried flowers and a drawing made in its native country of this species, which go to prove that however modest the plant at Kew may appear with its two-flowered raceme, it is really a beautiful species. I have myself found that it must be grown in a low temperature. The drawing in my possession is that of a spike a foot long, with a branch at the base, the whole bearing eight flowers, which, however, do not appear to be the full number, each of these measuring $1\frac{1}{2}$ inches across. The sepals and petals are pure white, with the edges much undulated, and the small lip is white, stained with lemon in front, side lobes tinged with green and faintly stained with crimson on the disc, somewhat resembling a long raceme of diminutive *Cologyne cristata* blooms.—**W. H. G.**

Vanda Cathcarti.—I am much obliged to Mr. Burbidge in *THE GARDEN*, March 10 (p. 224), for correcting me respecting the first flowering of this plant. If the plant bore several spikes of flower in Mr. Stead's collection in 1869, it is extraordinary that it was not figured until the following season, from a specimen which bloomed at the Messrs. Veitch's establishment in March, 1870, and which then was considered to be the first time of its flowering in cultivation. I, however, quite agree with Mr. Burbidge that plants do flower and the facts remain unknown for years. No more striking proof is necessary than the first flowering of *Lycaste Skinneri alba* and *Anguloa eburnea* many years ago by myself in the then extensive collection of Messrs. Jackson and Sons, of Kingston, and the facts of this were not only doubted, but denied by several leading men, Mr. Burbidge amongst the number, but the fact of these plants existing is now permanently established; therefore I accept Mr. Burbidge's statement that the *Vanda Cathcarti* flowered first in Mr. Stead's garden in 1869, and that this plant, which was then of great value, and was being anxiously waited for, was allowed to bloom unnoticed. I may add that I have at various times imported hundreds of this species, but such a bad plant to travel did I find it, that very few of them ever arrived alive in this country.—**W. H. G.**

Odontoglossum hystrix.—In *THE GARDEN*, March 17 (p. 236), Mr. J. Douglas speaks of "varieties of *hystrix*," thereby inferring that this *Orchid* is a species. There has been some misunderstanding respecting this *Odontoglossum*, but it is now considered as a form of *O. luteo-purpureum*, and its affinity can be seen, as the whole expression of the flower is like that of the parent. A large specimen of *O. hystrix* in full bloom is one of the finest of *Orchids*; the arching raceme is of robust character, and the finely-shaped,

richly-blotched flowers are most telling. There are other varieties of the popular *O. luteo-purpureum*, but *hystrix* is one of the very best.—X.

KITCHEN GARDEN.

WASTE OF SEEDS.

A MISTAKE commonly made is that of sowing seeds too thickly. Not merely is this a waste of seeds, but crowded rows or crowded seed-beds are also most unprofitable. There is certainly something to be said in favour of the old saying, that it is wise to sow "enough for the hoe and some for the crow," or, in other words, sufficient seed should be sown to allow a good margin for any contingency in the shape of accidents and loss from bird, vermin, and insect attacks. But that is no excuse for raising plants so thickly as to spoil each other, and that, too, in spite of an attempt at timely thinning out. I hold it to be true economy, in the first place, to purchase seeds from a source that can be relied upon to supply a genuine article, those ridiculously cheap seeds largely distributed frequently being either not true to name or of mixed ages, or imperfectly ripened. It is no part of my business, let me add, to bolster up high prices, nor to abuse those that sell cheaply. Because there are some unscrupulous seedsmen among the latter, it does not follow that all are guilty, and what I am anxious to impress on the inexperienced reader is the simple fact that it is wiser to purchase good seeds, sowing these sparingly, rather than to procure and sow larger quantities of doubtful quality. I may be told that we ought always to test our seeds prior to sowing them, and no doubt in time this would be a guide. At first we might be completely deceived by appearances. Seeds that would germinate satisfactorily when sown in a pot or pan of light, sandy soil and set in gentle heat might yet completely fail to grow when committed to a cold or very wet soil, it being a well-known fact that old seeds require more warmth to start them than do sound new samples. Consequently a trial of seeds might prove altogether misleading.

During March and April more seeds of vegetables are sown than through all the rest of the year, and, in my opinion, more seed is wasted and more plants spoiled from overcrowding than few thinking men even are aware of. Especially is this the case with the Brassica tribe. It is a common practice to sow half an ounce of Broccoli, Cauliflowers, Savoy, Borecole, and Brussels Sprouts on a small patch of ground, say about 4 feet square. To make matters worse, a sheltered border is usually the site selected for these tiny beds, the inevitable result (barring accidents) being double the required number of weakly, miserably-drawn seedlings, which are altogether unsuited for laying the foundation of a sturdy hardy plant. Either sow less seed or spread the amount usually sown over a greater area and be rewarded with a far more serviceable lot of plants. The sturdiest plants, and which may be transplanted at almost any time, or in hot and dry as well as showery weather, are those obtained by sowing seed thinly and broadcast on poor, open ground. When the seed is sown in drills it is more easily covered with soil, but these drills seem to invite—or at any rate they induce—thick sowing, and as every sound new seed germinates, too many plants are obtained. Half an ounce or a good-sized packet of seed ought to be distributed through twenty drills 5 feet long and drawn 5 inches apart, or broadcast over a space 8 feet by 6 feet.

Beet seed, being large, is not often sown too

thickly, but the case is very different with Carrots, Onions, and Turnips. I have seen the thinnings from the rows of these so abundant as to need several journeys with a wheelbarrow to the rubbish heap—this, therefore, entailing a waste of both seed and labour, as well as greatly weakening the plants reserved. If all the seeds were sown in rather wide drills, the seedlings coming up about 2 inches apart each way, whatever thinning out was necessary could be easily done, and good, sturdy plants would be left. I make one ounce of Carrot seed sufficient for one or more drills equal to a length of 32 yards, plenty of tiny roots being drawn early for use, while abundance still remains. One ounce of Onion seed is sufficient for four drills, each 18 yards long, and there are usually many more plants than are needed. Turnip seed will go still further, one ounce being sufficient for six rows 18 yards long. One ounce of either Scorzenera or Salsafy is enough for four rows, each 18 yards long, this being the average length of our quarters. From one to two ounces of Beet are sown in a similar number of drills; while two ounces of Parsnip seed I find enough for ten such rows. Spinach should also be sown thinly, there being little time for thinning out this quick-growing crop. One quart of seed is ample for at least fifteen rows 18 yards long. Lettuce, Endive, Parsley, and Radish ought always to be sown thinly, so as to render timely thinning out a simple matter.

Peas and Beans, both important vegetables, are very frequently sown too thickly, no regard whatever being paid to their natural habit of branching when there is room for them to do this properly. The early round-seeded Peas may safely be sown more thickly than any of the rest, these being wanted early, and, in addition, are not much given to branching. When, however, the later wrinkled-seeded Marrows are given good room these grow more vigorously, branch freely, and are more continuous cropping than when unduly crowded. When close together, the plants become weakened and impoverished, and are soon exhausted. Good branching varieties such as Stratagem, Telegraph, Telephone, Duke of Albany, Ne Plus Ultra, Evolution, Sturdy, and Veitch's Perfection may well be sown thinly, less than one pint frequently being sown here in a drill 18 yards long. If thinned to a distance of 6 inches apart in a double line the haulm will usually completely fill up the space between and among the stakes. One pint of Criterion, Huntingdonian, Gladiator, Wordsley Wonder, G. F. Wilson, Triumph, Best of All, and other varieties that do not branch so strongly is ample for a row 18 yards long, and more than this is simply a waste. Runner Beans require considerably more room than Peas, though it is no uncommon thing to see them grown quite as thickly in the row. The seed may be sown 4 inches apart, and the plants eventually thinned to a distance of 12 inches apart. Kidney Beans vary somewhat in habit, but if the seed is sown thinly, or about 3 inches apart, plenty of plants can eventually be left from 6 inches to 9 inches apart. Broad Beans, if allowed plenty of room, also branch strongly from the base of each plant, and these may well be sown from 4 inches to 6 inches apart in single rows. Asparagus and Seakale should also be sown thinly; in fact, Mustard and Cress are the only seeds that may safely be sown thickly without any waste occurring.

Sowing thickly in anticipation of the loss of either the seed or seedlings from insect and other enemies is in reality no remedy, for the simple reason that mice are in the habit of clearing all before them, especially in the case of

Peas, while both birds and slugs are not in the habit of thinning out only. Other preventive measures must be taken if even rows or even beds of plants are desired, timely precautions being a much more effective remedy than an indiscriminate waste of seeds and labour.

W. I.

KITCHEN GARDEN NOTES.

TRANSPLANTING PEAS.—Few now-a-days sow their earliest Peas in the autumn, the plan of raising a sufficient number of plants under glass for transplanting being a surer method of securing early gatherings. Boxes, troughs, turves, and pots are all utilised for raising Peas, but in either case the plants ought not to be kept for any length of time in these, otherwise a check will be certainly given, from which they may not easily recover. A cool-house, frame or pit are the best places for raising the plants, any that are sown in heat being less sturdy and requiring hardening off. We prefer to plant out when the seedlings are about 4 inches high, taking advantage of the first favourable opportunity for so doing. Should it be almost impossible to get the ground into a finely-broken state, wide, deep drills are opened with a spade and refilled with the best fine soil that can be collected in the frame-ground, and the Peas being planted in this soon take to their fresh quarters. As these transplanted early varieties do not grow very vigorously, they may safely be planted rather thickly. Those raised in flat boxes ought to be carefully turned out, so as to save the tap roots as much as possible. We shake ours clear of the soil, open deep drills with the spade, and drop in the roots to their full depth. Thus treated, they do not flag in the least, and not unfrequently surpass those otherwise raised. In all cases the soil ought to be packed rather firmly about the roots, and a slight ridge of soil drawn up to the plants. These may well be further protected and steadied with the short spray of Spruce or other Firs, this also serving to lead the haulm of the taller varieties up into the stakes. There is no reason why the latter should not be placed against the rows at once, after which little besides occasional hoeings is necessary. Transplanted Peas are usually a week or ten days earlier than those sown in the open, this being the only gain.

BIRDS v. PEAS.—In the neighbourhood of towns the birds are very troublesome among Peas, sparrows especially being very fond of the sweet young tops and leaves. Several lines of strong black cotton stretched at a height of from 4 inches to 6 inches across and over the rows on short stakes have a deterrent effect, and so also do dustings of soot and slaked lime, the latter being applied in the morning while the dew is on the plants. Where, however, the birds are very bold and voracious, nothing short of wire netting or pea guards will save the Peas. The guards supplied by various wire netting manufacturers answer their purpose very well for a time, but they are of no further service after the Peas are a few inches high, and on being removed, the leaves and tops may yet be attacked. Were we much troubled by birds, or even if stakes were scarce, ordinary 1-inch mesh galvanised wire netting would be used—first, for covering the young plants, and subsequently for supporting the haulm. Forty-two-inch widths are most convenient, and these may be bought at about 4d. per yard run. Two widths would be necessary for varieties of medium height, one on each side of the rows, and four for the 6-foot varieties. The outlay would be considerable in the first instance, but as the netting, if properly stored, will last for several years, it is really cheaper than stakes in the long run. It would also be available for protecting Gooseberry and Currant bushes during the winter and spring, or while the birds are liable to destroy the buds, and again for keeping late fruit. At the outset one width is ample for protecting the rows of young Peas—one edge being firmly pegged down on one side of the row, and the other taken over and also pegged down. When the haulm is about 5 in. high, or before it topples over, the netting may be loosened on one side and fixed upright with the aid of strong stakes placed 3 feet apart; a second

width to be similarly fixed on the opposite side, and about 9 inches clear of the first. If tall varieties are grown, the stakes for supporting the netting should be fully 7 feet out of the ground, and to these can be affixed a second width of netting when required. From first to last the netting bothers the birds, and as the haulm clings readily to it, the wire is even better than stakes throughout. If the birds are not troublesome, a much coarser, or 2-inch mesh may be used with advantage, this also making a great difference in the original expense.

SPRING CABBAGES.—The earliest of these with us is Veitch's Matchless, this being ready to cut almost before it is needed. Cabbages generally, however, are earlier and smaller than usual, the apparently very delicate heads withstanding much more frost than I thought possible. It is scarcely advisable to leave these comparatively weakly plants on the ground after the heart is cut, the second crop from them rarely being profitable. Only the strong growers should be left to give successional crops of hearts and greens, and those who have a good store of plants in the seed-beds will do well to dibble out a quantity of these among the rows of those planted in the autumn, all being eventually cleared off early and the ground prepared for Celery or other crops. A fresh breadth of deeply-dug, well-manured ground may also be devoted to either autumn or spring-raised plants, these, in addition to affording a good succession, being also suitable for leaving on the ground till next spring. Where the plants put out in the autumn have not made much progress, the ground about them should be well loosened with the hoe, and if moulded up they will be steadied and strengthened. These should develop large hearts, and if liquid manure is given them this should be poured along the furrows between the rows. Red or pickling Cabbage now in the seed beds ought to be transplanted to good ground, and the plants should be put not less than 2 feet apart. It is not yet too late to raise a few plants under glass. These if duly pricked out and finally moved to well-manured ground will give large close heads in the autumn, or quite as soon as needed.

EARLY TURNIPS.—Anything in the shape of a Turnip is appreciated in May or June, and those who cannot afford to grow a few dozen bunches in frames ought to attempt to raise some as early as possible in the open. The Early Milan is the best early variety, this being superior in every way to the Early Munich. Turnips are apt to run to seed prematurely on south borders, but are not nearly so disappointing on an east or south-east border. This, if the soil is heavy, should have long since been freely manured and deeply dug, and be now in excellent working order. The drills may be drawn 12 inches apart and about 1 inch deep, the seed being sown thinly and the ground neatly raked over. If birds, notably chaffinches, are in the habit of drawing up the young seedlings in order to get at the remains of the seeds, the latter prior to sowing should be rolled first in a damp cloth, and then in a pan containing a little powdered red lead. Thus treated they do not clog together, and can therefore be easily sown, and the birds will not disturb many of them.

CORNISH BROCCOLI.—Knowing that immense quantities of early Broccoli are usually sent from Cornwall to all parts of the country, many are apt to imagine the growers must be possessed of a superior stock or variety which it would be advantageous to procure. The Penzance, which most seedsmen include and perhaps glowingly describe in their catalogues, is, I believe, the most generally grown in Cornwall, and this, in their case, invaluable variety I have repeatedly tried, both plants and seed being sent direct to me from a district where this kind is extensively grown. I found it of rank habit, not capable of surviving a moderately severe frost. Even in Cornwall it has been much cut up this winter, and I strongly advise those inexperienced in the matter not to give it garden room. There are plenty of far more reliable varieties available, some of them being both earlier and much hardier than the Penzance. Nor should the old White Cape

be grown unless for lifting and storing in pits, as it is most delicate.

LATE MUSHROOMS.—We have always found good Mushrooms are as much in demand during May and June as at any time of the year. Generally speaking, those grown late in the ordinary Mushroom house are thin, dry, and maggoty, and by the time they reach the town house are of little or no value. From this date very cool sheds, or those shaded from sunshine and from which warm air can be excluded, are the most suitable positions for fresh beds. Failing these, a deep garden frame set at the back of a north wall, or in a cool place where they will be shaded by trees, will answer nearly or quite as well. I have also had good Mushrooms in June and July from a cold pit, neither sunshine nor warm air being allowed to reach either the walls or the interior. Straw litter and thatch are capable of keeping out either cold or hot air, and plenty of this ought always to surround much-exposed houses. Dry, open sheds are not to be recommended now, as in these the manure gets much too dry and the atmosphere too warm. Extra pains should also be taken in preparing the manure, it being important that this should not soon become very dry. It ought to be sheltered from drying winds, and if at all dry when turned must be watered. After the noxious gases have been duly got rid of by repeated turnings and fermentation, this taking from a fortnight to three weeks, the manure ought to be in a moist, but not cold and saturated state, and capable of sustaining a steady heat for several weeks. Directly it becomes very dry decomposition ceases, and the manure becomes unfavourable to the growth of Mushrooms. Deep garden frames, such as are used for Potato forcing, are suitable for setting in a cool position, and inside these the beds may be formed, a foot depth of manure being ample. Spawn when the heat declines to 80° and surface over the bed with not less than 2 inches of fine fresh loam. Well bank up the frame with straw litter and heavily cover the lights with more of the same, warm air to be excluded and night air admitted, this being necessary to keep the surroundings in a sweet, yet cool state. Open-air cone-shaped beds have also been tried for late crops of Mushrooms, these being formed in a well-drained, cool position. These should be well thatched with straw or strawy manure, this being necessary, first, to prevent cold winds penetrating and for keeping the beds cool in hot weather. Old and apparently exhausted beds in ordinary Mushroom houses may sometimes be induced to give a late supply of Mushrooms, but only in the case of those that failed from dryness of the manure. As overhead waterings will not often re-moisten thoroughly dry manure, it is advisable to pierce holes about 6 inches apart each way all over the bed, and a few gentle waterings will then gradually moisten all of it. Water at a temperature of about 80° should be used, this being well flavoured with salt. W. I. M.

Asparagus for market.—Can any reader advise me as to the laying out of from 5 acres to 10 acres of Asparagus for the market? Is there any good book on the cultivation of Asparagus on a large scale? Shall I be wise in planting 18 inches apart in the rows and 6 feet between the rows, so as to allow of a cart passing, &c.? I am going to sow early in April. Will the plants be ready to transplant next spring? How soon shall I get a return?—SUBSCRIBER.

Planting early Potatoes.—I have some Ashleaf Kidneys planted since mid-February, but there is nothing gained by premature planting. They may escape the late spring frosts, but the chances are against them. Myatt's and Rivers' Ashleaf with Carter's First Crop are the earliest to mature, but if grown for market purposes and quantity rather than quality is desired, Beauty of Hebron, the Old Kemp—now I understand issued with a new name—and the Irish Flounder are much the heaviest croppers. If blight attacks them about mid-July the Flounder is generally the first to suffer. We lost in two days a whole breadth four years ago. Early Rose is just as bad, and having,

for market purposes, the disadvantage of its colour. Extra Early Vermont disappeared from this locality and from some of the largest growers' catalogues, but, I understand, since drawing attention to the matter it is still to be had. It was one of the best American introductions we had, but like all such, coming from a much warmer climate, it rapidly degenerated unless specially matured after lifting. I grew a large number of new varieties kindly sent me by raisers in England, Ireland and Scotland last year. The vast majority were no improvement on established kinds. I am happy to say I have not seen a diseased Potato for twelve months. Owing to the very limited rainfall, the ground was never in so fine a state for getting in early Potatoes. I mean shortly to commence with the general crop also.—W. J. MURPHY, *Clonmel*.

GARDEN FLORA.

PLATE 641.

AMARYLLIS BELLADONNA.

(THE BELLADONNA LILY. *)

THIS is one of the many beautiful bulbous plants which have been introduced into our gardens from South Africa. The Nerine, Val-lota, and Cyrtanthus are its near neighbours and cousins, and, like one of these, viz., Nerine sarniensis, or the Guernsey Lily, the manner of its first introduction into Europe is involved in mystery. It was grown in Portugal in 1712, whence it was brought to England and cultivated as the Narcissus Lily. In 1804 it was figured in the *Botanical Magazine* under its present name, and Brazil was then suggested as its native country. At that time the plants were grown abundantly in Italy, and sold under the name of Narcissus Belladonna. The name Belladonna, or beautiful woman, was suggested to the Italians by the exquisite blending of pink and white in the flowers, and it would be difficult to point to any flower which has a better claim to the name.

There is no doubt now of the native home of the Belladonna, as it is found wild in plenty in the south-west part of the Cape, and in no other part of the world, although it is cultivated wherever gardening is practised. I have seen plants from India, where it was supposed to be a native, but no doubt only a garden escape; and I am inclined to believe that the plant known to Mr. Gumbleton and Herr Max Leichtlin as A. Halli, and which has been obtained from North China, is only a form of A. Belladonna. I have not seen flowers of the Chinese plant; perhaps Herr Max Leichtlin will give us his opinion of it. There is considerable variety in the form and colour of the flowers of the plants of Belladonna grown in gardens, that here represented in Mr. Moon's beautiful drawing being one which was grown in a border at Kew, where there were other varieties as well. Of well-known forms or varieties we have that named blanda, in which the flowers are almost white when they first open, becoming rose-tinted before they fade. Pallida is another pale-flowered form; Mr. Gumbleton possesses one which he speaks very highly of, but I do not know if it has a name. The Dutch nurserymen catalogue seven other named kinds besides those here mentioned, their names being descriptive of the size or colour of the flowers. One of these, called speciosa purpurea, and described as having "fine large flowers coloured purple and crimson," ought to become popular if the description is accurate.

There is but one species of Amaryllis, and

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, September 20, 1887, and printed by G. Severeys.



BELLADONNA LILY. AMARYLLIS BELLADONNA.

that is the Belladonna Lily. All the other so called Amaryllises are either Hippeastrums, Nerines, Sternbergias, Vallotas, Sprekelias, or Zephyranthes. In these enlightened times there can be no excuse for lumping all these widely different plants under Amaryllis. Imagine anyone patiently trying for a cross between a Sprekelia and the Belladonna Lily because he had bought them both as Amaryllises! and yet I have known gardeners try this and equally impossible crosses between these various genera. There is a great deal in a name, from an ornamental standpoint as well as that of the hybridist and the tradesman. To go on calling Hippeastrums by the name of Amaryllis is as erratic as if we retained Narcissus Belladonna for the plant here figured, because the Italians called it by that name a hundred years ago.

CULTURE.—The way to grow the Belladonna Lily has been pointed out more than once recently in THE GARDEN, but to complete the subject here a few cultural directions may be repeated. The Kew plants are grown in a narrow border at the foot of a wall on the south side of the Orchid houses. This wall gets warmth from the heat inside the houses, and, no doubt, it assists in keeping the soil sweet and well drained. The border is 2 feet deep, and is made up of about 6 inches of drainage, with turves of loam covering this, and the whole filled up with three-fourths good loam, one-sixth leaf mould, and one-sixth manure. The bulbs are buried 6 inches below the surface, and when first planted they were placed about 9 inches apart each way. Immediately after flowering is the most favourable time for planting fresh bulbs or transplanting established ones. If I had to buy bulbs to start with, I should get them from reliable dealers in July or August, plant them in pots to flower, and as soon as the flowers were over, turn the bulbs out in the border prepared as above. Good flowering bulbs are obtainable now at about 6s. per dozen. Large quantities of bulbs are annually imported from Holland and elsewhere for planting in pots to flower in greenhouses in England, and in many cases these bulbs are thrown away after they have flowered. But wherever there is a warm wall belonging either to a greenhouse or dwelling-house, these bulbs may be planted, and they will make a fine display every October when once they are established. I have never heard of the Belladonna thriving out of doors in the north of England, but in the south and west the plants succeed thoroughly under proper treatment. Even here, however, they will not flower if planted in an open border, however sunny, nor yet against an ordinary boundary wall; they must have the heat of a wall kept warm artificially on the other side, and the warmer the wall the better the plants will flower.

The foliage pushes above the soil early in the year, and as a good leaf-growth is essential to good flowers, the leaves must be protected from frost and cold winds by a covering of leaves or light manure. Whilst the leaves are growing the plants require abundant moisture, and it is therefore necessary to water the border in the event of a dry summer. In autumn the leaves wither and the plants prepare to flower. Should there be heavy rains in July and August, the border should be protected if possible. At the end of September the flower-scapes push up, growing to a length of from 1½ feet to 2 feet, and each bearing from three to eight flowers, which last about a week and are very fragrant. The plants do not all flower at exactly the same time, so that in a good border of them there are flowers for nearly a

month. Sometimes the latter expand before October.

A year or two ago some bulbs of the Belladonna were received at Kew from the Cape about November. These were potted up at once and placed in a greenhouse where they pushed up spikes of flowers which expanded in January. It is possible that by a little manipulation a succession of flowers might be had from imported bulbs of this plant, but to see the Belladonna Lily in all its glory it must be planted outside by the hundred, and if favoured by a sunny, mild October, its flowers make a beautiful picture. I have seen thirty stout spikes of flower springing from a bit of ground not more than 2 feet square. I will finish by quoting what was written about this plant eighty-five years ago:—

Our seedsmen receive the bulbs yearly in abundance from Portugal, and these, when planted close to the foot of a southern wall, will blow annually after they are once settled, which they are not in less than two or three years. This plant is not so commonly cultivated as we should have imagined from its beauty, fragrance and easy culture it would have been before this time.

This might have been written to-day. W. W.

FLOWER GARDEN.

IRIS CAUCASICA.

NOT even excepting *I. reticulata*, its varieties and allied species, this is by far the most beau-



The Caucasian Flag (*Iris caucasica*).

tiful and useful of the early-flowering kinds. With such protection as may be afforded by a cool frame this Iris can be had in flower now, its medium-sized orange-yellow flowers being exceedingly attractive. It belongs to the section with small inner segments, and is nearly allied to *I. palestina* and *a'ata*. Unlike many of its allies, however, such as *I. alata*, *lusitanica*, *filifolia*, &c., *I. caucasica* is perfectly hardy in the open border, and flowers most abundantly annually as soon as the severe weather is past. The flowers are golden-yellow, the falls streaked and spotted dark brown, and produced in suc-

cession from the axils of the three or four uppermost leaves. Leaves distichous, lance-shaped, pointed, and shiny, as if varnished on the upper surface. We have also received it from the Continent under the name of *I. orchoides*; and a larger-flowered form we have received from the same source under the name of *Selonia sodgiana*, the latter an entirely different plant. K.

SINGLE HOLLYHOCKS.

THE exquisite engraving given on page 237 of last week's GARDEN of a homely cottage with its pleasant garden of single Hollyhocks is a perfect country scene, admirable for its truthfulness, picturesqueness, and informality. It is amidst such humble surroundings that the stately Hollyhock is seen most naturally; it harmonises with old-fashioned flowers, and never looks worse than in a single row, a sort of makeshift to hide an ugly fence. And this picture reminds me that those who intend to grow the Hollyhock should commence now; indeed, these notes might be considered out of season, although the time for planting is at hand, as the ground on which they are to be planted ought to have been prepared long before this. One of the great points in Hollyhock culture is to provide a good foundation, that is, a soil of substantial loam, enriched, if possible, with manure. But in all places this cannot be given, and therefore the best must be made of the circumstances; but never neglect to trench well, so as to sweeten the staple and render it suitable for a vigorous healthy growth. Those plants that have been wintered in frames will now require an abundance of air, a fair share of moisture, and as far as possible, without endangering their health, exposure to the sun and air; but guard against cold currents, that are most hurtful to tender things. If the plants are properly attended to in this respect, by the time they are ready to go out they will be hardy, stocky, and full of vigour, giving promise of throwing up thick rigid stems crowded with flowers. Those who have seed may sow in March without fear; and even if the cultivator has no glass he need not despair, as the seed may be sown on a warm south border suitably prepared, but not in the full blaze of the sun. Sow thinly, as in the case of all things, as nothing is gained by overcrowding, and when the seedlings have sufficient strength prick them out into other beds, from whence they may in the following March be transplanted to where they are required. Many think there are certain mysteries connected with the growing of the Hollyhock, but there are few plants easier to cultivate, although, unfortunately, it has for many years been the prey of an insidious disease, the outcome of the faults of the florists in weakening the constitution of the plant through giving it unnatural treatment. It may also be noted that from seed a very good type of flower will be obtained, perhaps not of the fine character of the named varieties, but sufficiently good to satisfy amateurs, who, in nine cases out of ten, have no taste for the round-formed, close-petalled bloom of the florist character. To me the single Hollyhock has great charms; its pale rose flower is delicate and natural, quite as pretty, though perhaps not so showy, as that of the double form.

Last year the hopes of the Hollyhock fancier revived, as the plants, from what I could judge, showed greater strength and freedom from disease, although they were severely tried with the unusual drought. From first to last in the cultivation of the Hollyhock never give artificial heat, unless it may be a little, for in-

stance, when cuttings are being struck, and those plants put out in May should never be neglected through the summer. This is especially necessary where the soil is of a dry nature, as then the plants suffer considerably from the want of water, and where possible a mulch may be given with advantage, as tending to keep the ground cool and moist. As the flower-stems rise put a stick to each if they are likely to be snapped off by storms. I have known such a disaster to occur in very exposed spots, but in a quiet, sheltered garden this provision is unnecessary. I hope, as an ardent admirer of the Hollyhock, that the year 1888 will prove still further that the plant is regaining the position it had lost through the disease which threatened to deprive us of a flower we cherish. Let single Hollyhocks not be despised, but give them a share of that attention bestowed upon the doubles, as we require elegance and simple beauty in the garden which single flowers give us. In the note on single Hollyhocks at page 237 the writer says: "They appear to be less subject to the fungoid pest that has destroyed them in many parts of the country." This is an interesting fact, and one that I have also observed. I attribute it to the single Hollyhock of the cottager having been less "cared for" by the florist, and therefore it has retained to a great extent its pristine vigour and healthiness. X.

HERBACEOUS PHLOXES.

Now that Pelargoniums and other half tender bedding plants are decreasing in popularity and the demand for good hardy plants is rapidly increasing, Phloxes are sure to figure largely in many gardens. I can remember them for thirty years, but the Phloxes of 1858 and the Phloxes of 1888 are very different. The old varieties were few and their qualities poor, the spikes and colours being by no means attractive; but the Phloxes of to-day are splendid growers, producing immense spikes of bloom which are conspicuous everywhere for their chaste colours and delicate perfume. Those who introduce them to their gardens for the first time often begin with a dozen plants from a nursery, but where space is plentiful they soon extend their order, as their grand appearance suggests their adaptability for growing in so many places that they may be planted in pleasure grounds, flower gardens, front and back gardens, and kitchen garden borders with excellent effect.

The plants obtainable from the nurseries are generally contained in 2½-inch pots and have not more than three shoots at most, but these will increase to a dozen or more during the first summer, and in two years they will become huge masses capable of being divided into many pieces if it is wished to increase them. They may be propagated from cuttings, but I prefer to multiply them by dividing the roots, and they will all bear this with impunity. I have divided a two-year-old plant into six little ones. Every one of them succeeded, and they all made a nice show by the same autumn. March is one of the best months in the whole year to lift and divide the roots. It will be noticed that the roots have already thrown up many young shoots, which are now about 2 inches in height. These should not be broken off, but lift the root quite out of the soil and divide it from the bottom without destroying the tops. Small roots may be drawn asunder with the hands, and large ones may be cut up with a trowel, knife, or spade, and replanted as soon as possible. Phloxes do best in a deep, rich soil, and they should always have plenty of manure. This is important. If planted in a mixed border, put in one here and there, but if planted in masses or rows, keep them from 20 inches to 2 feet apart. Although I consider March a good month for lifting, dividing, and transplanting established Phloxes, I would not recommend small, young plants being bought from the nursery until April. They will then be showing a good deal of life, and there is

less danger of any of them failing or remaining dormant than earlier in the season. Young plants may be kept together in a bed for the first year, but they will flower the first season, and their colours and habits should be noted for guidance in permanent planting. The following are ten of the best early-flowering Phloxes: Alpha, white; Burns, magenta; Eclipse, lilac; Luna, white, shaded with rose; Pearl, pure white, purple eye; Morello, dark rose; Othello, very dark crimson; Highland Mary, white, suffused with pink; Mauve Queen, mauve; Marquis of Huntly, fine rose. The following are ten of the best late-flowering sorts: Amabilis, rose-salmon; Boule de Feu, deep scarlet; Coccinea, rich vermilion; Jenny Grieve, pure white; Professor Blackie, amaranth; Liervall, dark red; John Downie, lilac; Resplendens, scarlet; Tom Welsh, purple; and Venus, pure white. Our collection includes several dozen more varieties than the above, but these are the best, and anyone beginning Phlox-growing with them would have a most telling display.

CAMBRIAN.

THE CHRISTMAS ROSE.

(HELLEBORUS NIGER.)

ALL the Hellebores are plants of easy culture, and not particular as to either soil or situation. They may be increased by seed or by division, the latter being the most expeditious method. The former, however, must be resorted to in cases where the object is to obtain new and improved varieties. The dividing of large and overgrown clumps of this plant is, however, attended with little or no difficulty, and success almost always follows the operation. Many years ago, or before the value of these plants for the production of cut flowers in winter was appreciated, as is now the case, I was called upon to furnish a supply of cut flowers throughout the year, or at all seasons, and found the blooms of this plant useful for the purpose. The Hellebore blooms were obtained from a few large clumps of this plant growing along with other hardy things on the margin of a shrubby border, where the soil was naturally light and poor, and where the plants were also considerably overshadowed by the trees and shrubs.

These clumps were, nevertheless, healthy and annually produced blooms, but these were frequently disfigured by grit, so that it was at last decided to remove the plants to some more favourable situation, and for this purpose a border with a southern aspect was selected. It was duly prepared, and early in the month of April the large clumps were carefully taken up, and with a sharpened spade or edging iron were cut into pieces some 4 inches across. A few were potted into 6-inch pots and placed in cold pits, while the larger portion were planted on the border prepared for them, and so arranged that each plant could, when necessary, be covered with an ordinary hand-glass with loose or movable top. These, however, were not used during the first season, nor were the plants allowed to bloom during that period; and, so far as I recollect, not a single plant failed to grow. Each formed a compact and healthy plant or small clump, which on the approach of cold weather early in the month of December in the second year was duly covered with a hand-glass, which was only closed during severe weather. The loose tops afforded facility for the admission of more or less air as was found necessary, as well as being convenient for the gathering of the flowers.

The result of this treatment was that for many years an abundance of fine, clean blooms was produced throughout the month of December and the two first months of the following year, even with the surface of the surrounding soil sometimes deeply covered with snow. The protection of a hand-glass was found sufficient to keep the blooms dry and free from grit or other impurities, and it had also the effect of considerably lengthening the flower-stalks, a point of no small importance where the flowers have to be placed in vases or glasses of water, where they will generally keep in good condition for a week, or even longer. Plants of the Christmas Rose in pots, as well as a few other Hellebores, are found very

useful and effective in the greenhouse, as they associate well with the Chinese Primula and other winter-flowering plants. But I think the common Christmas Rose will generally be found to be more free-flowering when grown under hand-glasses than when grown in pots. Various other species or varieties of the Hellebore are also well worthy of being cultivated in this manner, as well as in pots, either for the decoration of the greenhouse or for the purpose of furnishing cut flowers, for although the flowers are scentless, or nearly so, they are nevertheless effective for mixing with sweet-scented blooms of other species.

Possibly the finest species or varieties of the Hellebore for this purpose are as follows: *Helleborus niger maximus*, which in addition to fine foliage produces large flowers, the petals of which are delicately tinted with green; *H. guttatus*, the flowers of which are spotted with purple; *H. pallidus*, flowers creamy white tinged with green; and *H. atrorubens*, or the Lenten Rose, which has flowers of a rosy purple colour. P. G.

NOTES FROM NEWRY.

THE pretty little *Trillium nivale* is now in flower, fresh and fair, and does not seem in the least injured by the recent severe weather; the milk-white flowers resting in the purplish green leaves are quite attractive. The plant only grows about 2 inches high, and loves damp, sandy peat soil in a sheltered corner; it is the first of its family to bloom.

SISYRINCHIUM GRANDIFLORUM is a distinct and good early purple-flowered plant; very showy. It comes into bloom with the Snowdrops and lingers long after they are gone, and withstands the cold and storms well. It does well in rich loam, and requires plenty of moisture.

PUSCHKINIA SCILLOIDES is an extremely pretty Scilla-like plant of dwarf habit with whitish flowers, having a blue line on each petal. There is a form of this in Lady Ardilaun's garden at St. Ann's called *P. libanotica*, much finer than I have seen elsewhere. It grows from 6 inches to 9 inches high, and bears dense spikes of flowers. The latter name is generally considered to be a synonym, and if so, there must be something in the soil to account for the extra development.

SCILLA BIFOLIA ALBA is a favourite of mine, and a charming little plant it is, though only growing 3 inches high.

FRITILLARIA (Korolkowia) SEWERZOWI, though curiously coloured, is a very attractive plant, and blooms long before any of the others. The plant grows from 6 inches to 8 inches high, has ample foliage, and green flowers with a dull red throat.

Now let me say a word for the homely *Pulmonarias*. *P. officinalis* or *saccharata*, with its ample spotted foliage, is now in full flower; this character, combined with a free-blooming habit and the constant colour-change going on from rose to blue, renders bold clumps here and there very attractive objects in the spring garden. And last, but by no means least, in importance are the opposite-leaved *Saxifrages*. All these looked very sad during the dry and bitter weather we had recently, but since the snow and rain have come, their leaves have become green, and they are now solid masses of rose, white, or crimson flowers. T. SMITH.

Snowdrops from Weedon.—I enclose you, from Mr. Loder's garden, a collection of Snowdrops. The flowers of *G. Elwesi*, I think, are very fine, and the small form of *G. nivalis* always comes the same. I cannot see much difference between *G. Sharlocki* and *nivalis*. *G. octobrensis* and *corcyrensis* have been past some time.—GEO. GOLDSMITH.

* * A most interesting gathering of Snowdrops comprising several forms. *G. plicatus*, *Imperati*, *Elwesi*, the common Snowdrop and its double form, *G. Redoutei*, are familiar, but there are a few not so frequently seen. Amongst those sent were *G. Sharlocki*, which Mr. Goldsmith writes and says does not differ much from *G. nivalis*, but the flowers sent have not the true Sharlocki character—the double

spathe. As regards the flower, there is a similarity between Sharlocki and our English Snowdrop. A little gem is a small form of *G. nivalis*, which remains constant. It is very slender, the flowers of perfect whiteness, small, and with narrow segments; it is worth keeping. A very distinct kind is *G. virescens*, the stem long and bearing a curiously coloured flower; it is very pendent, the segments long, suffused with green on the outside, while those inside are rich green, margined with white. *G. lutescens* is the brightest of all, and recognised by the golden yellow ovary, while the inner segments are tipped with the same colour, which shows up well against the white. It is a pretty flower. *G. poculiformis* is like a white *Crocus*, the golden anthers at the base of the flower being especially bright.—ED.

A PLEA FOR THE HIGHER CULTURE OF HARDY AND SEMI-HARDY FLOWERS.

CAPRICIOUS distinctions have too often been drawn between the culture of plants of different sorts and for different purposes or distinct objects. For example, plants grown for consumption receive far more attention than those grown for their beauty. This is a great mistake. The object in gardens ought ever to be to develop all sorts of plants to the highest possible extent, no matter whether grown for pleasure or for profit. Some would object to this mode of putting it, and roundly affirm that pleasure is the highest form of profit, and probably they are right.

But, assuming that both are to be grown in gardens, there can be no sound reason why a Cabbage should have superior culture to a Rose or a Lily. The better and bigger the Cabbage, the more and perhaps the better for eating; the better and more beautiful the Rose, the more full and satisfying the pleasure. And so of other classes of plants representing respectively the great classes of beauty and utility.

It might be supposed that all this is so obvious as to partake of the character of mere truisms; but let anyone enter a dozen gardens at random, and in ten of them the flowers will be found suffering that the vegetables and fruits may be fed, very frequently to repletion; in fact, not a few amateurs seem to imagine that flowers need neither culture nor food. Year after year they spring forth, grow into beauty, flourish and decay with as much regularity or as little help as the rising and falling of the tides. True, the plants grow weaker and blossom less as the years roll by, but their owners never seem to imagine that their growing weakness comes of their prolonged starvation; and thus it comes to pass that many of the old haunts that knew our old favourites year after year have come to know them no more. Wearied with the hopeless task of yielding an annual harvest of beauty without food, they have dwindled and died. Surely it is high time that this cruelty to flowers should cease.

No one thinks of attempting to grow annual crops of Potatoes, Mangolds, Turnips without manure; and why should we serve flowers so much worse than these? The older cultivators, with all their faults, knew better than this. If they were poor in manures they were at least rich in composts—the best possible and sweetest food for flowers. They also not unfrequently dressed flower beds and borders with thoroughly decomposed cow manure three or more years old. Few richer foods than this could be given; and did not such plants as herbaceous Phloxes, Peonies, Dahlias, Asters, Stocks, and Marigolds grow and bloom superbly on such food? And then a biennial or triennial lifting of most herbaceous plants used to be common. The stools were carefully divided and planted on fresh sites. By such expedients, virtually fresh and unexhausted root-runs were found for the plants, which were thus forced to renew their growth and bloom into higher beauty and with renewed vigour.

Such transpositions of site and enrichment of the entire surface and substance of flower beds were carefully attended to in the olden times. Now such superior culture is too apt to be neglected for lack of labour, means, or the knowledge of its

necessity or how to set about it. There is also another reason for the neglect of the culture of flowers in the open air. Since the enormous increase of glass and extension of artificial climates the culture of tropical plants has absorbed such an undue proportion of the time and care of cultivators, that little knowledge or inclination is left for the cultivation of hardy or semi-hardy flowers in the open air. Not a few cultivators seem to think such matters beneath them. More still are so ignorant of their wants and nature as to be quite incompetent to assist them to any useful purpose. With more knowledge of hardy plants will arise a new race of cultivators alike able and willing to do them justice. HORTUS.

FLOWER GARDEN NOTES.

BEGONIA PRINCESS BEATRICE.—When I wrote the paragraph in a former paper concerning Begonias for bedding, I forgot to mention a variety that is deserving of a foremost place amongst them, namely, *Princess Beatrice*. It belongs to the fibrous-rooted section, and was raised and sent out some four or five years ago by the Messrs. Sutton, of Reading. It is of a dwarf, dense habit of growth, very free-flowering, and does not seed; consequently, never requires picking over to keep the plants in growing condition. It is invaluable for bedding, and we have so used it for the past two years with excellent effect. It is also equally useful for winter decoration of the conservatory and for furnishing vases and rooms at that season. A number of plants that we lifted late in autumn from the flower beds have ever since December last been in full bloom, and now that we require them no longer, the plants are being split up to increase the stock for summer bedding. Grown in heat the flowers are of the purest white and freely produced, but in the open air they come tinged with a shade of rose. Propagation by splitting up or dividing the roots is the only mode that should be followed. When struck from cuttings at least 90 per cent. fail to throw out side shoots; they keep to one stem, and even if pinched to induce the formation of side shoots, they are still stubborn.

PLANTING BULBS.—Except a quantity of Gladioli and Hyacinthus candicans that are required for the bedded-out garden and which have been potted to grow on slowly until bedding-out time, all other bulbs and tubers have been planted during the last week. Tigridias are favourites here, and the way in which they are most effective is when planted in clumps of from five to nine in each. Accompanying the same are a few clumps of *Lilium auratum* and Iris, and the groundwork of the border is seedling Verbenas of various colours, the favourites being white, purple, and scarlet. The beds of Ranunculuses and Anemones were planted some weeks ago, and the whole of the roots have now been planted in small clumps near the front of mixed herbaceous borders, and also in borders reserved for cut flowers. Lilies of various kinds are being planted in Rose beds, and Mignonette also is sown amongst them, so that there is always something of interest, for when the Roses are over then come the Lilies, and after them the Mignonette.

PRUNING AND MANURING ROSES.—The temptation to prune early for the sake of neatness is very great, but resistance to such temptation will this season have its reward in a greatly increased strength of the plants over those that were pruned early. I am not speaking without experience, for, unfortunately, some of our plants were pruned early, and the severity of the weather during the last fortnight of February has all but destroyed the pushing buds. Of course this does not apply to those on walls, as these being sheltered have taken no harm. Plants of the Tea section, even with the protection of Fern, have suffered severely, but I do not see any killed; the wood, however, is so much shrunken and the buds brown that it will be wise to prune harder, that is, cut closer back than if wood and buds were plump. There will then be no vexation on account of having to go over the plants a second time to take out dead wood. All the Perpetual class seems safe, but closer pruning than usual will be desirable in case back buds have got weakened

by frost, and if so, close pruning will tend to remedy that defect. It is now safe to prune the lot, after which the beds should be lightly forked over, taking care not to destroy any bulbs or roots. Then apply a thick coating of well-decayed manure. Of course, if amongst the Roses flower seeds are sown and bulbs planted, this mulching cannot well be applied, in which case the manure should be dug in.

HOLLYHOCKS.—The constant weakening of the plant by propagation has doubtless promoted the disease. The remedy is obvious, namely, to procure seeds and cuttings only from non-diseased and robust plants, then it may be hoped that the stock will prove healthy, and, if not again injured by starvation and over-propagation, will no doubt continue so. We are this season re-commencing their cultivation. Our plants have just been potted into 5-inch pots and given a place in a heated pit; here they will become strong and be ready for turning into the ground early in May. Seedlings have been pricked off into boxes, and some of the strongest potted into 2½-inch pots. The latter will flower late in the season, but those in boxes will not do so until next year. Hollyhocks thrive best in a strong loam, well drained, and if this description of soil is not natural to the garden a little should be procured in which to put out the plants.

SUNDRY SEEDLINGS FOR BEDDING.—Seedling plants of any description that can be used as bedders—that is, will continue effective throughout the whole of the bedding-out season—ought to be used in preference to so large a number of Pelargoniums and Calceolarias that have become so common. Amongst such seedlings, a foremost place must be given to the various sections of Stocks, Asters, Zinnias, Indian Pinks, Poppies, Phlox Drummondii, Violas, Pansies, Snapdragons, Pentstemons, Portulacas, and Everlastings, and amongst taller plants for the backs of borders and for centres of large beds are the small-flowered Sunflowers, Abutilons, Cannas, and Castor-oils. All the foregoing are quickly raised from seeds by the simplest method, namely, by means of a manure bed, frame, or a heated pit, and there is yet time, if sown at once, to have good plants ready for putting out at the end of May.

GENERAL WORK.—Levelling uneven parts of lawn, top-dressing bare parts of same with fine soil, wood ashes, and soot, and sowing Grass seeds where the Grass is thin. Frequent rolling of turf at this season does more to promote a fine velvety turf than anything else I know. Edging walks and applying a surfacing of new gravel to the same. Under trees where the gravel is apt to get discoloured and Moss-grown, a sprinkling of salt bleaches the gravel and destroys the Moss. We have still some planting of shrubs to be done—Rhododendrons, Laurels—and this must be our first work. Much watering is needed during the summer if the plants fail to get a firm hold of the soil before dry weather sets in. Small shrubs that have done duty in flower beds during the winter are also waiting the necessary time to transplant them to their summer quarters—a piece of ground which we reserve for the purpose, and which, I need hardly say, has to be highly cultivated to ensure the free rooting of shrubs that have to be transplanted twice a year. As a dressing for such ground nothing excels leaf-soil, as it adheres well to the roots, so that transplantation is effected with comparatively little injury. W. W.

SHORT NOTES.—FLOWER.

Scarlet Windflower (*Anemone fulgens*).—When grown in pots and placed in a little heat this is an extremely useful plant for the embellishment of the greenhouse at this season. Given well-ripened roots to begin with, they give but little trouble, and may be depended upon to yield a good crop of blossoms, which, besides their ornamental qualities when on the plant, are also extremely useful in a cut state, as they last well in water.—T.

Delphinium grandiflorum Breckii.—This is a large double deep blue Delphinium that, as far as a coloured plate in one of the American catalogues can be trusted, is of a decidedly distinct character, not forming a formal spike of blossoms, as in the case with the ordinary perennial Larkspur, but

blooming more in the form of sprays. It is a seedling, raised over twenty years ago, then lost for a time, and now re-introduced, and it is said there is no blue flower which produces so striking an effect. It is a profuse bloomer, yielding crop after crop of beautiful flowers from May until October, and it is this freedom and continuity of flower that make it valuable for cutting from. Each flower is perfect in itself, and borne on a long stem. It is also dwarf in growth, not getting beyond 2 feet. There appears to be a doubt as to its hardihood, for it is recommended that the plants be cut down at the end of the season to encourage young growth from the base, and then the plants be lifted and divided. It can also be propagated by means of cuttings. Perhaps some opportunity may be afforded for seeing this interesting transatlantic stranger in this country before the season is over.—R. D.

TREES AND SHRUBS.

W. GOLDRING.

ABELIA.

THIS genus, allied to the Honeysuckles, and found in temperate climates, is mostly evergreen and but little known, though hardy enough for



Abelia rupestris. Flowering branch (reduced), flower pale pink.

open-air culture. The best known species is the Rock Abelia (*A. rupestris*, see illustration), a Chinese shrub of great beauty. When growing freely it makes a dense and graceful bush, with slender shoots and shining leaves. It blooms

abundantly in early autumn, the scented flowers being tubular or thimble-shaped, borne in pairs, and of a delicate pale pink with ruddy calices. It is a charming shrub for bold parts of a rock garden, among rocks on a bank, or against a wall. It is always best to plant it in a raised place and in light soils, as then it is less liable to injury during winter. *A. uniflora* (the large-flowered Abelia, here illustrated) is of similar



Abelia uniflora. Flowering branch, flower pale mauve.

growth, and also comes from China. It is the same as *A. serrata*, under which name it is best known in some nurseries. The Three-flowered Abelia (*A. triflora*) comes from the Himalayas and Northern India, and is less hardy than the Chinese species, but may be grown against a sunny wall, which it will densely clothe to a height of 8 feet or 10 feet in a few years. It bears a profusion of sweetly scented rosy pink flowers in compact clusters, and at the end of summer is a beautiful object. *A. floribunda*, a Mexican species, is rather too tender for the open air, except in the mildest parts of the country. It is evergreen, slender in growth, and bears clusters of deep rose-purple flowers, each 2 inches long. Where it can be grown it makes a very beautiful wall shrub, and is quite different from any other.

Ilex crenata.—If it were more commonly known what a beautiful little evergreen bush this Japanese Holly is, I think that nurserymen would have to grow acres of it. As it is, some of the largest nurseries in Surrey contain thousands of it, and every season I am told that the demand is larger. It is certainly a Holly, but no one would suspect its close relationship to our English Holly. It is a dwarf and very dense twiggy evergreen bush,

with tiny leaves of the deepest green. In habit of growth it is inclined to spread so as to make a flattened top, but in light soils the branches often grow in tiers. The tallest bush I have seen of it was under 5 feet high, its usual height being from 12 inches to 18 inches. It is an invaluable shrub for planting in beds where something dwarf and compact is required, and it flourishes either in heavy soil or light soil, but, like its larger relative, does best in a generous loam. It is, moreover, one of the very best Evergreens for planting on a windy exposure. No amount of wind will harm it, and I imagine (though I have no proof) that it would do well for the seaside. I am planting it wherever I can in masses with some other plants of a similar or dissimilar growth to blend or contrast with it. The golden variegated form of it is less

objectionable than most other golden-leaved Evergreens, as it is not sickly looking. There is a form, too, with larger leaves than the type which is called by some *latifolia*, and by others *Fortunei*. It is interesting for the sake of variety, but it has no superior merits to the ordinary form. I look upon this little Japanese Holly as one of the very best of all dwarf evergreen shrubs.—W. G.

THE LEBANON CEDAR.

I WAS glad to see Mr. Marnock's note in THE GARDEN, February 4 (p. 105), on behalf of his favourite tree, as it richly deserves all he says in its favour. Unfortunately, it has the one serious drawback often referred to in THE GARDEN, viz., its extreme susceptibility to being broken by strong gales and heavy snowy storms. This is, perhaps, the reason why it has not been more extensively planted, as a visit to a favourite Cedar after such a gale as we experienced on December 26, 1886, is by no means a pleasant one. It is, however, a fact not sufficiently borne in mind that this failing is by no means so pronounced where the tree is growing in groups as when planted singly. It has often occurred to me whether future planters might not with advantage adopt the plan of grouping instead of almost invariably isolating the tree. If it is to be seen at its very best it must be grown in the open, away from other trees and shrubs, and if its beauty under these conditions is comparatively short-lived, it is a question whether it would not be better in the majority of cases to give the preference to the group system of planting. I am hardly acquainted with a tree that contrasts so strongly in growth under the different circumstances, the isolated trees with dense, almost horizontal branches springing away from the stem at a height of 4 feet or 5 feet from the ground; while those in the groups are more like huge specimens of Scotch Firs, clean-stemmed for 30 feet or more, the branches more upright in growth, and more thinly placed on the head than in the other case, and consequently better able to resist heavy snow storms. The interior of the clump is naturally naked and bare, but seen from a considerable distance it might be taken for one huge specimen. I fancy this Cedar is rather longer in attaining full size than Mr. Marnock would convey, as all the older trees in the grounds here have been planted about 140 years. The boles of the single specimens average from 14 feet to 20 feet, and those of the trees in the group from 10 feet to 14 feet in circumference. The groups in our case consist of five or six trees, enclosing a space of some 15 yards in diameter; this might with advantage be extended to 25 yards if space would permit where this number of trees was employed, the lesser space serving for a group of three. Has any reliable conclusion been arrived at as to whether the other Cedars, *atlantica* and *Deodara*, are likely to attain in this country the dimensions of *C. Libani*? I have seen two or three trees of the *C. Deodara* that are said to have been planted soon after their introduction, viz., about sixty years ago, and in no case did there seem a probability of their reaching a large size. They are from 40 feet to 45 feet in height and a little over 6 feet in girth.

E. BURRELL.

Claremont.

ACTINIDIA.

BEAUTIFUL and interesting climbing deciduous shrubs from Japan and China, but little known, having only recently come into cultivation. They do best in warm situations planted in a

or two ago showed it to be not only very beautiful, but different in aspect from other climbers. The species should be grown against a wall, or, better still, a buttress or tree trunk placed against the wall, on which the stems support



Actinidia volubilis. Flowering branch and detached flower (white).

light rich soil. Three species are grown in gardens, viz., *A. Kolomikta*, *polygama*, and



A. Kolomikta, fruit of.

volubilis, and these are obtainable at the best nurseries. They all have climbing or twining

stems themselves readily without nailing. The leaves of *A. Kolomikta* are brightly tinted in autumn, and the flowers of *A. polygama* are fragrant and its fruits are said to be edible. *A. volubilis* (see annexed engraving) is a very free-growing species bearing small white flowers. G.

Variegated Euonymus (*E. radicans variegatus*).—This is a very pretty variegated shrub, and one that may be grown as a bush or used as an edging. Besides this, I have seen it grafted standard high on the common *E. europæus*, and, owing to the long flexible shoots hanging down for some



Actinidia Kolomikta. Flowering branch, flowers white.

stems and bear waxy white flowers. *A. Kolomikta* (see illustration) is grown to great perfection in a garden at Southampton, and the flowering specimens sent to THE GARDEN a year

distance, it presented an attractive appearance. Perhaps, however, it is most effective either rambling over the stones of rockwork or trained to a wall, as in the latter position it will root from the stem after the manner of Ivy, and thus attach itself

to the bricks or stones, especially if they are rather soft. When trained to a wall the upper parts of the branches sometimes thicken out, and produce leaves much larger than those on any other part of the plant; indeed, so much difference is there between them, that the two would be taken for quite distinct varieties. This *Euonymus* readily lends itself to those who advocate the furnishing of flower beds during the winter with some of the smaller shrubs, but as the foliage of the *Euonymus* is during the summer as beautiful as that of many tender subjects, there is no reason why the plant should not occupy the same position all the year round. I know a couple of beds filled with it on which little or no attention is bestowed, and they are always bright and cheerful, but especially in the spring, when the rich blue flowers of the *Scilla* are pushing up towards the edges of the beds through the silvery foliage of the *Euonymus*. It can be easily kept within bounds by the use of the knife without giving it a formal appearance. It is one of the easiest of Evergreens to strike from cuttings, as with the shelter of a frame or hand-light they may be successfully put in at any season, though the best time is either in spring or towards the end of summer or early autumn, when the season's growth is completed. Very frequently, however, a plant may be lifted and split up into several pieces, each of which will be well furnished with roots, and of course they will then need no more attention than established plants.—H. P.

VARIETIES OF CUPRESSUS LAWSONIANA.

THE experience of "W. G." in THE GARDEN, February 25 (p. 178), in transplanting large specimens of *C. Lawsoniana erecta viridis* that had, presumably, been undisturbed at the roots for a series of years is, I believe, that of most of those who have had much to do with such. This liability to suffer after removal is the more remarkable when considered in connection with the comparatively fibrous roots of the variety. I have often considered the matter and am unable to satisfactorily account for it, and can only suggest possible reasons. My experience with the variety is, that non-grafted plants transplant much better than grafted ones; their roots are indeed their own and are in more perfect accord with the branches. As a variety it originated long after the introduction of the species to Britain, and was for many years almost exclusively propagated by grafting, so that many, if not all, of the larger specimens living are grafted plants; and it probably was with some of these that "W. G." had to do.

The leaf-surface of a plant of *C. L. erecta viridis* say 3 feet in height is relatively great as compared with that of an ordinary specimen of typical *Lawsoniana* of the same height, and with the sparsely branched garden variety *intertexta* is, I should judge, as ten to one.

If right in my estimate, it may help "W. G." in a measure to account for his greater success in transplanting tall specimens of *intertexta* than he had with presumably equally tall plants of *erecta viridis*. I need scarcely explain that, other life conditions being equal, the process of evaporation would in a given time be ten times greater in the one than in the other. We plant cultivators are not, unfortunately, always correct in our estimate of the wants of plants, particularly those of low stature, in the matter of water supply for their roots, and I fear that in considering the densely compact habit and the height which a plant of *erecta viridis* attains to in a season, we are apt to conclude that the variety is of low vegetative character. But, everything considered, I am of opinion that, in point of fact, it equals, if it does not excel, in activity of growth ordinary seedlings of *Lawsoniana*, and that a plant 3 feet in height probably represents in its numerous thin branches as much cell growth as does an ordinary individual of double the height. It is well to remember that the vegetative possibilities of kindred plants may not be correctly measured by the mere annual increase in height of their respective stems. One of diffuse, yet of compact, habit and short annual growth, like that of *erecta viridis*, may equal in vigour another less diffuse specimen

whose annual upward increase may be two, four, or six times greater. Let us therefore consider a moderate-sized plant of *erecta viridis* not as an ordinary subject, but one that in being transplanted requires special treatment. The roots should not in the least degree suffer for want of water. The soil in contact with the roots should be thoroughly saturated as soon as possible after the transplanting has taken place, and it would be generally wise were this operation done only during favourable weather, either early in autumn or rather late in spring. Were nursery plants transplanted every third year there would be less reason to complain of this variety on its removal. A healthy well-grown specimen of this variety is indeed a beautiful and perhaps a desirable object, but those about to purchase and plant had better eschew the evidently luxuriant, richly-clad individuals, and select rather less vigorous, even if less handsome plants the last annual growth of which is short, and bearing evidence of having been recently, or within twenty-four months removed. This applies to all nursery plants, Pine as well as Cypress, and I take this opportunity of saying so in justice to those nurserymen who honestly sacrifice specially fine, healthful appearance to having their plants "well rooted" and safely transplantable and transferable. "H. P." is, I believe, right in stating (p. 128) that *erecta viridis* is the easiest propagated by cuttings of all the garden varieties of *C. Lawsoniana*, and that intertexta, the opposite extreme in habit, is the most difficult. I have found some of the dwarf and compact forms of *C. Lawsoniana* to be comparatively difficult to propagate by means of cuttings. Of such I would particularise the two forms of nana, and the bushy gracilis so-called of Waterer, and when rooted they are only made fibrous by repeated root-lifting or root-pruning. They would probably do much better and prove more amenable to transplantation were they grafted on ordinary *C. Lawsoniana* stocks. G. S.

HARDINESS OF CHILIAN SHRUBS.

In answer to W. Goldring, who inquires about these in *THE GARDEN*, March 10 (p. 229), I may say that I have tried *Eucryphia pinnatifolia* here on the mild sea-board of the south of Ireland both in the open air and against a warm brick wall of my kitchen garden (where it now is), but hitherto, I regret to say, unsuccessfully, as it only exists and does no good, never showing any signs of bloom, though I have now had it either three or four years. *Embothrium coccineum*, I am happy to say, flourishes and thrives splendidly, having attained a height of from 35 feet to 40 feet, and is covered with bunches of its brilliant scarlet Honeysuckle-like bloom from the top almost to the very bottom every May, with a few odd bunches appearing in the autumn, usually about the month of August. It is planted in a very shady glen, just above a stream and by the avenue, where it hardly gets any sun at all. It is perfectly hardy here, our severest winters never having affected it in any way, save when a weight of heavy snow some years ago broke off nearly half the bush, to my great regret. It but seldom forms perfect seed, the pods containing usually empty husks, and the few seedlings I have managed to raise have never survived their first year, or eighteen months. I have never succeeded in either striking cuttings or getting layers to take root. *Berberidopsis corallina* I have tried several times against the wall of my house, and though I got it to bloom once or twice, I invariably lost it during our long, wet, sunless winters. At my friend's, Mr. W. H. Crawford's, near Cork (and also near the sea), it does very well in a sheltered angle of the house, where it has run up to the top of the wall, mingling with Ivy, *Pyracantha*, and other climbers, and produces wreaths of lovely blossoms every summer. The two splendid specimens of *Philesia buxifolia* at this place, filling two huge tubs on each side of the hall-door, always excite the wonder and admiration of every shrub-loving friend I take there, as this beautiful shrub (resembling a small *Lapageria*) is so seldom seen in really fine condition. *Lapageria rosea* I have never tried out of doors, as it would be quite hopeless to attempt to protect its

young shoots from the voracious night-crawling slug, which is so specially addicted to their consumption. *Mitraria coccinea* does fairly well against the wall of my house, and blooms a little every summer. *Calceolaria violacea* I have not got. *C. hyssopifolia* I only grow in the cold greenhouse, though I daresay it would be hardy against the wall, where, perhaps, I shall try it, as I think it survives the winter at Glasnevin Botanic Garden, near Dublin, but of this I am not sure.—W. E. GUMBLETON, *Belgrove, Queenstown, Cork.*

— In answer to W. Goldring in *THE GARDEN*, March 10 (p. 229), all the shrubs named are hardy in the Isle of Wight, *Mitraria coccinea* and *Calceolaria hyssopifolia* excepted, which I have not seen tried in the open. I think *Mitraria* would be hardy, but I have somehow kept it in a greenhouse. *Lapageria* likes a shady corner; the others are not very particular as to their requirements. It is difficult to get hold of *Embothrium*. There is a very splendid specimen in the Royal Gardens at Osborne.—H. EWBANK, *Lausanne.*

STOVE AND GREENHOUSE.

SPRING BULBS FOR A SMALL GREENHOUSE.

I THINK that it is frequently overlooked when persons are writing for the benefit of horticulturists that there are people whose means and space are alike limited. Sometimes things are praised and recommended which are in no way suitable for the place, or else plans are proposed which cannot be carried out without an expense that it is difficult to incur, while in both cases the end is disappointment. As I thought over the matter of spring bulbs, I recollected how much valuable advice had been wasted on me from the simple impossibility of following it. I have, in the matter of spring bulbs, gone my own way, and as it has been tolerably successful, I venture to set it before others.

My object has been to have a continuous bloom, not to have the house (which, I should say, is a span roof 20 feet in length and 10 feet wide, with a small lean-to annexe of 12 feet) all ablaze for a couple of weeks, but to have a continuous bloom until *Azaleas*, *pot Roses*, *Pelargoniums*, &c., could come in. I do not force anything; my sole object is to keep out frost and damp, the latter almost as fatal in small houses as the former, and hence everything comes in in its natural course, and perhaps the best plan will be to take these bulbs in the order of flowering, *i.e.*, as they bloom with me.

The earliest and most dependable bulbs for my house are the imported Roman Hyacinth, early Roman Narcissus, and Paper-white Narcissus. These are imported, and in constantly increasing numbers, and by this means flowers can be had by Christmas, and that without using artificial heat to force them on; some are potted as soon as they can be obtained, and I generally have about two dozen of each. The Hyacinths are planted six in a pot, the others four. The Narcissus comes immediately after the Hyacinths, and then the Paper-white Narcissus follows. I have found it impossible to do anything with these bulbs afterwards; so as soon as they have finished flowering they are thrown away, and now immediately succeeding them comes that delightful flower, the Cyclamen. Of these I have about four dozen, and the greater portion of them of what is called the giganteum strain. I am aware that a good many object to this, as they say the flowers are more sparingly produced and the blooms are coarser, the plant not so compact nor the foliage so pretty. Well, there may be some truth in this, but withal they are very grand, and it is easy to gratify both tastes. I am not going to enter upon a general statement of the culture of the Cyclamen, but only to give what I find successful. Most of my plants have been raised from seed, which is sown as soon as ripe; the young plants are allowed to remain in the seed-pans until the spring, when they are potted off into 2½-inch pots in a compost composed of equal parts of loam, peat, and leaf-mould, with a good admixture of coarse sand

and charcoal, and a little well-rotted cow manure. They are then grown on and kept in the greenhouse until the foliage fades, when they are laid upon their side until August and then repotted in fresh compost, placed in a cold frame, and afterwards removed to the greenhouse; they make good flowering bulbs the second year. I am aware that where the convenience and means to do so exist, they can be made into good flowering bulbs in ten months from the time of sowing the seed, but that implies the possession of an intermediate house with more heat than I am able to give. My older corms look remarkably strong and healthy this year, and I would challenge comparison with anyone similarly situated.

Hyacinths, too, are now coming into flower. Of these I have about five dozen of good selected kinds. When potted in October they were plunged in coal ashes, a small pot being placed over each bulb, and a piece of slate or tile on the hole to prevent the dust from getting in. The pots were covered about 6 inches deep, and in the beginning of January they were taken out, having made about 2 inches growth, and the pots were well filled with roots—this being the object of plunging them. They were then moved into a cold pit and a few sheets of paper laid over them, so as to prevent the light injuring the foliage, which from having been blanched is, of course, more susceptible. In a few days it will begin to assume a greenish character, and then the papers may be altogether removed. As the spikes advance, short stakes are placed to them; when they have finished blooming, the bulbs are gradually dried off, and when thoroughly dry they are shaken from the earth and put by. I found that when they are planted afterwards in the garden they keep on flowering from year to year, and sometimes I have as good spikes in the open as anyone could wish for. My borders are now full of bulbs thus treated, and look very gay in the spring. On looking round, I find the *Freesias* are showing for bloom; of these (as I am very fond of them, both for their quaint beauty and delicious perfume) I have about ten pots. I read a good many complaints about the difficulty of growing them, but I believe their culture to be very simple. There may be some little difficulty with bulbs just imported, but I am sure there is none with them afterwards. The great secret of success I believe is in the thoroughly roasting of the bulbs after flowering, not out of the soil, but in the pots. I grow them in the same compost as I do the Cyclamens, and plant them about six or eight in a 6-inch pot. They are treated also much in the same way, kept in a cold frame until winter sets in, and then brought into the greenhouse. After they have done flowering they are placed on a shelf fully exposed to the sun, and there remain until the foliage is completely withered and the soil is dry as dust. They are then taken down, laid on their sides under the stage, and left there until potting time. By this treatment I have had them 18 inches in height with three or four scapes of bloom from a bulb. They also increase very rapidly, and I have been able to give away a large number each year to my friends. Another bulb that I am very fond of is the *Ixia*, and I hardly know a more quaint and peculiar flower than the variety *viridiflora*; but I cannot say that as yet I have been so successful with them, having to procure them every year. The tips of the foliage are apt to get discoloured. It is odd, too, because I find no difficulty with the allied genera of *Babiana* and *Sparaxis*, of which I also have a few; but they are not, to my mind, nearly so handsome as the *Ixias*. I have this year treated some of my last year's bulbs as I did the *Freesias*, and thoroughly roasted the bulbs and potted them. At present they look very well, but whether they will continue to do so is the question. *Tritonias* I have no difficulty with; they bloom on year after year, and increase in size and vigour.

There are few more satisfactory bulbs than the *Lachenalias*. They are so easily grown, and produce their flowers, which are useful for cutting, so freely (an object I always keep in view in selecting what things to grow), that they are most valuable. By far the prettiest way to grow them is in hanging

baskets, but as I have no room for these I am content to grow them in pots. They also increase very rapidly, and every year I have to give or throw away a good number. I last year grew the variety called Nelsoni; it is pretty, but not worth making a great fuss about.

The Alliums are also very satisfactory bulbs for flowering in the house; their large umbels of pure white flowers coming in in the early spring make them very attractive. Neapolitanum is the variety most generally used; but I received last year from Messrs. Ant. Roozen and Son, of Haarlem, a variety called Hermetti grandiflorum, which is much superior to it and stronger in foliage, and with larger flowers. Neither of these have the unpleasant odour which belongs to most of the tribe. Of these I have about half a dozen pots, and they also come in very useful for cutting. The compost that I use is much the same as that for the Freesias, and the treatment they are subjected to is much the same—in fact, I find that for most of these spring-flowering bulbs this treatment is the best.

I have not as yet done much with Narcissi in pots; but I have always grown a few of the Bulbocodiums in the ordinary form, and the varieties citrinus and albus. They are exceedingly pretty and attractive in the early spring. They do not come into flower so early as some of the bulbs above mentioned, but their peculiar form and grassy foliage make a pleasing contrast.

I have given the number of pots of each of these that I have grown, because I want it to be seen that even where the accommodation is limited, it is possible to have a succession of flowering bulbs from before Christmas until the ordinary greenhouse plants come into flower. I have other bulbs, of which I may write anon, which come in afterwards. Those that I have mentioned are cheap to purchase, easy to cultivate, and satisfactory for most purposes for which flowers are required; and although the visitors to my little garden are unhappily few, yet when anyone does come, I am always pleased to be able to show him something in flower, and it may be something that he has not grown or seen before. I believe that if those who are somewhat similarly situated were to give their experience on many things connected with horticulture, it would give much pleasure to others. Let them not be ashamed to show the "poverty of the land," to show that we are not ashamed to be amongst the "pigmy" instead of the giants; and after all, as dwarfs generally have a good time of it, while giants seem always to be getting into trouble, so it may be that we are saved from the many annoyances that our larger brethren mourn over.

DELTA.

Lachenalias.—"G." speaking of Lachenalias (p. 192), says he considers L. pendula the showiest, but I think L. Nelsoni is a much handsomer variety. The colour of L. pendula always appears to me rather "washy." I send you two blooms of L. Nelsoni and also one of L. aurea, true, which you will see is old gold colour, hardly a pure yellow, as "G." states. One of the prettiest I ever had was L. reflexa, but I am sorry to say I have lost it. I have two now coming into bloom, L. violacea and L. Cami, a new sort, which promise well. L. orchoides, just out of bloom, is more curious than beautiful. It is exceedingly difficult to get the sorts true, and many are apparently lost altogether. I have not seen the exhibits at the Regent's Park shows, and shall be glad to know if the blooms I send are of fair average quality. I wonder Lachenalias are not more grown. Have any of your correspondents ever bloomed L. stolonifera? I cannot get it to bloom at all.—A. RAWSON, *Windermere*.

* The blooms were quite as fine as we usually see them, the colour especially rich.—ED.

Heaths and other greenhouse flowering plants were a short time back exceedingly gay with bloom in Mr. Williams' Holloway Nursery. The most conspicuous plants were the violet-scented *Boronia megastigma*, which no greenhouse should lack; *Acacia Drummondii*, one of the best of this large family, and various species of *Correa*, which although neglected of late years, are really as hand-

some as *Fuchsias*. Here also were fine plants of *Tetratheca ericoides* and *hirsuta*, *Andromeda floribunda*, *Azalea obtusa*, Mrs. Carmichael, and the beautiful Japanese rose-flora, *Erica regeminnans*, *colorans*, *melanthera*, *gracilis*, and others. These associated with *Cyclamens*, *Amarylids*, *Primulas*, *Sparmannia africana*, *Daphne indica rubra*, *Jasminum gracilis*, &c., rendered the greenhouses as gay almost as the houses devoted to Orchids.—W. H. G.

POINSETTIA PULCHERRIMA.

I NOTICED during the winter in several gardens I visited a tendency on the part of *Poinsettia pulcherrima* to break into several flowering stems near the top, and instead of only one, four, and even five heads of bracts were produced. This was particularly the case at Gunnersbury Park, and of the number of plants that Mr. Roberts grew, there was scarcely one but branched off in this singular manner. Has this experience been general? It has been remarked that the *Poinsettia* is rarely so well grown as it deserves to be, and yet it is almost unrivalled as a decorative stove plant during the winter months. I know one gardener who is a very successful cultivator of this glorious plant, and though his method may not be the same in all points as that prescribed by some writers of authority, it yet proves highly successful in his case, and he wisely follows it year after year. In February he dries off any old plants he may have by withholding water for a week; then he takes off cuttings, having two eyes to each, and they are placed in 6-inch pots, well drained, and filled with peat and sandy loam in equal parts. Three cuttings are put in a pot, and the soil is pressed firmly about them. They are plunged in a hotbed in a bottom-heat of from 65° to 70°, and no water is given for a week. In three weeks or a month the cuttings are rooted, and then potted singly into 3-inch pots and plunged again. As soon as the roots reach the sides of the pots the plants are shifted into 5-inch pots and again plunged. As soon as the young shoots are 3 inches long their points are pinched out, and when they break care is taken to keep the plants near the glass to prevent them from becoming drawn. Should they not push side-growths freely, the pots are laid upon their sides for a few days, which causes the lower buds to break. As soon as the roots become pot-bound the plants are shifted into 8-inch pots, the compost used being made up of three parts rich loam and one part leaf-mould, with a sprinkling of coarse sand. The plants are lightly syringed every evening overhead to keep the foliage fresh and healthy, care being taken not to give them too much water at the roots while in the hotbed, as it is apt to cause them to rot. The plants are kept in the stove until the end of July; then they are gradually hardened off until they can go out into a cold frame. When thoroughly hardened they are stood on a bed of cinder ashes behind a north wall. Now this may appear strange practice to some who regard the *Poinsettia* as a stove plant and suppose it will not bear this treatment, but it really benefits by it. It makes the foliage more healthy and the plants more stocky. They remain out until the end of August, when they are taken into the stove or warm vinery, kept well supplied with water, syringed overhead every evening to keep the foliage healthy, and watered with liquid manure twice a week. If aphides put in an appearance, the plants are fumigated two or three nights in succession; but, as Mr. Thomas Baines points out, the juices of the *Poinsettia* are much too acrid for insects to feed upon. By the beginning of November the plants will begin to put forth their crimson bracts.

R. D.

Maranta Warscewiczii.—This is sometimes classed with the *Calatheas*, and is a plant that although possessing distinct beauty has never become popular. A plate of it was given in THE GARDEN, June 26, 1880, from which a good idea can be obtained of the curiously arranged flower and the velvety green-coloured leaves which generally grow about 2 feet in length. Mr. Hudson, of

Gunnersbury House, Acton, cultivates it with success, and a fine specimen is flowering in the house devoted principally to *Dracenas* and *Crotons*. The plant is of *Canna*-like aspect, the foliage rich lustrous green relieved with feathery yellow lines on each side of the midrib, the peduncle supporting a handsome flower, forming a number of pearly white rings of considerable substance and long-lasting property. *Maranta Warscewiczii* is indeed an ornamental stove plant that deserves more recognition than it now obtains, as we not only have beautiful foliage, but also handsome flowers.—X.

Boronia megastigma.—I agree with "T." in THE GARDEN, March 10 (p. 219), that nothing equals the perfume of this Australian plant. He says it is of easy cultivation, but neither I nor my friends find it so. Indeed, I have never yet seen a well-grown satisfactory specimen of this variety. My plants all lose their leaves and dwindle away, in spite of my greenhouse and open-air summer treatment. Plants raised from seed come to a similar end. Will "T." describe his treatment throughout the year, propagation, soil, temperature, exposure to sun, watering, &c.? Probably a damp atmosphere or pit is necessary.—NORTH-WEST CHESHIRE.

Two beautiful Primroses (*Primula obconica* and *P. floribunda*).—I recently noted both the above species flowering in a cool house in Mr. Williams' nursery at Holloway, and cannot too highly recommend them to all those who love early flowers; indeed, they are nearly perpetual bloomers. The first-named plant is an introduction from China by the Messrs. Veitch, of Chelsea. It is a plant of very easy cultivation, and is compact and free in habit, producing its creamy mauve or lilac flowers in abundance, and for a very long period. *P. floribunda* is a yellow-flowered kind similar in size and habit, making a beautiful companion plant to it. The soil for these *Primulas* should consist of two parts good turfy loam, one part well-decomposed manure, and one part leaf-mould that has been well turned and decayed.—W. H. G.

The blue Sage (*Salvia Pitcheri*).—Those who intend growing this most useful blue-flowering plant should lose no time in putting in cuttings, so as to obtain good strong plants capable of throwing up strong spikes of their intense blue flowers. The old plants having been cut down close after flowering will have pushed up strong growths from the base; these should be taken off and will strike readily under a hand-glass in a gentle heat. As soon as struck the cuttings should be potted singly in 3-inch pots, and use a mixture of loam, leaf-soil, and well-decomposed manure, with a dash of sand, and place them in a cool frame. As soon as rooted pot them on into 6-inch pots, potting them rather firmly and stand them on ashes in a sunny position, so that the wood will be short and well ripened. The main point in getting good strong spikes is to let the plants become thoroughly pot-bound, otherwise they will produce weakly, straggling spikes, and often not flower at all. After they have become well rooted use a little liquid manure until the spikes begin to show and then use it more frequently. As they flower in October, when as a rule there is a scarcity of bloom, they will be found extremely useful, and when grouped with the white *Marguerite* the effect is really beautiful.—W. L., *Chislehurst*.

Plants suitable for stove.—I have just erected a lean-to stove house 16 feet by 14 feet by 12 feet high at the back. My heating power will, I think, be sufficient to maintain 65° at night in winter. I should be very glad of a few hints on the following points: 1. What four climbers would be best? I am thinking of *Allamanda*, *Stephanotis*, *Dipladenia*, and some other. 2. I wish to have about twenty Orchids; what would you advise? 3. On part of the end wall I intend growing some Ferns; what would you recommend besides the ordinary *Adiantums* for this purpose? 4. As I wish the house to contain a mixed collection of plants, such as *Crotons*, *Caladiums*, *Poinsettias*, *Gloxinias*, &c., any hints as to the best manner of putting up staging, &c., will be very acceptable. My intention is to make

at any rate part of back of house where there are four pipes into a propagating pit. What is the best way to do this? I have very good accommodation in houses adjoining stove, but only greenhouse temperature kept up in them. 5. Kindly suggest other plants besides above.—J. M. WILSON.

Hardenbergia Lindleyana.—This is rather a slender growing, but yet a good, free climbing plant that may be used either to clothe pillars in the greenhouse or to furnish any bare rafters that it may be desired to hide. The flowers are Pea-shaped, borne very freely, and of a pleasing purple hue. The *Hardenbergias*, of which there are a few other forms, are all very pretty and are near allies of the *Kennedias*, two of which, *K. Marryattæ* and *rubicunda*, are remarkably showy climbers, that are, when flourishing, hardly ever without flowers. These climbers do far better if planted out than in pots, and in doing this the principal consideration is to see that the drainage is good, for though the plants grow vigorously when once established and enjoy copious supplies of water during the summer, yet stagnant moisture at the roots soon proves fatal to them.—H. P.

Vriesia brachystachys.—More than a couple of months since I noted this *Vriesia* in THE GARDEN as being in flower, thereby forming a bright feature during the dull December days. Notwithstanding the length of time that has elapsed, the flowers, or rather the bracts, which form the most conspicuous part of the inflorescence, are as fresh as ever, and bid fair to retain their beauty for some time yet. Like many more of its class, this *Vriesia* is of easy culture, and apart from its blossoms the foliage is bright and cheerful at all seasons, so that it may be classed as one of the most desirable *Bromeliads*. Pretty though many of its class are, they are by no means popular, as it is quite the exception to find them represented in gardens. In the case of some the leaves alone entitle them to a high place among ornamental-foliaged plants. Though so neglected in this country, many of the *Bromeliads* are very popular on the Continent.—H. P.

The Bermuda Lily (Lilium Harrisii).—This form of *Lilium longiflorum* has rapidly made its way into cultivation owing to the fact that it can without difficulty be had in bloom thus early in the year; indeed, by varying the time of potting and the temperature of the house, the flowering season can be spread over a considerable period. The ordinary form of *Lilium longiflorum* cannot be forced in the same manner as *Harrisii*, for if subjected to a temperature sufficient to induce these plants to bloom thus early in the season many of them go blind and do not yield a single flower. Grown in the open ground, it flowers about the same time as the other *longiflorums*, or, judging by a few I had last season, it is nearly a week later. Such difference was, however, in all probability accidental, as the bulbs were obtained from various sources, some being home-grown, while all those of *Harrisii* were imported ones. After their first crop of blossoms was over and just as the flower-stems were turning yellow a second stem was pushed up, which bore in some cases one and in others two blooms. Though by no means so fine as the first crop of blossoms, these later ones were especially valuable, as, with the exception of *L. neilgherrense*, there is no Lily which blooms so late in the season. In this way I had some blooms up to the end of November; indeed, one fine flower did not open till December. The imported bulbs generally reach this country by the middle of September, and when required for early flowering they should be at once potted and placed in a frame, when if kept slightly moist they soon root. As the dried bulbs arrive here at a time when our home-grown ones have their foliage still quite green, it is evident that for early flowering the imported bulbs are the best, as they start away more freely than those that have not been so thoroughly ripened. The earliest plants will need a temperature during the winter of 50° to 65°, and they must be kept in as light a structure as possible, for if at all shaded they soon become weakly. One thing to particularly guard against is aphides, which are very liable to congregate among the young leaves on the top of the stem, and if allowed

to remain will soon injure not only the foliage, but the future flower. They are easily removed by fumigation, or by dipping in tobacco water, but in carrying out this last, care must be taken that the tobacco water really touches the insects, which from the way the young leaves are packed together often escape a wetting. The readiness with which *L. Harrisii* can be increased by scales is now well known, and generally taken advantage of.—H. P.

TUBEROUS BEGONIAS FOR THE FLOWER GARDEN.

OF late years tuberous *Begonias* have become conspicuous subjects in many flower gardens. They are much more capable of bearing exposure in summer and autumn than is generally supposed. The foliage is as hardy as that of an ordinary *Pelargonium*, and the flowers are much more so, as heavy rains frequently disfigure the flowers of *Pelargoniums*, while those of *Begonias* do not seem to suffer. *Begonias* are very charming in late autumn, and in some flower gardens in Wales I have noticed that they were the most attractive of all flowers in October. Hitherto they have been used on a limited scale, as bulbs have been so expensive to buy and it takes several years to produce good ones from seed. Now I am glad to see they are offered at a much cheaper rate, and are well within the reach of many. Bulbs one year old are not so useful as others two and three years old, but those raised from seed last year will gain size by July and make a nice display during the autumn months. The bulbs of these *Begonias* are easily kept during the winter. The best way to treat them is to lift them about the beginning of November and store them away from frost or damp in dry sand. They ought to be taken from their winter quarters not later than the first week in March and started for another year. This should be seen to at once. If they are grown in hundreds it may be a difficult matter to find pots and space for them all; but they may be placed a few inches apart in shallow cutting boxes and started in this way. The boxes should have a little drainage placed at the bottom, and the soil used for them should consist of three parts loam and one of leaf soil or well-decayed manure, with a liberal dash of sand. Place them in a temperature of 65° and water sparingly until growth begins. When the growths are about 3 inches high the plants may be placed in a frame to be hardened off previous to being planted out in the open in May. When the bulbs are potted singly the same soil should be used, the same heat applied, but do not over-pot them. We have some very large bulbs about five years old, and these have just been cut into four pieces or quarters. Each has a sound piece of bulb; all have a growing crown, and by potting them singly now our twenty-four big bulbs of last year will be ninety-six good plants by May.

CAMBRIAN.

* * In starting the bulbs of *Begonias* that are required for planting out during the summer, we have simply placed the bulbs in Cocoa-nut fibre on a hard bottom in a cold frame. In this way they start away more strongly, and form very fine stubby specimens for planting out in May.—Ed.

Greenhouse Rhododendrons.—It is the practice of Messrs. Veitch and Sons to exhibit all their new greenhouse *Rhododendrons* as seedling and not as propagated plants, with the result that an impression is left on the minds of those who see them for the first time that the new varieties have a drawn and lanky habit. But this is not so. It should be borne in mind that Messrs. Veitch and Sons raise a large number of seedlings, and as they do not bloom until the fourth year, a great quantity of seedlings have to be accommodated. From the seedling state they run up with a straight stem, and eventually flower at the top. The desire of the raisers is to get the plants into bloom as soon as possible, in order that their character may be displayed. Anything of high-class character is preserved, named, and propagated by being grafted on some free-growing variety, and the young worked plants are encouraged to break into a nice bushy habit of growth. All the inferior varieties are

destroyed, as there is no necessity for saving them. If anyone interested in these *Rhododendrons* will pay a visit to the Chelsea Nurseries they will be able to see plenty of dwarf, bushy plants of all the leading varieties that are all that can be desired in the matter of habit. I think that the new break from *R. multicolor* will be even more bushy in habit than the varieties of the *javanicum* type. It is because I hear people remark at the meetings of the Royal Horticultural Society when these new *Rhododendrons* are shown what a pity it is the habit of growth is so long and lanky, that I have penned this note.—R. D.

WORK IN PLANT HOUSES.

STOVE. — UTRICULARIAS.—Independent of the singular formation of the flowers and their effective appearance, the habit of these plants adapts them for hanging baskets. Grown in this way they are seen when in bloom to the best advantage. The plants require plenty of water when growing, and the material should be light. Soil of a like description to that which is used for Mexican *Orchids* answers in every way for *Utricularias*. The plants propagate readily by division of the crowns, but unless an increase of stock is required, and there happens to be specimens large enough to bear reduction in size, it is not well to interfere with them, as they are much more telling when they have attained considerable size. The best time to divide the crowns is just before the plants begin to grow; when this takes place to some extent depends on how they are treated in the matter of warmth. The crowns should be put in small pots not larger than will suffice to hold a moderate quantity of sand. Give enough water to moisten the material thoroughly, and shade closely from the sun, keeping the atmosphere quite moist. Plants that require re-potting should also be moved before growth commences. It is not well to allow the roots to remain too long in the same soil, as if it gets out of condition, they will not keep healthy.

PROPAGATING STOVE PLANTS.—There are many kinds of stove flowering plants that will keep in a thriving condition for a number of years, yet which it is better to discard after they have flowered a second season. It follows, therefore, that young stock requires to be propagated to take their place. Plants that were cut back some time since will now be furnished with young shoots in proper condition for striking. Cuttings of nearly all stove plants strike easily, provided they are kept close, moderately moist, and have enough heat. A temperature of from 70° to 75° in the night will answer. No time should be lost in getting all plants of this description struck, so that they may have a long season wherein to gain size and strength. Cuttings of the various kinds of stove plants, including the fine-leaved sorts that were put in some weeks back, should be potted as soon as they have got well established, as if allowed to remain in the cutting pots too long the roots get entangled so that they cannot be separated without being broken, and the top growth is checked. Directly the warm spring weather comes the temperature of both stoves and intermediate houses should be further raised night and day, but so long as cold winds last, air must be given with caution. It is much better to let the temperature run up higher than is quite desirable, rather than lower it by admitting cold currents, which dry up the atmosphere too much and injure the tender foliage.

AZALEA INDICA.—As the flowers fade the seed-vessels should be picked off without any delay. The formation of seed weakens the plants quite as much as the blooming. This is a matter not taken sufficiently into account in the cultivation of *Azaleas*, especially when they bloom profusely. As soon as the flowering is past the plants should be looked closely over to see that they are quite free from thrips, for if these troublesome insects are present they will increase rapidly under the genial warm treatment which the plants should have. A surface dressing of artificial manure should now be given, particularly in the case of any that are under-potted. This will help the young growth and be

more effectual than giving larger pots. The potting is better deferred for a time after the blooming, as the roots do not begin to move for some weeks subsequent to flowering. Plants that bloomed about the beginning of the year and have since been kept in a growing temperature will now be in a condition for potting. On no account unnecessarily disturb the roots in removing the drainage. The mischievous practice of loosening the outside of the ball with a pointed stick or something of a like description destroys quantities of the young feeding fibres that have just begun to move, the loss of which gives a severe check to the season's growth. See that the drainage is sufficient and is covered with Sphagnum or other fibrous matter that will keep the soil from getting down into it. Use the potting stick so as to make the new soil solid; this condition is not only that which best suits the roots, but it is also necessary to prevent the water passing through the new material, as if this occurs the old balls will quickly get so dry that the roots which they contain become all but stagnant. This reduces the plants to a state of semi-starvation, as they have nothing to support them except the extremities of the roots that are in contact with the moist, new soil.

AZALEA MOLLIS.—Even after being forced, if properly treated this section of Azaleas will go on flowering each succeeding year better than in those that have preceded, provided the treatment is such as to prepare the plants for the purpose. As the flowers fade, the seed-vessels must be picked off and the plants at once placed in a house or pit where there is a gentle heat like that which answers for the ordinary greenhouse kinds. Syringe them overhead, and keep the roots sufficiently moist. So managed, the plants will grow freely. Later on, when the young shoots have grown their full length, and the leaves have got fairly firm and the buds are just discernible, the plants should be moved out of doors, standing them at first where they will be shaded during the middle of the day, as if suddenly exposed to the full force of the sun, the foliage will suffer. In a few weeks they will get sufficiently inured to the open air, after which all the sun that can be given them will be an advantage, as it will help to develop the flower-buds. During the summer and autumn, whilst out of doors, they must be well attended to with water, as if the soil gets too dry it will stop the progress of the buds, on the plump, fully matured condition of which depends the flowering. If, as often happens, the plants before forcing were put in pots barely sufficient to hold their roots, they should be moved into others a size or two larger as soon as they have flowered. These Azaleas are well worth the little attention above mentioned, and they will increase in size from year to year.

POT ROSES.—Pot Roses, especially the Tea varieties that are forced, will improve with age, gaining strength and size provided they are well managed. The improvement of the plants in a great measure depends upon the treatment they receive during the spring and summer after the partial exhaustion they have been subjected to by being forced into flower in winter. Some of the most noted of the London market growers keep their Roses wholly under glass, never moving them out of doors, not even in the summer, simply keeping the houses cooler after the flowering season is past. All needful attention is given to the plants by keeping them perfectly free from their two great insect enemies, aphides and red spider, and the still more injurious mildew. Copious daily syringing, or the use of the hose-pipe will keep the insects down, whilst applications of sulphur keep the mildew at bay. In private gardens the glass accommodation is often insufficient to admit of the plants remaining in the house or houses where they have been forced, but when through necessity they have to be moved at this time from the comfortable quarters in which they have been located, they must not be placed where they will get chilled on frosty nights, or by the admission of currents of cold air in the daytime. In place of this the growth should be kept slowly moving, and as the weather becomes warmer top air should be

given in the day, gradually increasing it. Surface dressings of concentrated manure, or manure water, should be applied from time to time, particularly if the plants want potting, as even in the case of any that are in this state it is better to defer giving them larger pots until later on. Hybrid Perpetuals after blooming should be moved to a cold pit or house until the weather is warm enough to admit of their being put out of doors. With fair treatment they will be in a condition for using again next winter. Plants intended to bloom later, and that are being brought on slowly in a house where no artificial warmth is used except to keep the temperature above freezing on cold nights, should have air given them more freely than it would be safe to admit to such as are subjected to warmer treatment earlier in the winter. But in the case of these later plants they must be closely watched, or mildew will obtain a footing. T. B.

Persian Cyclamens.—These just now are wonderfully fine in Mr. Connell's garden at Tooting, where they are grown in quantity. Plants from one to three and four years old are bearing at the present time hundreds of their beautiful and showy flowers. The majority of gardeners in these days do not usually keep the corms after the second year, but, judging from these specimens, it is a great mistake. Mr. Mason, however, I find, adopts a rational system with them after flowering. All the old corms after the flowers are past are planted out of doors on a border in the kitchen garden, where they at once commence to root afresh and continue to increase in size. They are taken up in the autumn and potted. This is a far more natural plan than setting them away to dry all the summer, and I would advise some of my readers who do not believe in old corms to try it.—W. H. G.

Magnolia Halleana.—If this plant were more readily propagated, it would no doubt be frequently employed for flowering under glass, as its flowers are then of spotless purity, which is not always the case when out of doors. It is a small, much-branched shrub, whose flowers are borne before the expansion of the foliage. They are produced on the tips of the branches and are composed of over a dozen narrow petals, which after a day or two droop to such an extent that the centre of the flower is fully exposed. The blooms are about 3 inches in diameter, and they last a considerable time in beauty when in a cool structure. When in a bud state the flowers are slightly suffused with pink, but this tinge being limited to the exterior of the petals is not seen when the flowers are open. It is a native of Japan, and is thoroughly hardy in this country, but it needs a position where it is not smothered up by rank-growing subjects. The usual mode of propagation is by grafting on the allied *M. obovata*, or *purpurea*, as it is often called. *M. Halleana* is also known as *M. stellata*.—H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

Boronia heterophylla.—This *Boronia* is one of the finest introductions we have had of late years among hard-wooded plants. It is of free growth, and requires to be pinched frequently when young to form a well-furnished specimen. The flowers are borne in the greatest profusion and are brightly coloured. Like the rest of the genus, this *Boronia* is a native of Australia, and was introduced by the celebrated artist, Miss North, by whom seeds of it were sent to Kew. Messrs. Veitch were last year awarded a first-class certificate for this *Boronia* both by the Royal Horticultural and Royal Botanic Societies.—H. P.

Begonia odorata.—"S." in THE GARDEN, March 17 (p. 250), recommends this *Begonia* for winter flowering, and I can confirm all he there says as to the good qualities of this variety. "S." also says that this *Begonia* keeps well in flower when used for house decoration, but in this respect I differ with him, as I have taken plants of it into the house and found that most of the blooms fell off in two days. We have plants of this *Begonia* in bloom at the present time that have been flowering since the beginning of January.—T. DOWN.

Cape Hyacinths.—Mr. Baker, of Kew, kindly informs me that "there are forty distinct species of *Lachenalia*, not counting many varieties and hybrids

distinct from a garden point of view." Cannot our botanical friends in South Africa send over bulbs of these and of the many fine species of *Gladiolus*, *Watsonia*, *Ixia*, *Sparaxis*, and *Babianias* that have been introduced, but now lost, to English gardens? Their treatment might now be better understood, and their beauty would certainly be appreciated.—F. W. B.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC SOCIETY.

THE exhibition season of 1888 opened with a small, but exceedingly good display of spring flowers at Regent's Park on Wednesday, and it is perhaps due to the fresh beauty of such shows that they are so pleasant and welcome. The weather has been against flowers this spring, and this may partly account for the almost total absence of such things as Orchids, but, in our opinion, not sufficient encouragement is given to plants of this character. We must confess that Hyacinths, Tulips, and Daffodils, beautiful as they are, become tiresome when staged in the huge banks that have become the fashion. It is an unnatural and unlovely way to show them—what indeed one might see in a large florist's shop. We want the *Narcissus*, *Hyacinth*, and *Tulip*, but if some of the little-known alpine, choice bulbous plants, and other things were seen at the London shows it would make them far more interesting, and a delight not only to the ordinary visitor, but to those who go for instruction.

Azaleas were numerous, and Mr. H. Eason, gardener to Mr. B. Noakes, Hope Cottage, Highgate, showed well in the amateurs' class, the plants of *Model*, *Apollon*, and *Mrs. Turner* being noteworthy. The last-mentioned is a fine flower, flesh colour, with bold rose markings on the upper petals. Mr. R. Scott, gardener to Miss Foster, The Holme, Regent's Park, followed. Mr. R. Wells, Longton Nursery, Sydenham, showed best in the nurserymen's class for Azaleas, and Mr. Henry James, Castle Nursery, Norwood, was a good second. Mr. J. Douglas, gardener to Mr. F. Whitbourne, Great Gearies, Ilford, was to the front in several classes, and his specimen *Amaryllids* were skillfully grown and the varieties good; but there were too many crimsons, and this colour is, we think, too common in the *Amaryllis*. More should be seen of varieties with lighter and prettier tints, such as *Clarinda*, a good plant of which was exhibited; Messrs. Paul and Son, Old Nurseries, Cheshunt, were second. Chinese *Primulas* are going over, but creditable specimens were put up by Messrs. H. Williams and Sons, Fortis Green, Finchley, who were first in the class for these, followed by Mr. W. Kemp, gardener to Mr. H. Barry, Bushill House, Winchmore Hill. *Deutzias*, when shown as they are at the Botanic, give some idea of the beauty of a large plant when wreathed with the snow-white flowers. Mr. J. Douglas exhibited splendid specimens, and was awarded the first prize, the second going to Mr. H. Eason. *Persian Cyclamens* were densely flowered and strongly grown, especially those staged by Mr. John May, Gordon Nursery, Twickenham, and Mr. John Odell, Gould's Green, Hillingdon, who won the prizes in the order named. In the amateurs' division Messrs. D. Phillips and J. Clements were the chief prize-winners. Mr. H. R. Wright, Turner Road, Lee, Kent, came first for twelve pots of *Polyanthus Narciss*, and such varieties as *gloriosa* it is hard to beat, as the colours are beautiful and the fragrance most delicious.

Hyacinths and *Tulips* were very fine, considering the weather we have had. The twelve plants shown by Mr. Douglas, who won the first prize in this class, had compact, firm spikes that evinced skilful culture; *La Grandesse*, a single white, and *King of the Blues* deserve mention as two effective varieties; Mr. H. Eason was a good second, but the plants were not so fresh and bright. The nurserymen's class was also well filled, and Messrs. Williams and Sons won the first prize with neatly grown and well-flowered specimens, the best being *Vuurbaak*, scarlet, and *Grand Maitre*, the flowers of which are of a fine shade of blue. The *Hyacinths*

of Mr. H. R. Wright were not far behind in point of merit. Tulips in the amateurs' class showed no falling off, and those of Mr. Douglas were finely grown, the flowers large and the colours excellent. The best were Ophir d'Or, clear canary yellow; Keizer's Kroon, yellow, flamed with red; Proserpine, pink, and Joost Van Vondel, rich crimson. Mr. R. Scott was second. The nurserymen showed comparatively poor Tulips, Mr. H. R. Wright occupying first place, followed by Messrs. H. Williams and Co. Lilies of the Valley made a pretty feature, and the last-mentioned exhibitors were first with specimens that were well flowered. Mr. J. R. Chard, Brunswick Nursery, Stoke Newington, had smaller plants, but otherwise almost as good. Crocuses made a mass of colour, but nothing more. It is a most unnatural way to show the Crocus in a large pot with the flowers so thick that they almost crush each other. It gives no idea of the true beauty of this spring favourite. Mr. R. Scott was first in the class for these, and Mr. J. Douglas second, both of whom had several varieties. The last-mentioned exhibitor was first for a collection of hardy Primulas, comprising such gems as *P. marginata*, lilac; *P. villosa hybrida*, rose, white eye; and *P. viscosa nivea*, a beautiful alpine, the flowers snow-white. Mr. J. Clement, who was second, had several plants of the robust *P. verticillata* and a specimen of *P. cortusoides amœna*, the flowers being of a delightful rosy-red colour. Messrs. Paul and Son were first for twelve pots of bulbous plants, and made a beautiful group with *Iris reticulata*, *Krelagei*, *Bulbocodium vernum*, and *Galanthus Sharlocki*. An interesting group of hardy flowers came from Mr. T. S. Ware, who was first in the class for these.

Roses made a break in the display, and Messrs. Paul and Son, of Cheshunt, were the only exhibitors in the class for six, showing good plants of *Avocat Du Vivier*, crimson, and powerfully scented; the rich pink *Catherine Soupert*, *Innocente Pirola*, *Souvenir d'un Ami*, the exquisite *Polyantha Rose*, *Perle d'Or*, and the single *grandiflora*.

MISCELLANEOUS EXHIBITS were a leading feature, and a magnificent bank of spring flowers was put up by Mr. B. S. Williams, Upper Holloway, who had a large number of finely grown Hyacinths, Tulips, and Himantophyllums, the last-mentioned plants forming a class that deserves to come more to the front. The flowers of a variety named Meteor were large, brick-red in colour, and showy. A silver medal was given. Messrs. James Veitch, of Chelsea, were awarded a bronze medal for a large group of Hyacinths, quite up to the high standard that has now been attained. A group of Roses came from Messrs. Paul and Sons, including the variety Lady Alice, a sport from Lady Mary Fitzwilliam and recently described in THE GARDEN, and a comparatively new Hybrid Perpetual Rose, named Mme. Villey, a strong grower, the flower large, bright crimson, fragrant, and with well-formed petals. A bronze medal was given. Messrs. Cutbush, of Highgate, showed Hyacinths with the plants plunged in Moss, a creditable way of arranging the flowers, and less formal than the common method. A silver medal was awarded. Messrs. Barr and Sons, Mr. T. S. Ware, of Hale Farm Nurseries, and Mr. John Odell, of Gould's Green, Hillingdon, also contributed to the display, and bronze medals were awarded to Messrs. H. Lane and Son for Azaleas, and to Mr. James, Woodside, Farnham Royal, the last-mentioned showing plants of his superb strain of Cinerarias, remarkable for the solidness and vivid diversified colours of the flowers. Messrs. H. Williams and Sons had a nice arrangement of Azaleas, Daffodils, Tulips, &c., for which a silver medal was awarded.

New plants were fairly numerous. Botanical certificates were awarded to Messrs. Veitch for *Fritillaria Thomsoniana*, with small blush flowers and golden anthers; and for *Trillium discolor atratum*, the leaves mottled with pale green, the flowers being deep purple-crimson. Also to Messrs. Paul and Son for *Saxifraga Frederici Augusti*; and to Mr. W. Perkins, gardener to the Right Hon. W. H. Smith, Greenlands, Henley-on-Thames, for *Dendro-*

bium Cooksoni, both of which have been recently described in THE GARDEN.

Floricultural certificates were awarded to Mr. James, Woodside, Farnham Royal, for the following Cinerarias, all of which have flowers of splendid form and substance: Marie, white, centre blush purple; Favourite, bright magenta, the lower half of the petals white; Irene, rich lustrous purple, with a ring of white in the centre; and to Messrs. Paul and Sons for Rose Lady Alice, already described.

A full prize list is given in our advertising columns.

ROYAL HORTICULTURAL.

TO THE EDITOR OF THE GARDEN.

SIR,—The council of the Royal Horticultural Society have now determined that, in addition to the £4 4s. and £2 2s. Fellows and 10s. 6d. Gardener Associates, they will admit as Fellows with a vote ladies and gentlemen paying subscriptions of £1 1s. For many years past I have believed that this would give the means of resuscitating the society and of placing it on a broad and sound basis, and that the owners of gardens all over the country are the natural supporters of a society by whose action the flowers, fruits and vegetables which they grow are improved, and that if the facts of the case were fairly brought before them, they would wish to join the society. I am to some extent pledged to be the means of bringing in 500 guinea Fellows within a year, and I mean to do this, but it will require the aid of all my friends, acquaintances and gardening connections; of these last, especially of some of the visitors to our experimental gardens at Wisley, I have not the present addresses. Will you allow me to reach those who read your paper by its means, and to say that I think our best course will be to form a committee for the purpose of finding suitable Fellows, a committee which formed for a single purpose will involve neither attendance, expense, nor liability, and to request that any lady or gentleman disposed to join this committee will communicate with me. GEORGE F. WILSON.

Heatherbank, Weybridge.

SUMMARY OF THE PRIVILEGES OF FELLOWS AND ASSOCIATES FOR THE YEAR 1888.

A Fellow paying four guineas a year is entitled—

1. To a family ticket admitting to all the society's exhibitions and meetings at 12.30 o'clock, being an hour earlier than the general public.
2. Personal admission to all the society's exhibitions and meetings at 12.30 o'clock, being an hour earlier than the general public.
3. To personal admission daily, between the hours of 10 a.m. and 5 p.m., to the society's rooms and to the Lindley Library, except on Sundays and holidays.
4. To personal admission, between the same hours and with the same exceptions, to the society's experimental gardens at Chiswick.
5. The privilege of sending fruit, flowers, and seeds to Chiswick for trial.
6. To a share of such seeds, plants, cuttings, &c., as the society may have in sufficient numbers for distribution.
7. To purchase such fruit and vegetables grown at Chiswick as are not required for the purposes of the society.
8. To a copy of all publications of the society.
9. To the right of voting at all meetings.

A Fellow paying two guineas a year is entitled—

10. To a transferable ticket admitting two persons to all the society's exhibitions and shows.
11. To the same privileges as mentioned in Nos. 2, 3, 4, 5, 6, 7, 8, and 9.

A Fellow paying one guinea a year is entitled—

12. To personal admission to all the society's exhibitions and shows.
13. To the same privileges as mentioned in Nos. 2, 3, 4, 5, 6, 7, 8, and 9.

An Associate paying half-a-guinea a year is entitled—

14. To a non-transferable ticket admitting to all the society's exhibitions and shows at 12.30 o'clock.
15. To be present at meetings, but without voting on any matters relating to the affairs of the society.

N.B.—Associates must be bona fide gardeners or

employés in a nursery, market garden, or seed establishment, and must be recommended for election by two Fellows of the society.

The society being incorporated by royal charter, the Fellows and associates incur no personal liability beyond the payment of their annual subscriptions.

The society's exhibitions and shows are held in the drill hall of the London Scottish Volunteers, James' Street, Westminster, about equi-distant from the Victoria and St. James' Park stations of the District Railway, and close to the society's rooms at 111, Victoria Street, and to the Army and Navy Stores.

Note.—Any lady or gentleman desirous of joining the society may obtain forms and full particulars on application to the secretary, the society's offices, South Kensington, up to the 25th of March, and thereafter at the offices, 111, Victoria Street.

NOTES OF THE WEEK.

Narcissus calathinus.—I am sending you a bloom of *Narcissus calathinus* cut from the plant of which you have the photo. I do not believe it to be anything but a better form of triandrus, and I think this is now generally the opinion.—A. R.

** Excellent flowers of this lovely pale lemon-coloured *Narciss*.—ED.

Narcissus Committee, R. H. S.—Will you kindly allow me to draw attention to the fact that the meetings of this committee on March 27, April 10 and 24, and May 8 will be held in the new premises of the Royal Horticultural Society in Westminster, and that all plants and flowers intended for the committee should be sent to 111, Victoria Street, S.W., instead of to South Kensington.—C. R. SCRASE-DICKINS, Hon. Sec.

Cypripedium Lawrenceanum.—Plants of this beautiful species, which, I believe, was one of Mr. Burbidge's lucky gains when travelling in Borneo for the Messrs. Veitch, are now flowering in Mr. James's nursery at Norwood, where it appears to thrive in an intermediate temperature. Both in the beautiful marbling of its leaves and the large, bold, and handsome flowers this species stands in the first rank.—W. H. G.

The Gardeners' Orphan Fund.—The dinner announced to take place on July 13, the day of the first election to the fund, will be held at the Cannon Street Hotel, at 5 p.m., the hour being made early in order to give visitors from the country an opportunity of returning the same night. It is intended that the dinner will be a social gathering, simply in order to give the executive committee an opportunity of meeting their local secretaries and country supporters. No attempt will be made to gather in funds. Further particulars will be announced in due course.

Doronicum Harpur Crewe.—I send flowers of *Harpur Crewe's Doronicum*, to show you what a fine thing it is for growing in pots in a cool house during the winter and early spring months. I saw lately in the conservatory at Narrowater Castle a dozen large plants, which were quite a feature. The yellow Marguerite-like flowers are large, 3 inches or so in diameter, good in colour, and last for a very long time either on the plants or when cut. Either for the above purpose or as an outside decorative plant, its great merits have yet to be discovered; in fact, it is quite one of the best garden plants we have.—T. SMITH.

Angræcum Sanderianum.—As I believe you like to hear of the flowering of new or rare Orchids, I beg to say that I have a plant of the new *Angræcum Sanderianum* in bloom bearing a long spike of thirteen flowers of the small white *Angræcum* character—no scent. This species promises, I think, to be a freer flowerer and grower than most of its congeners, but will require to be grown to a large size and to develop half a dozen spikes of bloom at once to be effective. *Angræcum Scottianum* has a finer white bloom by far, and apparently produces single flowers. The plant is of a curious, creeping sort of growth.—C. HAWKINS FISHER, *The Castle, Stroud*.

Rose W. A. Richardson.—Allow me to recommend this Rose, one of my small successes, to amateurs like myself, as being easy to cultivate and satisfactory in every way. A pot specimen, about 2 feet high, was sunk outside last summer and autumn, and was brought into my cool-house last November. About the middle of February it was removed into a warmer atmosphere, and it is now covered with flowers, apricot-yellow with white edges on sprays of bright green foliage. During the last week I

have worn two buds as buttonholes for two days each, wrapping the stem in a little wet paper wired round, and dropping the bud gently into my water-jug at night. To my surprise and delight, the bud so treated expands into full bloom, which lasts for several days afterwards in a flower-glass, retaining its petals so tenaciously that they cannot even be shaken off. The scent is like that of the Gloire de Dijon, and the mingled tints are so uncommon and beautiful, that people have stopped me in the street to inquire what Rose I had got.—NORTH-WEST CHESHIRE.

Ostrowskia magnifica.—Allow me to point out, in addition to the description in THE GARDEN (p. 233), that the figure of this plant given in various catalogues and periodicals is not correct, as it has been designed from a dried withered specimen. I had half a dozen plants flowering here, and must state that the flower is not upright, but nodding, the colour being a pale satiny lilac. In the original description in the "Acta horti petropolitani" the flowers are said to be "lilacino-cærulei." The blooms were about $3\frac{1}{2}$ inches broad, and also deep. Taken all in all, it is a most striking plant, and to my mind the best introduction among hardy perennials since that of *Lilium auratum*. It was introduced by Dr. Ed. von Regel.—MAX LEICHTLIN, Baden-Baden.

Crinum latifolium.—This West African bulb is the finest tropical bulbous plant in flower at Kew at the present time. A really noble and beautiful plant it is, and one that deserves the attention of some of our enterprising nurserymen so as to make it easily obtainable. It is like other *Crinum* in growth, having the same flask-shaped bulbs and long, narrow, and channelled leaves. The stout flower-spike rises erect about 18 inches high, carrying seven or eight noble flowers with long tubes, curved gracefully as if to display more perfectly the broad, funnel-shaped perianth. The sepals and petals are broad, snow-white, with a broad band of carmine-purple down the middle of each. This glorious head of bloom lasts as long as some of the Orchids, and the fragrance is delicious. This bulb is easily grown in a stove.—W. G.

Cineraria cruenta.—It may appear to be going backwards when we direct attention to the merits of the originals of any great class of popular florists' flowers. It may seem absurd to say that the original *Cineraria cruenta*, brought from the Canary Islands a century ago, is as pretty and as worthy of culture as the great circular-flowered varieties which are generally considered the perfection of *Cinerarias*. But in the opinion of many the original *Cineraria* possesses an elegance of growth and flower that is lost in its high-bred descendants. There is a group of well-grown specimens in the greenhouse at Kew of this old plant, which probably differs in no way from the wild plant in the Canaries, so that one can see what a fine thing it is. The specimens are a yard or more high with great broad leaves and clusters of bloom a foot or more across. The flower-heads are small and reddish purple with dark centres. It is different from the *C. cruenta* which Mr. Cannell grows at Swanley, which has larger flowers of a different colour. This is known as the variety *Webberiana*.—W. G.

Strelitzia Augusta is one of the noblest and finest tropical plants we have seen for a long time, and has been very attractive for some time in the great Palm house at Kew. *Strelitzias* are most commonly represented in gardens by the small *S. reginae*, no mean plant in foliage and flower, but *S. Augusta* is over 20 feet high, with a tree-like stem and huge Banana-like leaves quite 10 feet long, including the stalks. The two flower-spikes spring out of the plant on either side. The flowers are at first enclosed in large canoe-shaped bracts a foot or more long, and each flower has three white sepals and a pair of purplish blue petals, and are not so striking in colour as the bright orange and purple-blue flowers of *S. reginae*. It is, like the latter species, a very old plant in gardens, having been brought from South Africa nearly a century ago. It can, of course, be only grown to perfection in large conservatories; hence the smaller species, *S. reginae*, is the most valuable to gardeners. The

Strelitzias are called Birds of Paradise Flowers and Bird's-tongue Flowers, both appropriate names, more particularly the latter.

The netted Iris as a rabbit-proof flower.—In the gardens at Gunton Park *Iris reticulata* is a special feature, and is found to be proof against rabbits, although Mr. Allan says that the yellow *Crocus* stands no chance at all. In a recess in the covert he planted about three years ago upwards of 200 bulbs, and since then they have increased, and each season thrown up a brilliant display of flowers that against the snow have a delightful beauty. Mr. Allan has also planted this *Iris* in other parts of the grounds where the destructive rabbit has free access. Those then who love wild gardening should remember the netted *Iris*, and there are few more beautiful or natural pictures than a patch of these flowers and Daffodils on the Grass in the early spring.

Gentiana verna.—A few days ago (March 7) my girls brought in from the market a nosegay which consisted principally of Primroses, Snowflakes, and Hepaticas. But in the midst of it there was a gem of the first water, which I never expected to see so early in the year. It was a veritable blossom of *Gentiana verna*, the herald and forerunner of the brightest glories of Switzerland. I thought we should have at least a month to wait before it would put in an appearance; but it is not so, and there must be thousands and thousands of *Gentians* which have been straining onwards under their deep coverings of snow, and which will not lose a single moment in opening when the winter is over at last. That nosegay was proof enough of the suddenness with which spring will be on us when once it has a chance of beginning.—H. EW BANK, Lausanne.

Orchids from Perth.—We have received from Mr. W. Macdonald, of Woodlands House, Perth, a beautiful gathering of Orchids, amongst which was a good raceme of *Cymbidium Lowi*, carrying twenty-three flowers of very fine form; the sepals and petals are greenish brown, the lip very bright, the side lobes yellow, the upper half of the front portion clear white, the other part rich crimson—a fine blending of subdued hues. The flowers of the white *Cattleya Trianae* were delightfully fresh and pure, and in the gathering was a good form of *C. Percivaliana*, an Orchid that, when it is true, is surpassingly rich, especially the gold and crimson lip. A brilliantly coloured variety of *D. nobile* also calls for mention. Mr. Macdonald also sent very fine photographs of the leading forms of *Lady's Slippers* backed by *Asparagus plumosus* and *Maidenhair Ferns*.

Vernal Snowflake and Squill.—One of the most pleasing effects I have seen for a long time is that in the rockery at Kew composed of the above two plants. The groundwork consists of *Scilla bifolia* (blue), the weak sprays of which entirely cover the ground, while from amongst them rise the pretty Vernal Snowflake, white with green tips intermingled with the light green, strap-shaped leaves of the latter and the smaller purple-tinted ones of *S. bifolia*. The Carpathian variety of the Snowflake seems to me more a myth than ever. This year more particularly we have seen flowers with spotted tips varying from bright green to yellow, with all the intermediate shades between the two. The double-flowered stem is not confined to the Carpathian variety, but may be found on the green and other forms also. *Scilla bifolia* also varies widely in the size of the individual flowers as well as in colour; one of the forms noted has very small flowers with narrow segments, the other twice the size. Both of them were found amongst collected bulbs of *Chionodoxa sardensis*. Other forms are alba, carnea, metallica, rosea, pallida, &c.—K.

Eupatorium panamense.—Besides the two species of *Hebeclinium* (now called *Eupatorium*) mentioned in THE GARDEN, March 17 (p. 251), there is a third species—a rarer kind—in flower in the greenhouse at Kew named *E. panamense*, a native of Panama. It is a good deal like *E. ianthinum*, but has larger leaves, with a broader and less dense cluster of flower heads, which are of a brighter purple. The three purple *Eupatoriums* or *Hebe-*

cliniums are practically one and the same plant, and all flower at the same time. The best of the three is undoubtedly *E. atrorubens*, which is such an important plant for the greenhouse at this season that too much cannot be said in its praise.

The Gloucestershire Rose Society.—A large and influential meeting was held at Gloucester on Saturday last, the 17th inst., for the purpose of starting a Rose society for the county. The result of the meeting was the formation of the above society, which promises to be exceedingly well supported. Mrs. Gambier Parry, of Highnam Court, Gloucester, was unanimously elected president, and several residents in the city and county consented to become patrons and patronesses. An influential committee was appointed, and the Rev. T. Holbron, Sandhurst Vicarage, Gloucester, and the Rev. F. R. Burnside, Chipping Campden, were elected hon. secretaries. Mr. Hatherley was appointed hon. treasurer. The first show of this new society will be held in the Corn Exchange, Gloucester, on Thursday, July 12. The committee hope to be able to frame a liberal schedule, which will be issued by the end of April or the beginning of May.

Rhododendrons Pixie Queen and multiflorum.—These two varieties are among the numerous beautiful hybrid *Rhododendrons* raised and sent out by Messrs. Isaac Davies and Sons, of Ormskirk, and both may now be seen in bloom in the temperate house at Kew. These have both evidently descended from the beautiful *R. ciliatum*, one of the smaller-growing species from Sikkim, and are not very much different from it. Both are of dwarf growth, with smallish leaves of a bronzy green, and covered with soft hairs. The flowers of both are some 2 inches long, produced several together in a cluster at the tips of the branches. Those of *Pixie Queen* are pure white, while those of *multiflorum* are washed with a delicate pink tint. They are charming shrubs for the greenhouse at this season, and as they require no forcing, anyone may grow them in an ordinary greenhouse. The typical *R. ciliatum* is also in flower, and an exceptionally fine specimen 4 feet through of that best of all greenhouse *Rhododendrons*, *Countess of Haddington*, is in perfection in No. 4 house.

Heuchera sanguinea.—This exquisite little hardy herbaceous plant, introduced a few years ago by Mr. Ware from Mexico, is rapidly gaining the popularity to which its beauty justly entitles it. Not only is it becoming common as a border flower, but also as a pot plant for the greenhouse in early spring, an example set at Kew, where in the greenhouse may be seen plants of it in bloom. Its foliage is a good deal like that of other *Heucheras*, the leaves being roundish, produced in a compact tuft, from which rise the slender flower-stems about 9 inches or 12 inches high, carrying on their upper parts numerous tiny bells of a coral-pink colour. A well-grown plant bears from a dozen to twenty spikes, which for cutting are most elegant. The finest plant I remember seeing of it was in Mr. Cammell's garden at Brookfield, in the midst of the Derbyshire hills, where in the valley the climate is moist. The plant was about 18 inches across, and bore a sheaf of spikes like a mass of coral. I venture to propose the name *Coral Bell* to render it more easily remembered than its botanical name.—G.

WOULD some correspondent who has a cold clay soil which will grow Roses well tell me what herbaceous plants he finds really thrive best?—A. H., Suffolk.

Propagation of Gladioli.—Would "Delta" or any other reader of THE GARDEN kindly explain to me the propagation of *Gladiolus* corms by cutting them, and if they will flower the same year?—P.

Names of plants.—*E. Beveridge*.—The specimen is far too small to name.—*Greenwood Pim*.—Both forms are *Scilla bifolia*, and the largest is the most common.—*S. E. Bockett, Sutton*.—Your Snowdrop, which you thought a hybrid, is the pure *Galanthus plicatus*.—*F. Dowding*.—*Epidendrum virgatum*.—*B. E. W.*—White *Pottebakker Tulip*.—*H. E.*—1, *Juniperus* species; 2, *Thymus vulgaris*; 3, common *Mezereon*; 4, *Butcher's Broom* (*Ruscus aculeatus*); 5, *Kerria japonica*.

WOODS & FORESTS.

THE NOTCH SYSTEM OF PLANTING.

IN THE GARDEN of March 3 (p. 208) "Fix" says: "Would any reader explain how planting on the notch principle is carried out? I shall be very grateful to know a little about this plan."

Planting by the notch system has been carried out on an extensive scale in the north of Scotland for a great many years with the best results, and in proof of which no better testimony can be adduced than the vast tracts of Heather moorland and barren hill ground that have been successfully converted and added to the former woodlands of many a large estate in that part of the country. This mode of planting is principally practised for small plants of the Pine, Larch, and Spruce, although at the same time it is by no means confined to such, as small plants of different species of hard-wooded trees are often successfully planted in this way. Most planters, however, prefer breaking up the ground for this class of trees by digging pits for the roots and using plants that have been frequently transplanted during their nursery career. In performing the operation of notch planting, the planter makes a cross cut with his spade at right angles, thus,



he then inserts his spade at A, and by pressing down the handle of the instrument the cross notch opens at the centre and a boy inserts a plant; the planter then withdraws his spade and the turf naturally falls down to its original position, enclosing the roots of the plant. The planter then makes the ground firm around the stem of the plant and the work is finished. When using seedling plants with small roots I have successfully planted them by only making two cuts with the spade at right angles,



The planter makes the first cut with his spade at 1, he then inserts his spade at 2, and by pressing down the handle the cut 1 is opened up and the plant inserted; he then treads the ground to make the plant firm. There is another form of notch planting, which consists of two cuts with the spade in the form of the letter L; the turf is raised a little with the spade and the plant placed in the corner. As the roots in this example are necessarily all one way I do not approve of the system, and have never practised it, for the simple reason that such trees are easily blown over by wind, and besides, the roots cannot collect food for the support of the tree as they can do when ramifying in all directions.

In planting small seedlings the work is often performed with the planting iron, an instrument like a small diamond-mouthed spade, with a handle about 18 inches long. In this case the planter carries his plants in a bag slung over his shoulder, and by making a cross notch with the tool on the surface and opening it up a little by pressing down the handle, he is enabled to place a plant in the opening with his left hand, when he then withdraws the tool, and finishes by closing the lips of the wound with his foot around the collar of the plant. By this simple, inexpensive method many fine plantations, which have proved in every way satisfactory and highly remunerative, have been formed. When Heather ground is planted with Pines, Larch, and Spruce Firs, the plants are generally inserted at a distance of $3\frac{1}{2}$ feet and sometimes 4 feet apart, or at the rate of about 3000 plants

per acre. When planting bare, exposed ground at an elevation above sea level of from 1000 feet and up to 1400 feet, I prefer using two-year-old seedling plants one year transplanted, and inserting them by the cross notch with the spade. Transplanting not only promotes the formation of better roots, but likewise is beneficial in giving a hard, stout stem, by which means the plants are not so easily shrivelled up and damaged by frost during a spell of stormy weather at high elevations. When two-year seedling plants are used in such places they are apt to be damaged by frost to a serious extent, as they have neither body nor substance to withstand the rigour of the climate.

In order to carry out hill planting expeditiously, the planter should have a quantity of plants brought to the ground and laid in by the heels in a piece of soft friable soil convenient to the plantation. The bundles of plants should be opened out, otherwise they are apt to become heated in the centre, when many of them will thereby be rendered quite useless. Pines and Evergreens are apt to suffer most in this way, more especially when the plants have been tied up in a damp state in the nursery. Sometimes it occurs that there are no cart roads within some miles of the ground to be planted, and this is often the case in deer-forest planting, so that the plants have to be carried for a considerable distance. Under such circumstances I have found it the best plan to employ a strong hill pony for this purpose. The plants are packed into a large mat bag and placed upon the back of the pony, a couple of men, one at each side, walking along to keep the burden from falling off. These plants may be left here and there on the ground opposite where the planters are at work, by which means they are enabled to get a fresh supply when wanted. It is likewise an advantage to use as many plants in this way as possible, as it saves the trouble and expense of laying them in by the heels. In case of emergency it is, however, always best to have a stock of plants on the ground as a reserve to fall back upon. In cases where vermin are plentiful, the plants at this dépôt should be protected by placing some Brambles around the margin and over them. In getting up a squad of planters in a country district many of the hands employed will be unaccustomed to planting, so that it will be necessary for the person in charge to pay special attention to them until they are thoroughly initiated into the work. In making a start, the planters are placed in line at the required distances apart, and to prevent mistakes each man has the distance apart at which the plants are to be inserted marked upon the handle of his spade, by which means planting can be carried on without confusion, as each one has his measuring rod in his hand. Each planter, who is provided with a boy and bag for holding his plants, then makes the cross cuts with his spade, while the boy inserts the plant, as already explained. In order not to detain the work by the boys going for their own plants, the better plan is to appoint a person to take charge of them, bring them to the ground, and distribute them among the boys as required and as the work proceeds. In this way the planting can be prosecuted in a methodical, systematic manner, without loss of time or confusion, which is a matter of much importance where a large squad is employed. In mountainous districts of the country at high elevations the weather is liable to sudden changes, more especially in autumn and winter when the planting is in full swing. Under such conditions I have found it an advantage to shift the planters from the cold to the lee side of the

hill during a gale, by which means they were enabled to execute their work in a better and more efficient manner. The notches on hilly ground that has a mossy surface are apt to curl up and open by drought in spring, so that the planter had better be careful to have such examined and pressed down with the foot before the roots get dry and damaged.

J. B. WEBSTER.

RHODODENDRONS FOR COVERT.

THE common Rhododendron ponticum is in every tree nurseryman's catalogue recommended for covert planting, no doubt with good intention, as it can be sold at a cheap rate by the thousand or even the million. That it makes a thick and in many places an ornamental covert we all know. Some of the largest game preservers, however, say that it forms a bad covert for pheasants, and, what is of hardly less importance, is a perfect stronghold for rabbits, which delight in the dense growth, and thrive and multiply amazingly. Pheasants dislike such a dense cover, preferring rather the taller and lighter growth of such shrubs as the common Laurel, Portugal Laurel, Berberis Aquifolium when tall, and other Evergreens that are dense enough to protect them, yet thin enough below to allow them to move under them freely. Rabbits, on the contrary, run to the densest growth for shelter and safety. One great recommendation which the Pontic Rhododendron possesses is, that rabbits will not attack it in winter, and that is one reason why it has been planted so largely; but if it fails as a good pheasant covert, even that merit does not stand for much.

In planting a large covert at the present time in Sussex I am specially enjoined by the proprietor not to plant Rhododendrons, though they flourish admirably in the place, and therefore my selection of suitable shrubs is limited to Laurel, common and Portugal, Cotoneaster Simonsi, Oval-leaved and common Privet, Spurge Laurel, Evergreen Barberry, Broom, and other shrubs cheaply obtained and not too dense in growth. In covert planting on a large scale one must, for economical reasons, confine himself to those plants that are grown by the thousand and can be bought cheaply, though there are many other shrubs that would be suitable could they be bought at a few shillings a hundred. Those who recommend for covert planting such things as Pampas Grass, Bamboos, Andromedas, Kalmias, of which decent plants cannot be bought under a shilling each, must have had to plant for proprietors with very long purses. Where one has to plant covert by the acre one sees how absurd it is to recommend any but inexpensive plants. Where game coverts are near the house, or are frequented by those who can appreciate an out-of-the-common exotic growth, a few of the "fancy" covert plants could be planted in suitable spots by the side of walks and drives. This question of covert planting is an important one, and now-a-days, when retrenchment is enjoined on almost every estate in the land, one cannot be too careful as to what he recommends in a journal read by those who look to its pages for guidance. It must be always remembered that the proportion of estates that contain a home nursery is very small compared with those where covert planting has to be done.

W. GOLDRING.

Nurses for plantations.—The use of nurses in plantations is a subject deserving of notice. How seldom do we find these planted sufficiently thick or of adequate strength to give the necessary shelter to the main crop! The extent to which they should be used must depend upon the exposure. Where this is great, they may be filled in to within from 30 inches to 36 inches of the standards and of each other. Upon more sheltered sites they may be from 4 feet to 6 feet apart; and when thinned out, they will have attained useful sizes. The Mountain Ash is second only to the Larch for use in bleak situations; and the Spruce will afford a better shelter upon a less space than the Scotch Pine. The Sycamore, Norway Maple, Pinaster, and the Elder are very serviceable near the sea.—A. B.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

PARMA AND NEAPOLITAN VIOLETS.

It is, I venture to think, one of the curiosities of gardening that there should be such confusion between these two Violets, and that so few realise the difference between the Parma and Neapolitan Violets. This occurs partly from the fact that the Neapolitan is the older variety and the one most grown in England, while the *Violette de Parme* is grown so generally in the Violet gardens of the south of France, that cultivators there will often assure the inquiring stranger that there is no other, and assume that Neapolitan is an English synonym for *De Parme*. In some of the Nice Violet grounds, however, the variety we call Neapolitan is grown as well, and produces the very finest pale blue-grey flowers in spring, which they call (I speak merely of peasant use) *Violette de Parme tardive*, or pale. The Parma Violet, I believe, dates from the days when Napoleon I.'s Austrian wife was called Duchess of Parma, and hence the connection of the Violet with the Bonapartists to this day, so that it is curious to find it still mentioned sometimes as a new variety. Mention is made in *THE GARDEN*, Vol. XX., p. 520, of a new Violet, which so exactly describes the Parma Violet that I cannot do better than quote it:—

A new variety my master brought from France, a trifle darker than the old Neapolitan and such a dwarf grower.

All who grow the Neapolitan Violet will own how troublesome the innumerable runners are in summer, and how useless it is to expect a rich harvest of bloom in winter unless these runners are cut off frequently. Indeed it is owing to this cause that many fail to grow it, and lay the blame on climate or soil when it is simply that the crowns are exhausted by the runners, and so have not perfected flower-buds. The great merit of the Parma Violet is that its growth is tufted and free-blooming, without the special care that the Neapolitan requires; it makes but few runners at any season, and those but little disposed to wander. It blooms more freely than the Neapolitan, generally speaking, and its flowers open well in winter, so that all amateurs who care for winter Violets should grow the Parma, and many of those who do so will, I think, on trial prefer it to the Neapolitan, on account of its requiring so much less cultivation to ensure success.

Owing to the confusion between these two varieties, the writer had great difficulty in getting the Parma Violet true. One French grower, owing to the unfortunate term "Neapolitan" Violet, sent that variety, instead of the Parma, or *De Parme* Violet asked for. Another assured me there was no difference, save that caused by climate (I need hardly

say this grower had not been in England), and it was only by persuading a peasant to let me bring away a clump of his precious *Violettes de Parme*, that I became possessed of this variety.

On returning to England, I ordered plants from divers nurserymen who advertise Parma Violets, and in one instance I did obtain the true variety. In another, a kind called New York was sent, which happily proved the Parma variety. I do not know if there be a distinct variety grown by that name, but I shrewdly suspect that the wideawake florists in America grow the Parma Violet instead of that we call Neapolitan.

Perhaps others, like myself, who were long perplexed by the paler colour of our Neapolitan Violets in England and the over-abundance of runners these Violets made, as compared with those in the south of France, have also found out that difference of variety, and not climatic influence, is the cause. If so, I hope they will give their quota of evidence.

E. H. W.

FRUIT GARDEN.

FERTILISATION OF FRUIT.

PERFECT fertilisation of the flowers is a point of paramount importance alike to the fruit grower as it is to the hybridist, for with the former the results of a year's labour depend upon the fertilisation of the flowers, and the more perfect the set, the finer will be the fruit, cultural conditions being favourable to its development; consequently, the time of flowering is always an anxious one, and it behoves him then to see that his trees are in the best possible condition, also to give them what assistance lies in his power to obtain the best results at this stage.

Mechanical means of various kinds are often employed by gardeners to assist fertilisation, each having some favourite method, but artificial aid is of little avail if the health and condition of the trees at the time of flowering are not of the best, or if the state of the atmosphere in which they are growing is adverse to the flowers being fertilised.

When the roots are in a torpid state from an inert condition of the border, or having travelled away into unsuitable soil, they are slow to respond to the renewed activity of the tree, and the flowers are the first to feel the effects. There is a lack of size and substance in the petals, the colour is pale, and the stamens are bare or produce very little pollen, and that of a sterile nature. No manipulation with the brush will secure a crop under such adverse conditions. A similar result will follow if the trees are gross from the too liberal use of manure or other stimulants; the blossoms are undersized, with very thin stems; and with the first rise of the sap the trees rush off into growth, leaving the weakly flowers in the rear, which failing to obtain the requisite amount of support do not set, and dry up or fall off. Disbudding and stopping will not check this kind of growth, neither will they divert it into other more desirable channels, as the disposition of the trees is to make wood.

Dryness at the roots is another fruitful source of failure, and where from this cause the trees escape being denuded of buds before expanding, they will not—unless the mischief is detected and promptly removed—carry the embryo fruits

through the flowering period. I should not hesitate to well water the trees when in full bloom if any doubt existed in my mind concerning the thoroughly moist condition of the roots. An experienced grower will readily determine by the feel of the blossoms the chances of a good set. When the petals rustle with a shake of the tree or brush with the hand, the sound inspires him with confidence. Or to apply another test: if the flowers part from the tree with an audible snap, it is a sure sign that all is going on well. If, on the other hand, the petals are flimsy and the blossoms bend before the touch instead of snapping off, the grower's fears are at once aroused.

Having touched upon the condition of the trees, favourable or otherwise, to the perfect fructification, I must notice some of the artificial aids to that end which are often employed. Some cultivators profess to have no faith in artificial impregnation, or content themselves with a simple shake of the trees. That this is all which is needed in many instances there is often ample proof, but I must confess to a weakness for using the brush, whether it be one of feathers or camel's-hair, when the Muscat house and late vinery are in bloom, or when the early Peach trees are a sheet of delicate pink at a time when the sky is leaden and the external air is too cold to be admitted in sufficient volume to give buoyancy to the atmosphere of the house; even then under more favourable circumstances, the simple operation of going over the blossoms with a brush and conveying the pollen of one kind to the pistils of another greatly facilitates the setting of those varieties reputedly shy, and tends to generally strengthen and improve the future crop.

The syringe is employed by some cultivators, and many good crops are pointed out as the result of its use. Although I fail to see how the application of water to the flowers can be regarded as a direct means of fertilisation—that is, by carrying the pollen to the pistils, as moisture is generally considered fatal to its vitality, or at least very injurious, it no doubt prepares the pistil for its reception by dispersing any viscid matter from the stigma. This secretion on the stigma is a characteristic of some kinds of Grapes, and probably other fruits cultivated under glass are subject to it under certain conditions, and if not removed effectually prevents fertilisation. A dash with the syringe is also of great service in sustaining the energy of the flowers under the trying ordeal of forcing, and in correcting the arid state of the atmosphere through the use of fire-heat, an excess of which should always be guarded against, more especially during the night.

Trees in the open always set their fruit best during showery weather, that is, provided sunshine intervenes, and I am convinced that the closer we can imitate these conditions the more successful shall we be.

A. BARKER.

Hindlip.

Birds and buds.—I have lately seen gardens completely stripped of fruit-buds; in fact, in close proximity to towns it is well-nigh useless to plant bush fruits unless one takes special means to guard the buds during winter and spring, for so daring are the sparrows, that to use anything for the purpose of frightening them seems hopeless. In rural districts bullfinches are the chief enemies of the gardener in the way of feathered foes, but they are easily frightened. In looking through several gardens where the bushes had been interlaced with thread in the autumn in the hopes of keeping the buds safe, I found Gooseberries, Currants, Plums, and Pears stripped of every flower-bud, with the exception of a few at the extreme tips of the shoots, where the birds could not hold on long enough to

get the buds out. The only garden where I have seen the bushes untouched was where they had been painted over in autumn directly the leaves had fallen with a mixture of lime, soot, and clay. Every shoot was thickly coated with the mixture in dry weather. Although it was tedious work, the gardener assured me that ever since adopting the plan he had never failed to obtain a crop.—J. G., *Hants.*

NOTES ON PEARS.

BEURRE HARDY.—I have been looking for a note on this Pear for some time, but I do not remember anyone having mentioned it in this discussion until Mr. Wilks praised it in *THE GARDEN*, March 10 (p. 211). I quite agree with all that he there says in its favour. That this fine Pear is not more generally grown is difficult to account for, seeing that it does not require a wall to bring it to perfection. It is of robust habit, makes a handsome pyramid or standard, and does not often miss a crop. The fruit is handsome, of first-class flavour, and is, I think, innocent of any approach to the muskiness you find so objectionable in Louise Bonne and Williams' Bon Chrétien. The tomtits are very partial to it.

BEURRE D'AMANLIS is a Pear of equal merit with the above, coming in a little earlier. These two Pears are both ripe before Marie Louise, and may well replace those of musky flavour which you have vetoed, although I will not say they will ever become so popular.

No doubt there are some really good Pears that are little known, but if cultivated as extensively as some of the popular kinds would soon become as great favourites. I think an effort should be made to bring these forward, as well as selecting the cream of the well-known kinds. Emile d'Heyst, which Mr. Bunyard has chosen for No. 6, is one of this class, as it is comparatively little known, although those who grow it speak highly of it.

VICTORIA (Huyshe) is another which ought to replace many of the kinds now extensively grown—such, for instance, as Beurré Diel, which is to be found in almost every garden—and probably would if publicity were given to its merits by those who grow it. With us, from cordons on the Quince, it is of fine flavour, and comes into use at the end of December.

BROWN BEURRE is not good with us. Perhaps the tree is in an unfavourable position for bringing out the full flavour of the fruit, being on a west wall and rather shaded, but the tree being too large to move, I have this year headed it down for grafting with a variety known to succeed in this position. You seem to have been unfortunate in the specimens of Beurré Superfin which you have tried. I have always found it a most delicious Pear, juicy and melting, but rather a shy bearer.

NOUVEAU POITEAU is another little-known Pear. The fruit is large, green in colour, except where exposed to the sun, when it takes on a brown tint; the fruit does not change colour when ripening, and as it is not perfumed, should be examined often, as decay soon follows after ripening. When eaten at the right time it is fine, and melting, and very refreshing. The tree is hardy and a good bearer.

Hindlip.

A. BARKER.

Pears.—Notwithstanding all that has been said in favour of Jargonelle, I dissent from its being placed in the first twelve Pears whilst Williams' Bon Chrétien is expunged, and I feel pretty sure if the horticulturalists of this country could be polled the verdict would be an overwhelming majority in favour of Bon Chrétien.—W. CRUMP, *Blenheim.*

*** The reason of our taking up this matter is

the belief that neither this, nor any other question can well be settled by a poll. Mr. Crump will remember the result of the poll at the Apple Congress was to place a *bad* Apple at the head of the list. We have settled the Jargonelle question by putting it among the early Pears, and place Beurré Superfin first. We have said before that our objection to Bon Chrétien is not singular; and that the late Sir Henry Scudamore Stanhope, who grew the best Pears in England, would not have it on his table. We have repeatedly said that this Pear cannot enter our standard list of Pears; it will come among the early group. Mr. Crump would really help us by picking out of the vast number of Pears one of the highest class for market and table use not yet in our list, and of the finest flavour. The whole object of the standard series we declared from the first to be the selection of Pears of the highest quality only.—ED.

Beurre d'Aremberg.—Another Pear I am surprised has not been mentioned is Beurré d'Aremberg (Glou Morceau of the French), a very good Pear here and a free bearer. There are others, as Beurré Superfin and Easter Beurré, that are very good here, but may not be in all places. In fact, I very much doubt if you will find twelve Pears that will be good everywhere, although it would not be difficult to find a dozen sorts that would be good in certain places, but the list would have to be changed a good deal to suit others.—E. PETERS, *The Gardens, Somerset Terrace, Guernsey.*

*** Given first-rate quality, we think the best Pears deserve a more thorough trial than they get now, when the grower has to care for too many kinds.—ED.

THE EASTER BEURRE.

YOUR inquiries on Pears and other fruits cannot fail to be useful. Before, however, pronouncing such severe sentences of condemnation, it might be better to have more evidence for and against some of our old favourites. It was certainly by no means a pleasing surprise to have this old favourite put out of count in the best dozen, and condemned as not worthy of cultivation in this country; while Emile d'Heyst, which rots at the core almost as soon as ripe, which is in October, when we have a profusion of not an absolute plethora of good Pears, is placed 6th on the list. There is nothing to be said against the form, size, and quality of this sugary, juicy, tender, and delicately perfumed Pear, but its perishable character has so checked its popularity, that very few cultivators either know or grow it, and still fewer recommend it.

The old Easter Beurré Pear has almost a page of aliases, and is, has been, or will be grown by all who can wait patiently for a first-rate Pear through the months from January to May. For though this Pear is mostly timed to ripen from January to March, it frequently is in season from November to May, a longer season probably than was ever covered by any other dessert Pear. True, it is not almost alike in quality or flavour, nor are English-grown Easter Beurrés a match in size, appearance, and quality for those of the same variety from Jersey or France. But what of that? Cannot the same be said of almost all our finer Pears, with the exception perhaps of the Jargonelle, which must be grown in the north to perfect its quality? The Easter Beurré is perhaps more influenced by soils, sites, seasons than most Pears; but, on the other hand, a mediocre Easter Beurré is a match for not a few of the more perfect fruits of other sorts, while its season and long-keeping qualities render it indispensable to those who are expected to furnish fruit for dessert all the year round.

The fruit varies as much in size and colour as in quality. Perfect fruits are large and heavy in proportion to their size, the flesh being dense, white, melting, especially juicy, and of excellent flavour. The colour is deep pale green, changing, as a rule, to a yellowish hue as the fruit becomes ripe; but in some seasons and in some soils and aspects it retains its green hue to the end. It may or may not have a splash of russet on one or both sides, and its russety dots be more or less numerous or conspicuous.

Neither must the presence or absence of these visible signs be accepted as proofs of the presence or lack of quality; for of this fine Pear more than of most it must be said that the proof is in the eating.

On some soils and aspects this Pear becomes gritty or mealy, and some maintain that it is best from a pyramid or an espalier in the open. Generally, however, the finest fruits are grown on walls, though the tree itself is hardy, and does equally well in suitable places either on the Quince or the Pear. It has also been considered as specially prone to crack; but though we have many Pears that have revealed this provoking tendency in a marked degree—such as Louise Bonne of Jersey and Passe Colmar—the Easter Beurré has mostly been clean and smooth.

I send you a sample, not an average one, of our Easter Beurré Pears. They were grown on an east wall, and are by no means up to an average sample as grown in more favourable conditions in East Anglia. We have had it of the highest quality on south and west aspects, and this Pear so grown is so really good, as well as useful, that it ought to take a high place in the best dozen, if not the best six.

BEURRE RANCE is useful, though seldom above third-rate quality. I enclose one or two, but they are not up to their usual level this season.

D. T. F.

*** Easter Beurré we tasted on March 14, and, as things go, people would think them very acceptable. They have not the juice nor the flavour of a first-class fruit of this variety. Beurré Rance is larger and better than it generally seems; very juicy, but the flavour poor.—ED.

SHORT NOTES.—FRUIT.

January Pears.—Beurré de Jonghe and Nouvelle Fulvie are two excellent late sorts in January.—F.

October Pears.—Beurré Superfin and Alexandre Lambre are A 1 for October, and should not be omitted.—F.

Pear Conseiller de la Cour.—This sort is much grown in the west of England, and does well as a pyramid, bush or cordon tree.—J. C.

Pears in season.—You give us no Pears in September, and only one—Thompson's—in October, No. 8.—F.

*** We are not thinking of season at present, but getting the really good kinds fixed in people's minds.—ED.

Pear Beurre Superfin.—I was glad to see Mr. Coleman pitched on Glou Morceau, and I think it cannot well be denied that the qualities of Beurré Superfin are fully sufficient to place it high amongst the twelve.—H. MARKHAM.

Pear Madame Treyve ripens here on espaliers about the middle of September, and is one of the best of all croppers. The fruit grows to a good size, and for flavour it surpasses all of my acquaintance which ripen during that month.—H. M.

Pear Beurre Bosc.—This is a very distinct, large, and handsome dessert Pear, of a cinnamon-russet colour, which gives it a rich appearance. It is also of excellent quality, and seldom ripens before the early part of November. The tree is a most abundant bearer when trained to a wall, which it well deserves.—P. G.

Pear Bergamotte d'Esperen.—The only dessert Pears I have left are Bergamotte d'Esperen, which are not so good as they might be. We allowed our trees to carry too many fruits, which for the want of rain did not swell till late in the autumn, and although gathered very late, they appear to lack finish. I may say that good Pears (English grown) are never very plentiful at this time of the year.—JOHN ALLSOP, *The Gardens, Dalton Hall, Hull.*

*** A nice little round Pear, but the mildest of medicated flavours. After eating these winter Pears one thinks of a green Gooseberry with interest.—ED.

Pear Bellissime d'Hiver.—Now that Pears are under discussion, it may be well to call attention to the merits of this excellent stewing variety, which I consider quite equal to any of the same class already accorded a place in the front rank in *THE GARDEN* list. I find this variety preferable to Uvedale's St. Germain, as it makes a better bush or pyramid, and fruits very freely in quite a young state. It is singular that this valuable class of stewing Pears is not more

grown, for as a crop they are certainly more profitable than many of the early dessert kinds, and after Christmas they invariably realise a good price.—J. GROOM, *Gosport*.

FRUITS UNDER GLASS.

FIGS.

WHERE the earliest Figs are obtained from pot trees, the fruit, notwithstanding the long spell of wintry weather, by this time will have completed the first swelling, and as well may we try to move the Pyramids as force them forward until after the process of fertilisation is complete. Meantime, special attention must be devoted to the maintenance of steady top and bottom-heats, good syringing, and careful watering. The air temperature of the house may range from 60° at night with a chink of air, which must be shut off at daylight, to 70° by day, when the top ventilators must be opened, but not to an extent that will prevent a steady rise to 75° with sun heat. Closing in like manner must be gradual and final in time for the heat to touch 78° or 80° with sun and atmospheric moisture early in the afternoon. The trees may now be syringed twice a day, the first time when the temperature has gone up 5° from the night heat, the second about 2.30, when on the brightest days the sun in March will be losing its sustaining power. When syringing Figs the thorough moistening of the stems, walls, floors, and arid corners is of more importance than saturating the foliage and leaving these parts semi-dry or altogether neglected. It is in these out-of-the-way corners, especially near the hot-water pipes, that spider first puts in an appearance, and prevention being so much better than cure, a sharp eye should always be kept upon them. The trees being firmly elevated on inverted pots, pedestals, or glazed drain pipes, a bottom-heat of 70° by frequent turning and renovation of the fermenting material can be maintained with very little trouble, and no fruit tree with which I am acquainted so thoroughly enjoys this moist, genial aid to steady progress as the Fig when in full growth and when external conditions render constant firing, certainly by night and on cold, dark days, absolutely necessary. Although the trees in pots or otherwise may be kept dust-dry when at rest, they require copious supplies of generous liquid when in growth, and, provided, the pots are properly drained, it is much easier to cause dropping by giving too little than too much of this element at a temperature equal to the mean of the house. As the white fleshy roots begin to show on the surface more top-dressing, of which a stock is kept on hand, dry and warm, must be added, the operation being repeated as often as they ask for more. In due course it is more than probable that these applications little and often will raise a mat of roots above the rims of the pots, and as the roots must be kept progressing, large pieces of light, rich turf may be laid Grass side downwards, first to catch, then to conduct them to the half-decayed leaves forming the surface of the bed. Many people deny their trees this safety-valve, but when carrying heavy crops they will stand a good larder without becoming gross, and once they touch this continuous supply of moisture, other conditions being right, there will be little fear of dropping when the fruit should be swelling for ripening.

Manipulation will consist of pinching all the strongest shoots for the twofold purpose of increasing the size of the first crop of fruit and inducing fresh breaks for giving the second in June and July. When the trees, be they pyramids or bushes, are large, all, except the short, spur-like bits, which do not make more than a few inches of growth, may be stopped at the fourth or fifth leaf, but those which terminate with a plump bud must be left intact for giving a succession. Young trees, on the other hand, may be allowed a little more scope, size as well as fruit being wanted. These, however, must be pinched often enough to ensure evenly-balanced, well-furnished specimens well clothed, but the reverse of crowded with spurs. If weak spray and side growths start from the union of the old with the new wood, these may be removed entirely or shortened back to a single bud, as they rarely pro-

duce fruit, but rob and shade the first crop when ripening. Beyond a stake through the centre, pyramids or bushes should require little, if any, support, pinching and frequent pressure with the hand being quite sufficient to train the young growths in the way they should go.

Houses in which the trees are planted out in internal borders will require precisely similar treatment as to ventilation and atmospheric moisture, but the roots being in a cooler medium the air temperature should range somewhat lower than that recommended for pot trees growing in or over bottom-heat. Stop side shoots to one eye or remove them altogether, but lay in all the main growths full length until they reach the extremity of the trellis, when, as a matter of course, they must be pinched to prevent crowding. Syringe well with tepid water once or twice a day, according to the state of the weather, and occasionally with soot water to keep spider and brown scale—a troublesome pest—in timely check. Mulch the borders containing the roots of old trees with short stable manure, using fresh turfy loam and lime rubble as a suitable substitute where they are young and vigorous.

Trees in late houses from which frost can be excluded must now be tied and regulated, and allowed to come on steadily, with free ventilation on fine days and plenty of water at the roots. As we may yet have a long spell of wintry weather it will neither be wise nor necessary to syringe until the buds burst into leaf. The choice varieties treated in this way will give one crop of fruit and no more; but this may be prolonged by liberal thinning at the autumn pruning, laying in summer growths full length in preference to stopping and good feeding when the crop is swelling.

PEACHES.

The most important operation just now in the early house is disbudding on the piecemeal system, pinching intermediate shoots supporting young fruit, and heeling down those intended to remain as producers of next year's crop. The first tie with very soft matting cannot be made too near the base of the young growth, hence the term "heeling down," as the beauty of a well-trained tree greatly depends upon the shoot running close to the parent and gradually diverging as it extends. In old trees containing a number of large branches an effort should be made to secure a covering of foliage by tying growths over them, as neglect of this is no uncommon cause of paralysis when they are undergoing the trying strain of stoning. Thinning, as a matter of course, will be directed to the retention of a full crop of fruit apex upward to the sun, with a moderate percentage to allow for dropping and the final thinning when stoning is complete. Thinning and disbudding brought to a close, at least for the present, a free and easy growth may be indulged in, as the trees, especially weak ones, make stronger and straighter growths, and the fruit swells better under this partial shade than when every tender point is kept at a lower angle. As the fruit swells away freely, old trees may be mulched with short stable manure, and well watered with clear, warm diluted liquid, than which nothing is better than drainage collected in tanks in the frame ground. The *menu* for young ones must be regulated by their growth and the crops they are carrying, one point being kept constantly in view, and this is the fact that it is much easier to feed up the fruit after it is stoned than to check growth rendered exuberant by overfeeding through the early stages. Be the liquid rich or plain, the inside borders must have an abundant supply, and the trees may be well syringed twice a day, the last syringing being performed in time for the foliage to become fairly dry before nightfall.

Ventilation.—As days increase in length and the sun after this long spell of dark severe weather will tell quickly upon the temperature, sudden leaps must be guarded against by shutting off fire-heat early on bright mornings and opening the top ventilators to let out vitiated air and superfluous moisture. The tender foliage will then be safe from scalding, and more air must be admitted until 75° is reached,

when by gradual reduction this figure should be maintained for some little time after the house is closed for the day. Towards night a chink on the front ventilators with steady fire-heat should catch the temperature at 58°, when the weather being cold, it may gradually descend to 50° the following morning. By giving rest in this way through the hours of darkness and running up even to 80° on clear afternoons, the young fruit will now swell very fast, the growths will be stout and short-jointed, and root action—the best of all preventives of dropping—will be steady and vigorous.

Succession houses now approaching the flowering stage must be well syringed until it is unsafe to wet the trees, but atmospheric moisture favourable to the support of the delicate organs of fertilisation must be produced by damping the walls and floors twice a day throughout the setting period. When the flowers begin to open freely a slight rise of temperature will favour the ripening, and liberal, but careful ventilation will facilitate the dispersion of the pollen, which should be seen flying off in golden showers. This stage reached, the camel's-hair brush may be used about noon daily, not perhaps as an absolute necessity, as healthy trees generally set their fruit freely enough in March, but as a sort of consoling operation to look back upon should any of them fail. Many clever Peach growers now fertilise their flowers with a fine-rosed syringe, but their management in every detail being so good, I question if their fruit would not set just as well without brush or syringe. The cardinal points in the management of

Late houses are, liberal ventilation to strengthen and retard the flowers, an abundance of water to the roots, as bud-dropping, in the majority of cases, is due to a lack of this element at some time or other after the leaves of the preceding year have fallen; and last, but not least important, perfect freedom from green fly when the blossoms open. When very early trees cast their flower-buds, the mischief, as a rule, can be traced to an insufficient supply of water in the autumn. Late ones, on the other hand, generally receive the check after Christmas. Some assert that overcropping and imperfect ripening—they might go on to say over-ripening—will lead to casting; but, given a well-drained border well filled with roots and wet enough to keep them progressing, for Peach roots are never at rest, the buds that drop will neither make nor mar the crop.

CHERRIES.

Although started under favourable conditions, the change to wintry weather on February 13 rendered extra care and patience necessary, especially where the trees about that time were coming into flower. If all has gone well and fresh air, minus a draught, has been carefully admitted, the fruit will now be sufficiently advanced to stand and benefit by syringing, at least once, and possibly twice a day: the first time when the temperature touches 50°, and again when the house is closed for a few hours in the afternoon. The night heat, so long as frost and snow prevail, should not exceed 40° to 45° with a little front air, and 55° will be safe when days are dark, cold, and sunless. Otherwise, this luminary having gained great power, 60° to 65° can often be maintained without the aid of fire-heat, and sometimes 70° will be reached with liberal ventilation. Trees in pots and tubs will now take frequent courses of top-dressing, consisting of previously prepared loam, lime rubble, and bone-dust; or, lacking the latter, a small percentage of old rotten manure. This must be regularly and thoroughly watered in, as dryness at the roots is fatal to all stone fruits, active or dormant—if trees ever are dormant. Old trees growing in internal borders and trained over a trellis, Peach fashion, enjoy and pay for generous food similar to that recommended above, and this, it is hardly necessary to say, should be washed in with tepid water a few degrees warmer than the mean of the house, and in quantity equal to moistening every part of the soil and drainage. Once divested of the remains of the blossoms, Cherries swell very fast, and the young shoots soon require attention. All side and foreright shoots not

likely to be wanted may be pinched, in the first instance, to the fourth or fifth leaves; but leaders and young growths required for covering old branches and filling in bare spaces must be laid in full length until every part of the trellis is fairly furnished, when the points may be pinched to prevent crowding. In the daily manipulation of Cherries, it will be necessary to look out for the lively little grub, which left alone soon destroys the crop and eventually rolls itself up in the leaves to undergo transmutation. As no insecticide can be brought to bear upon it, the only course open to the cultivator is catching and killing. Green-fly is easily destroyed by fumigation with tobacco paper, and the persistent black aphid by dipping the affected shoots in tobacco water. If every point is immersed overnight and the trees are well syringed the following morning, two or three applications in the course of a week or ten days will clear the house of this troublesome insect.

PLUMS

in pots and planted out, as I have often observed, can be started and carried through the early stages in the same house and subject to the temperature and conditions recommended for Cherries. In due course the Cherries shoot ahead of the Plums, and for this reason, if possible, they should be blocked separately and divided by a glass partition. Being so subject to green and black fly, the fumigator should be frequently used to ensure freedom from these pests when the trees come into flower, and occasionally after the fruit is set. If not hurried and the house is freely ventilated, Plums set abundantly, and require much thinning. They must not, however, be kept in a stagnant atmosphere, as condensed moisture renders the pollen pasty and inactive, when, no matter how carefully the brush is passed over the flowers, the result, as a rule, is unsatisfactory. A house of Plums in full flower, healthy Orange trees excepted, is the most charming sight produced in forcing gardens, and the better to secure this all one has to do is to imitate the fresh genial atmosphere met with against south or west walls when on a sunny day the bees are busy amongst the blossoms in the spring. At such times the temperature from reflected sun-heat may touch 70° or 80°, but fresh air being abundant the flowers revel in its invigorating force, and these are the conditions we should endeavour to produce in our Plum and Cherry houses. W. C.

A good wash for parti-coloured fruit walls.—When old walls become discoloured and full of nail-holes, in which the larvæ of destructive insects find a safe retreat, a wash that will restore them to one uniform tint, and at the same time hermetically seal up the destroyers, can be prepared in the following way: Upon two pecks of unslaked lime pour two quarts of raw linseed oil; when absorbed, add half a peck of soot and fourteen pounds of Venetian red. Mix well in an old iron furnace boiler; just cover with boiling water to complete the slaking of the lime; then add as much boiling water as will reduce the mass to the consistency of thick paint. Strain through a wire sieve, and the wash will be ready for use. As this wash dries out light, paint a slate to test the colour, and if found too dark put in more lime; if too light, more soot or lamp-black, previously worked into a paste, may be added. —W. C.

An old, but excellent recipe for mildew.—To 3 lbs. of unslaked lime add a gallon of water, and place also in it 4 lbs. of sulphur and boil all together for the space of forty minutes, keeping it well stirred. Then allow it to settle, draw off the clear, and place it in bottles for future use. When required for use, from a wineglassful to a half-pint should be placed in a large can of water and applied to the parts affected with mildew. There is one great advantage about this mixture: it does not leave a sediment upon the leaves of plants or fruits, and in this respect it is preferable to some other remedies, the usefulness of which is discounted by reason of their leaving a sediment behind them. Another advantage is, that the mixture will keep for a long time. The gardener to whom I am indebted

for the recipe states: "I boiled 8 gallons in a copper five years ago, and I have some yet, and it proves as efficacious as that recently made. I paint the hot-water pipes with the mixture as well."—R. D.

NOTES OF THE WEEK.

Narcissus minor true.—This comes from Messrs. Barr; a pretty thing so soon in flower after this harshest of spring seasons.

The Greek form of the scarlet Anemone.—A broad-petalled form, dark and intense in colour, comes to us from Messrs. Barr.

Lachenalia pallida.—This, from Messrs. Barr and Son, is a species of most delicate and quaint colours, both in the mottling on the stem and blues and greens of the delicately scented flowers.

WE have received from Mr. J. Guyett, Broadlands, Ascot, flowers of Sutton's Double Cineraria, showing evidently a very carefully selected strain. The blooms were of the usual globular shape, and delicately coloured with white and lilac.

Iris fimbriata.—I send you flowers of this Iris, which is an old favourite here, and blooms through February and March. Amateurs who want a plant of easy culture will find this all they desire.—J. NICHOLSON, Sewardstone Lodge, Chingford.

Royal Horticultural Society.—We learn that a special general meeting of the Royal Horticultural Society will be held in the Council Room, No. 111, Victoria Street, S.W., on April 10, to take into consideration a code of new bye-laws submitted by the Council for the future management of the society.

Gardeners' Royal Benevolent Institution.—We learn that the late Lord Northwick has by his will left a legacy of £100, free of duty, to this institution, also that the Right Hon. Joseph Chamberlain, M.P., has appointed July 4 next for the anniversary dinner of the institution, upon which occasion he will take the chair.

Arum Lilies.—I send you a flower and leaf that have appeared in a stock of Callas. The plants are stronger than usual this season, and I find they do best when planted out during the summer on a north border. A plentiful supply of water is given in dry weather.—J. N.

*** The blooms were some of the best we have seen this season. It is not a very uncommon thing for them to come double-apsed, and there is nothing in one leaf being variegated—it is merely a freak.—Ed.

Cœlogynes from Chatsworth.—Your engraving of *Cœlogyne cristata* in THE GARDEN of last week reminded me of my promise to send you blooms of the Chatsworth variety, also *Lemoniana* and the *Trentham* form.—OWEN THOMAS.

*** The best of the three was the Chatsworth variety, a fuller, bolder flower than the ordinary form; *Lemoniana* is desirable for the pale lemon frilling on the lip; the *Trentham* form is very like *C. cristata*, but larger.

Platytheca galioides is now the name at Kew for the pretty favourite Australian shrub, *Tremandra verticillata*. Its narrow leaves disposed in tufted whorls quite suggest the growth of some of the species of *Galium* (Bedstraw), hence the name. The flowers, as large as shillings, are of the richest purple, and with the foliage make an extremely graceful plant. It is one of the uncommon kind of plants that makes the greenhouse at Kew so delightful at this season.

Cattleya Loddigesii.—We have received from Mr. W. Soper, Clapham Road, S.W., a spike of this beautiful *Cattleya*, one of the most distinct of the genus, and unsurpassed in the delicacy of rose tints seen in the sepals and petals. It is not brilliantly coloured, but a good spike carrying three flowers, as the one sent us, suggests that it would be an advantage to see more of this Brazilian Orchid. It is free-blooming and has medium-sized flowers, the sepals and petals of which overlap; the lateral lobes of the lip are very delicately tinted with pink, and fold over the column; the front is finely crested and pink.

The Teneriffe Broom (*Cytisus filipes*).—An exceedingly graceful shrub is this, which as soon as every March sets in never fails to load its thread-like weeping branches with myriads of tiny white

flowers like miniature Pea blooms. It is a greenhouse plant of the highest merit, and it is a wonder that some enterprising nurseryman does not grow a few plants of it well and exhibit them, so as to show what a beautiful plant it is. We feel sure the experiment would repay him, for it is an unknown plant generally, though brought to this country from the island of Teneriffe half a century ago. It is grown at Kew in pots and planted out, and is now in full bloom.

The address to Dean Hole.—We feel sure that many of our readers will like to act in the proposal to present an address to Dean Hole alluded to elsewhere in our columns. The circular is published in full in our advertisement sheet. It is a proposal of his old neighbours in the midlands, but though started by those nearest to him, his relation to horticulture is not local, and we think this modest scheme will be approved of by others who know him.

Daphne Blagayana.—One of the sweetest and most interesting plants now in bloom in the spring garden is *Daphne Blagayana*. Seeing that the plant was well set with bloom early in the winter, I gave it the protection of a bell-glass, and it has well repaid me for the attention thus bestowed. Its dense terminal heads of white and fragrant blossoms uninjured by frost, from which the glass alone would not secure it, and unsoiled by snow or rain, from which alone it was guarded, have expanded in one of the coldest and most sunless spring seasons on record. It comes to us from the mountains of Eastern Europe; its habit is dwarf and it is very free flowering, thriving best in a peaty soil.—W. INGRAM, Belvoir.

Boronia heterophylla, a new species of New Holland plant, is perhaps the most valuable plant introduced of late years to our greenhouses. It has been exhibited several times this year in London, and it always captivates those who see it. It is related closely, from a gardener's standpoint to the older *B. elatior*, which has never been a very common plant. It has the same graceful, slender growth, feathery foliage, while each shoot is hung with a profusion of tiny carmine-tinted bells. It flowers abundantly in quite a small state, and that is one of its great merits. It is in flower at Kew from seed presented by Miss North, whose fame as a traveller and flower painter is widely known. There is undoubtedly a great future for this *Boronia*.

Hooker's Rhododendron.—Of all the Himalayan Rhododendrons which Sir Joseph Hooker was the means of introducing to this country there is none, in our opinion, possessing such richness and brilliancy of colour as the species named after himself. The common *R. arboreum*, in its best form, is of a vivid carmine-crimson, but *R. Hookeri* is of a much more striking tint, and the peculiar shade of its leaves seems to intensify the colour. A small specimen in the temperate house at Kew is carrying a truss or two of bloom, to which all eyes are turned as soon as it comes in sight. *R. Thomsoni* is also in bloom, but its large crimson-red bells are dull compared with those of *R. Hookeri*. *R. grande* (commonly known as *argenteum*) is still unfolding its glorious flower clusters, and there are others to come, so that the flowering season of this species alone extends over several weeks.

Wintersweet is the name given to the sweet-scented South African evergreen shrub known botanically as *Toxicophylæa spectabilis*. It is a most valuable stove plant, as it flowers profusely at this season. It forms an erect growing, not bushy shrub with bold evergreen leaves of thick texture, and bears dense clusters of small white flowers in its leaf axils. The delicious fragrance from one plant is sufficient to fill a small house. It is sometimes grown on a pillar or rafter, as its growth suggests a rambling habit. A stove or warm greenhouse temperature suits it well, and it is by no means difficult to grow. It first found its way into English gardens some fifteen years ago, and was illustrated in colour in THE GARDEN in 1877. It is in flower at Kew under the name of *Acokanthera spectabilis*.

FLOWERS FOR PERSONAL ADORNMENT.

The silence with which our proposed floral revolution has been received is somewhat disappointing. It may, however, have its origin in general approval or indifference, hardly of active opposition. Were ladies generally averse to the taking of bouquets out of their hands and placing them on their persons or heads they would have said so. We may, therefore, hope that they are generally willing to have them set free from the slavery of ponderous bouquets, whatever system of floral decoration they may adopt in its stead. Possibly more may be heard on this matter from your numerous lady readers. Almost blushing at the temerity that suggested such a complete revolution in the personal use and enjoyment of flowers, it was something of a disappointment to find that the new system advocated was something like a century old. How true it seems that, although this is an age of evolution, there is little or nothing new under the sun. Hannah More, in her trenchant little book on the "Importance of the Manners of the Great to General Society," published about 1808, wrote:—

Some ladies carry on their heads a large quantity of fruit, and yet they would despise a poor useful member of society who carried it there for the purpose of selling it.

After condemning the hanging of three or four ostrich feathers of different colours from the back of their perpendicular caps, the gifted author proceeds:—

I protest I hardly do them justice when I pronounce that they had among them on their heads an acre and a half of shrubbery, besides slopes, Grass plots, Tulip beds, clumps of Pæonies, kitchen gardens, and greenhouses.

Making a large discount from this vivid description for playful exaggeration, it doubtless reveals a style of personal adornment when mere mass was relied on for effect, instead of lightness of touch, elegance of disposition, or tastefully balanced blendings of colour.

Such examples of exaggerated personal adornment in past years may also prove useful as warnings in regard to the size of bouquets, the decoration of tables, and also the new and greatly extended fashion of wearing flowers now about to come in. Little will be gained by relieving the hands of ponderous bouquets if the head or figure is to be burdened or crushed down beneath yet heavier loads of decoration. Personal decoration is very much like the art of painting. A few touches of colour or sprigs of foliage disposed by genius are far more pleasing as well as attractive than a potful of paint or barrow-loads of the choicest flowers.

It must never be forgotten that the decoration is quite secondary to the object decorated. Just as the light and shade—the accessories and background—but unfold the natural features and enhance the charms of the portrait, as it is made to speak its best to us from the canvas, so should the use of flowers on the person but the more clearly reveal the charms of face and figure. So soon as decoration is carried to excess or becomes obtrusive and fixes attention on itself, it affords one of

the most sure proofs of its most egregious failure. Just as few can tell you what the most exquisitely dressed lady wore, so the most perfectly decorated lady looks so charmingly natural, that no one takes note of her decorations.

But there is a limit to the pleasures of such neglect alike in floral decorations and ideas. So I must presume that "Veronica," to whom I appealed, was so charmed with my suggestion of relieving ladies of their bouquets altogether, that he goes on writing of converting bouquets into fans just as if I had never recommended relieving the hands of them altogether. Fan bouquets are charming fancies, but whether they can be made so rapidly or enjoyed so much as "Veronica" seems to anticipate is altogether a different matter. It is certain that a natural

beautiful grey-white Florentine Iris with some Artichoke leaves, both cut their full length and simply placed in a large tall glass, shows the good effect of one kind of flower and one kind of leaf only, when carefully and thoughtfully chosen, with a view to a good arrangement both of form and colour.

ROSE GARDEN.

T. W. GIRDLESTONE.

FRAGRANT ROSES.

HALF of the dozen sweetest Roses can hardly be better completed than by another of the Hybrid Perpetual class, though of widely different appearance, to wit, Baronne Prevost. For how many years this fair dame has delighted her admirers it would not be gallant to inquire too curiously. Just as there are some women whose age it never occurs to anyone to ask, but who are always charming, so Baronne Prevost continues attractive, even to those who do not recollect her as a fashionable beauty, by her perennial freshness and fragrance. A fragrant Rose is like a woman who has something to impart—who can say things worth remembering perhaps—a woman that is

never old. The scentless Rose, however brilliant in appearance, is the counterpart of the mere beauty without an idea or suggestion of interest; both look sweet, and that is all; neither is ever regarded as available for anything, except to make things look gay. Yet the world would look dull without the pretty faces, as Rose gardens might if all the less fragrant Roses were excluded, which is all the more reason for looking for those that have the merit of fragrance in conjunction with a pleasing exterior. For of course no one ever despairs of finding the beauty that is backed by every other charm, but it is perhaps fortunate that "hope springs eternal," and it is cause for rejoicing that however difficult it may be to find a La France among the fair sex, there is at any rate one among Roses, and a Baronne Prevost to boot.

A fact may here be incidentally noted which had not been previously observed, namely, that these six most fragrant Roses are pretty evenly distributed among the various classes, comprising, as they do, one summer Rose, one Tea, one Noisette, one Hybrid Tea, the darkest Hybrid Perpetual, and one of the oldest light Hybrid Perpetuals.

The next two varieties are also Hybrid Perpetuals. Number seven, Heinrich Schultheis, is a comparatively recent Rose, but is one of the handsomest of its successful raiser's fine seedlings; its flowers are large, perfectly



A large table bouquet.

spike of Eucharis impaled on the front of a Palm leaf, buttressed at the back with silk or satin, will soon droop its head very low indeed if used for a fan in a heated room.

CELESTE.

A LARGE TABLE BOUQUET.

THE art of arranging flowers so as to look well in rooms is daily becoming better understood; and whereas, formerly, "messy" mixtures of many flowers, cut with short stalks and jammed up together, was the rule, now, pretty, simple arrangements are much more frequent. The engraving, showing a handful of the

formed, very freely produced, clear rose in colour, and deliciously scented. The plant is a good and vigorous grower, and a thorough autumnal. In fact, the flowers of Heinrich Schultheis during the first half of October, 1887, were hardly inferior to first-rate July blooms in size, form, and colour, and far exceeded those of any other varieties produced at the same time, while their great fragrance was especially welcome at a time of year when so many flowers otherwise admirable for cutting are scentless.

Camille Bernardin, completing the octave, is a much older Rose than the last-named, but is still one of the most reliable. It is a typical representative of a somewhat numerous class, in which fragrance is a conspicuous characteristic; but it is superior to most of its congeners in that, in addition to being very sweet scented, it is extremely vigorous and hardy, and is one of the easiest Roses of which to obtain blooms in perfection as well as in quantity. The flowers are admirable in form and size, and of a good, clear red colour, without any of that shading of purple or lilac which disfigures so many otherwise fine red Roses. The only point against Camille Bernardin is that the stem just below the flower is not quite stiff, and that consequently the blooms are liable to be slightly pendulous; this objection, however, may be almost obviated by pruning the variety pretty hard, when the growth will be strong and vigorous, and the flowers will be well carried.

Number nine is the solitary representative of a class which it may well be a source of wonder that raisers have not turned their attention to and greatly extended. The Scotch Roses are so charming, so ready to adapt themselves to any, even the most unfavourable circumstances, and so popular while they last, that a race which continued flowering freely in the autumn would be most acceptable. But although the possibility of such a race was demonstrated many years ago in Stanwell Perpetual, this charming Rose is still unique, and has itself been so neglected, that it is actually not to be found in the catalogue of the nursery in which it originated. Nevertheless, everyone who sees Stanwell Perpetual in bloom is delighted with it, and with its delicious and distinct fragrance, and it is hard to imagine any Rose lover that had ever grown it finding it possible to give it up. Its flowers are small, of course, compared with modern Hybrid Perpetuals, but they are large for Scotch Roses, graceful in form, and abundantly produced, the petals being nearly pure white, with only a delicate rosy tint at the base. In the rush of Roses in the summer this modest little variety is liable to be overlooked—albeit, in a genial spring it will sometimes appear by the end of May before the others are out, and so attract the attention it deserves. But in the autumn, often till the end of October, when other Roses are leafless or disfigured by mildew, Stanwell Perpetual stands out in its deep green foliage, the leaflets small, but numerous enough to make the leaves seem long, and then the gleaming white flowers are conspicuous enough, while their delicious fragrance makes it well worth while to get wet through any morning in the drenching dew of late September in gathering a bunch for the breakfast table.

Devoniensis has often been described as the sweetest of all the Teas, which, in the absence of Aline Sisley and Socrate, it might no doubt be considered to be. It is certainly a very fragrant Rose, and in localities where it can be easily grown, as in its native county, for instance, is in every way desirable. The normal form, however, is somewhat lacking in vigour, while

the rampant climbing Devoniensis makes its growth at such inconvenient times that it is very liable to get cut and damaged by winter or spring frosts in situations at all exposed. Frequently this Rose throws up from the base a number of strong, sappy shoots quite late in the autumn, and these, having no time to ripen before winter, are destroyed by the first hard frost, and the plant thereby much weakened. If, on the other hand, the shoots are ripe, they are so precocious and begin growing so early that the young growth gets cut off by an April frost, the tree is badly checked, and the growth from the base does not start until so late as to be still green and pithy when winter comes, and so the old round begins again. However, the fragrance of Devoniensis brings it in tenth on the list, and there is no doubt that in a situation where the wood gets thoroughly ripened and the young growth is safe from spring frosts the scandent form is a most attractive climber.

Next comes Gloire de Dijon, which would not be everybody's Rose, as it is, were it not highly fragrant, but which, on the other hand, can well afford, in consideration of its universally recognised hardiness, vigour, and prolific nature, to own to not being absolutely foremost in the matter of scent also. Its universal distribution renders all description or recommendation superfluous, but there can be no question that Jacotot's triumph has diffused a greater amount of pleasure over the world than any other Rose, not only by means of the tawny-yellow colour of the handsome flowers, but by their conspicuous fragrance.

And now a thorny question arises. What Rose comes twelfth among the sweetest? In making any selection the first few are easy to find, and those that have no claim are equally easily rejected, but there is always a great cloud of intermediate claims, either for or against which a great deal may be said. From the formation of ministries to the selection of Pears this must always be so, and Roses are no exception to the rule. However, although many other Roses are sweetly scented, there are few so fragrant that have besides so many additional recommendations as Alfred Colomb. Those that are equally fragrant are less attractive; those whose attractions are equal (and they are few) are not so sweetly scented. Alfred Colomb is, moreover, almost if not quite the best of the bright red Hybrid Perpetuals, is more vigorous and less liable to mildew, and has flowers less pendulous and brighter in colour than one of its greatest rivals, and, with three if not four of the varieties given above, affords a substantial contradiction to the assertion sometimes made, that raisers have given us only form and colour to the obliteration of scent.

It may be observed that the above selection includes (quite accidentally) a representative of most of the principal classes of Roses, and that the proportion of one summer Rose, one Noisette, one Hybrid Tea, three Teas, and the rest Hybrid Perpetuals, is not very far off the actual proportion of the numbers of the various types in general cultivation; while the representation of English raisers is probably handsomely secured by the three varieties which make up a quarter of the whole number selected.

In regard to fragrance among Roses generally, there are certain characteristics which appear to have some genetic connection with sweetness of scent. Thus the presence of lilac or dull purplish tints is generally indicative of fragrance, witness Aline Sisley and Mme. Ferdinand Jamain above referred to, not to mention a host of discarded Roses of the Archiduchesse

Elizabeth d'Autriche type, nor the gloomy Pierre Notting, always hanging its head, like the personification of perpetual grief. Even Géant des Batailles, Pierre Guillot, and Maurice Bernardin, all fragrant Roses, are not innocent of that shade that takes all brightness out of a Rose's face; while Beauty of Waltham, eminently sweet, is none too bright.

Very dark Roses, again, are almost invariably deliciously scented, and though none surpass either in colour or fragrance the type selected, such sorts as Jean Liabaud, Jean Soupert, Louis Van Houtte, Duke of Connaught (Paul's), Xavier Olibo, as well as seedlings from General Jacqueminot, such as Horace Vernet, and Charles Lefebvre, are all sweet Roses, like E. Y. Teas, A. K. Williams, Dr. Andry, and Marie Baumann, some of our finest reds, with Maréchal Vaillant and Sénateur Vaisse.

On the other hand, Victor Verdier and all his race are practically scentless, though an exception must be made in favour of the beautiful Lady Mary Fitzwilliam, other fragrant whites being Duchesse de Vallombrosa and Violette Bouyer. Baroness Rothschild, too, and her offspring, with many of the short robust-wooded sorts, lack fragrance—some of the sweetest light Roses being Mme. Gabriel Luizet, Miss Hassard, Earl of Pembroke, Elizabeth Vigneron and Rev. J. B. M. Camm, the last, though not quite in the first rank, being a pretty and distinct Rose.

Smooth-wooded Roses generally—even those of a longer growth than the Victor Verdier type, such as Dupuy Jamain and the Duke of Edinburgh family—are not conspicuous for their high perfume any more than are the majority of the Bourbons.

Among the sweetest of all must be ranked the Musk Roses, with Princesse de Nassau at their head, and the invaluable quality is preserved in their descendants the Noisettes, notably in Aimée Vibert, Earl of Eldon, now rarely seen, and Maréchal Niel. Some of the sweetest of the Teas in order are Comtesse Riza du Parc, Jean Ducher, Souvenir de Gabrielle Drevet, Rubens, Madame de St. Joseph, Madame Eugène Verdier, Adam, Goubault, Madame Bravy, Madame de Watteville, Perle des Jardins, Souvenir de Thérèse Levet, and Madame Welch; while among single Roses none are of more delicious fragrance than Rosa multiflora. But in this connection a word of warning may be added to save those from disappointment who may think that from two fragrant parents they are certain to obtain fragrant seedlings, for the union of Rosa multiflora and the Teas, both types whose grateful perfume is hardly excelled, has resulted in the little Polyantha Roses, which, charming as they are in every other way, are practically scentless.

PRUNING ROSES.

SOME exception may be taken to "E. H.'s" opening remark on page 235, to the effect that "summer-blooming Roses may be pruned at any time when the weather is open," unless reference is only intended to those rampant climbers of the Ayrshire class which practically require no pruning at all.

It is just this casual sort of treatment of the summer-blooming Roses that has in many instances so unfairly brought them into disrepute—the kind of doctrine that they may be treated anyhow and pruned at any time, as if they were not worthy of careful cultivation.

The summer-blooming Roses on the whole are more precocious than the Hybrid Perpetuals, and if pruned as "E. H." implies during the winter or very early spring, they will at once begin growing, and in all probability be severely damaged by subse-

quent spring frosts, with the result of malformed and green-centred flowers, which will make many people declaim against the varieties as unattractive and worthless.

The fact is that the summer Roses are the most difficult of all to prune successfully, in view of late frosts. In the case of Hybrid Perpetuals, if the first growth is injured by frost, a second growth at once ensues which is certain to carry bloom, but if summer-blooming Roses have been at all severely pruned and then their young shoots are cut off, it is anything but a certainty that the strong growth that will arise from the lower dormant buds will carry bloom. This is, of course, the reason of the general maxim: "Do not prune summer Roses hard," which, however, should be accompanied by the rider, "Nor in winter or very early spring," for, since there is only one crop of flowers, additional pains should be taken to ensure its safety.

It is not improbable that an attempt to make this useful general practice into one of universal application has done much to destroy the reputation of a large and attractive class of summer Roses, namely, the Gallicas and Damasks. These are not usually of anything like the rampant vigour of the Hybrid Chinas, for instance, and if but little pruned, and that in winter, the flowers are small and poor, green-eyed, and lacking in character; but if they are cut well back like, and at the same time as the Hybrid Perpetuals, many of them produce fine and distinct flowers, whose abundance, combined with the hardness of the plants, renders the section eminently desirable and an especial attraction in the Rose garden early in the summer.

STANDARD ROSES.

I AM sorry to see Mr. Douglas (p. 234) recommending the Boursault Roses for standards, or, for that matter, for any purpose, for these Roses constitute, as Mr. Ellwanger points out in his valuable book, a distinct, but worthless group; and even the Dean of Rochester, who is always willing to recognise merit wherever it exists, dismisses the Boursaults in few words with the significant, albeit charitable, remark, "There are better Roses." The foliage of the Boursault Roses is flat and thin, the habit not particularly attractive, the colour of the flowers dull, and the petals as lacking in texture and quality as are the flowers in form; and it is therefore a cause of regret that they should be backed by the name of so able and well-known a grower as Mr. Douglas.

No doubt it is merely through a slip of the pen or by a printer's error that Mr. Douglas appears to class as Boursaults the admirable evergreen Roses *Félicité-Perpétue* and *Princess Louise*, the two best varieties perhaps of all the offspring of *R. sempervirens*, and not only infinitely superior to any forms of *R. alpina*, but almost the pick of all climbing Roses that bloom but once a year. Whether covering the side of a house, trained up a tall pillar, wreathing and festooning a verandah, or dependent from the top of a tall Brier stem, there are few Roses to surpass *Félicité-Perpétue* in its beauty. Moreover, there is hardly a situation in which this Rose will not thrive, and no English winter which it cannot defy; for it has several of the good qualities of the Saint after whom it is called (and whose name is familiar to readers of *Alphonse Daudet*), notably that of endurance.

If Mr. Douglas thinks of again working some tall Briers with free-growing Roses, he should not fail to make trial of the beautiful single *Rosa multiflora* (syn., *polyantha*) for the purpose. This species makes a magnificent Rose tree worked on a 6-foot stem, and continues in beauty for a long time, while its freedom and delicious fragrance render it especially popular.

Another Rose that appears likely to be valuable for the same purpose where a red is wanted

is Max Singer, Lacharme's new hybrid between *R. multiflora* and *General Jacqueminot*. It is exceedingly vigorous, hardy, and free-blooming, producing great trusses of well-formed, bright cherry-red flowers of good size, and gives every promise of being a very substantial addition to the small number of available red climbing Roses.

That this number continues so small, and, indeed, that all this class of climbing Roses has of late years received so little attention from raisers and hybridisers, is undoubtedly much to be regretted; but the reason is not far to seek, and the answer to Mr. Douglas's question lies in the ignominious admission that "climbing Roses do not pay."

Practically, the only buyers of new Roses are exhibitors, and exhibitors only buy what they can exhibit. Now, of novelties of the usual Hybrid Perpetual or Tea-scented type, if bought in May or June and budded at once, blooms may be obtained in the following summer—maiden blooms, of course, often first-rate, nearly always good enough to enable a tolerably accurate estimate to be made of the value of the variety from the exhibitor's point of view. But with climbing Roses it is different. If they are not perpetuals they do not flower at all as maidens; then they have to be transplanted to a suitable position where they can climb, and then they will require another year or two to establish themselves. Thus two years must elapse before their flower is seen, and generally three or four years pass before the growth and normal character of any variety are sufficiently developed to prove its value as a hardy and ornamental climber. Hardly anyone, therefore, buys new climbing Roses, and consequently raisers concentrate their attention upon the more lucrative part of their business.

In the hope of inducing an extended interest in these Roses, the National Rose Society some time since instituted a class, which again appears in the schedule of their great metropolitan show, to be held this year at the Crystal Palace, for a collection of garden Roses other than Hybrid Perpetuals or the Teas usually exhibited, and rosarians who do not care about exhibiting in a general way might greatly help in popularising and making more widely known the most beautiful of these vigorous and climbing Roses by staging collections in this class on the 7th of next July at the Crystal Palace. As soon as people can be persuaded to take sufficient interest in this class of Roses to create a demand, there will be no doubt about there being a supply forthcoming. Raisers only want to be convinced of the demand.

In the meantime the work ought not to be neglected by those to whom the raising of new varieties is a labour of love. Mr. Douglas has long since proved himself an expert hybridiser and skilful raiser of valuable forms of all sorts of flowers. Might he not himself be persuaded to take in hand these graceful climbing Roses, and to add another leaf to an immortal horticultural crown by raising, say, an autumn-blooming *Félicité-Perpétue* so thoroughly free-flowering in character as to afford justification for those who are always mis-spelling poor *Sainte Perpétue's* name, permanently to write *Félicité perpétuelle*, or *Perpetual Bliss*?

Fertilising Moss.—I beg to be allowed to point out some errors that have crept into "Veronica's" notes on this subject in *THE GARDEN*, February 25 (p. 170). In the first place, the fertilising Moss now being sold is the same, and, in fact, the only quality (if we except the French *Dumesnil Moss*), that has been offered for sale in this country during the last ten years or more. If "Veronica" was re-

ferring to the *Dumesnil Moss*, I admit that he accurately described that article, as the *Wood Moss Hypnum* is the variety from which it is prepared. The fertilising Moss about which, as "Veronica" says, so much has been written lately is manufactured from a kind of *Sphagnum*. No amount of soaking or of fermentation will cause the *Hypnum Mosses* to retain the fertilising elements in the manner the *Sphagnum Moss* will do. With the fertilised *Sphagnum* the washing out is an impossibility, and the elements are only given out during decomposition. The decomposition is very slow, and the ball of Moss, after a season's use, still retains a large proportion of the elements with which it has been charged. Doubtless after having been the means of unwittingly misleading many, for there have been frequent remarks anent the strictures passed on fertilising Moss in *THE GARDEN*, "Veronica" will admit either that he has not tried the Moss I am now referring to, or that he does not know the difference between the two kinds of Moss when he sees them. Several well-known gardeners who have used this fertilising Moss have expressed themselves in a very opposite direction, and probably some of your correspondents may further ventilate the matter.—R. B.

CHRYSANTHEMUMS.

E. MOLYNEUX.

PLANTS ON WALLS.

Now is a good time to plant *Chrysanthemums* on walls where a display of blooms is required during October, November, and December. I have seen many splendid flowers on plants growing at the base of south and south-east walls in the neighbourhood of Liverpool, but a proper method of disbudding was carried out. At Swanmore Park we have a good display during the months named by planting a good variety. This is an excellent use to make of the *Chrysanthemum*, as the flowers brighten up an otherwise bare wall. Those who have no glass structures may have a display of autumn flowers by following the simple details which I will name. If a south wall has to be covered, so much the better, and if there is a good, wide coping on the wall, either temporary or otherwise, the blooms will not become so heavily soaked by rains. If temporary protection in this way is given, the boards should be at least 6 inches wide, and fixed in position when the buds are opening. During the summer the plants are all the better if they get the benefit of rains, which tend to keep them free from insects, to which they are liable when the plants get the additional heat from the wall. Much depends upon the height of the wall, because varieties suitable for both high and low walls can be chosen. The higher the wall the more variety may be had; therefore, if one, say 7 feet high, is available, so much the better. Still, on a wall of less height blooms may be had by training the branches in a different manner.

Old plants that flowered in pots last season are the most suitable for such a position, for the reason that they possess a larger number of shoots near the base than in the case of young ones struck from cuttings made of the current year's growth. Where, however, the former cannot be secured, young plants must be used.

Employing suitable varieties should be the first consideration. Pompons, *Anemone* pompons, and single varieties are especially suited for this method of culture; they flower profusely, and, owing to the thinness of their petals, do not suffer nearly so much from rain as do heavier kinds—incurved, for instance. Reflexed *Chrysanthemums* answer well, also the Japanese flowers with short, reflexed florets; these, owing to their imbricated petals, do not

retain the water, as in the case of the incurved. Large-flowered Anemone kinds are the worst for this purpose, owing to the large quill-like florets becoming filled with water. Let us assume that the wall is 7 feet high, and that large blooms and a quantity of smaller ones are desired. If the soil is of fair quality some manure should be added at planting time, but if the foundation of the wall is filled in with rubbish, as is sometimes the case, it is better to remove the whole and replace with new soil to a depth of 1 foot, using one part of manure to three of loam. From the old plants remove some of the old soil, disentangling the roots so that they will more readily take to the new compost. Plants of the large-flowering sections, of which a few incurved varieties may be selected to give variety, should be placed 3 feet apart, and between every two should be placed alternately one pompon and one single variety. The plants of these latter sections will cover the bottom part of the wall, thus the space above them may be devoted to the large-flowered kinds. Tread the soil firmly, and when growth is fairly started, give the soil a good soaking should it be at all dry. Shoots will spring from the base of each plant, and in the case of each of the large-flowered varieties select four of the strongest growths, and as regards pompoms and singles, retain six, removing all others. This should be done as early as possible, to give extra strength to those remaining. When the growths are long enough spread them out thinly, and fasten them to the wall by means of nails and shreds if there are no wires. If the branches are not secured as growth proceeds they get broken by the wind. Do not top the branches, as the growth is best increased by allowing the shoots to break naturally, selecting two of the strongest on each stem, or more if space permits, and removing the remainder. Where large flowers are required, allow three stems on the plant to each produce a single bud. This is done by removing all side growths as fast as they appear upon the stems produced from the first natural break of the plant.

The remaining branches on the same plant intended to produce a quantity of flowers should have the flower-bud removed which forms in August, when another set of growths will start from the point below which the bud was removed from. The shoots of both pompon and single varieties, owing to the smallness of the foliage, may be trained thicker upon the wall than in the case of the larger flowering kinds. A distance of 3 inches to 4 inches is suitable, and the extra number of branches is secured by retaining more at the first break of the shoots. No thinning of the buds will be required. Where the wall is low compared to that previously named, tall-growing kinds should be dispensed with as much as possible, confining the selection to those of a dwarf habit. Even in the case of these sorts where large blooms are required, the growths must be laid in to the wall, so that they cross one another. This form of training, if neatly performed, will not be much noticed, as the foliage will cover the stems. To produce these larger flowers the plants must be allowed to grow away somewhat naturally. Where the production of a quantity of blooms is the main object top the plants when 6 inches high, and continue doing so until the end of June. After that allow them to grow away at will, securing the branches to the wall as growth proceeds and space permits. Encourage free growth by thoroughly syringing the plants after a hot day, as this greatly assists in keeping the foliage clean, and rendering the wall cool during the night. Copious supplies of water should be given to the roots as growth proceeds,

and occasional doses of liquid manure are of great assistance in promoting a vigorous growth. Treated in this manner, blooms can be had in favourable seasons from such walls during a period of eight or ten weeks. It is advisable to devise some means for keeping off frost, such as by hanging tiffany over the flowers, as frost following rain is the worst enemy with which the Chrysanthemum has to contend during the flowering season, as the blooms being heavily charged with moisture are much less able to resist the effects of frost than when they are dry. In this manner the advantage of broad coping boards will be easily perceived.

I have found the following varieties most suitable for growing on walls:—

Japanese.—Dr. Macary, Bouquet Fait, Peter the Great, Elaine, Tendresse, Margot, Mons. Moussillac, Mlle. Lacroix, Lady Selborne, Harlequin, George Gordon, L'Incomparable, Daimio, La Nympe, Triomphe du Nord, Mme. De Sevin, Maiden's Blush, Mrs. J. Wright, and La Triomphante; the above are all what may be termed early flowering varieties.

Incurved.—Mrs. G. Rundle, Mrs. Dixon, George Glenny, Othello, Refulgence, Lord Alcester, Jardin des Plantes and Lady Slade.

Reflexed.—Golden, Pink and White Christines, King of Crimson, Phidias, Cullingfordi, Progne and Chevalier Domage.

Single.—Oscar Wilde, Patience, Mrs. Langtry, Oriflamme, Jane, Lady Churchill, White Perfection, and Crushed Strawberry.

Pompoms.—White Trevenna, President, Snowdrop, Nelly Rainford, St. Michael, Golden Circle, Rosinante, Lizzie Holmes, Prince of Orange.

Anemone Pompoms.—Dick Turpin, Antonius, Firefly.

May-struck plants.—Cuttings of many of the Japanese varieties inserted the first week in May make most useful plants, which are dwarfer than the ordinary struck plants of this section. To ensure a proper supply of cuttings at that time any growths rising from the base of the old stools 3 inches or 4 inches long should be removed, thus allowing others to grow, which by the time they are needed will have developed into stout cuttings. If space in cold frames cannot be spared to store the stools now they might be turned out of their pots, packed closely together in ashes under a south wall, and some protection can be given with mats in case of sharp frost.

"Fimbriated" Chrysanthemums.—A new class.—Although this section is not new to everybody, it is so to many. Whether it will become as popular as most of the other sections have done remains to be seen. As will readily be understood, what is meant by fimbriated is that the edge of each floret is serrated or deeply cut, giving a distinct appearance to the flower. To those persons interested in novelties this class is sure to find greater favour when the varieties become more numerous. Flowers staged in the same manner as Pompoms, three together, will look very well at the exhibition, as the varieties are not large enough to warrant their being staged alone, like the ordinary incurved or Japanese sorts. For the production of the finest flowers the treatment is the same as that for other sections of Chrysanthemums. Below I give a list of the kinds that have come under my notice. There are few at present totally distinct from Pompon varieties. The fimbriated class is represented now by *Crocus*, golden yellow, shaded dull red; *Chardoneret*, bright purple; *Scapin*, rosy crimson; *Massange*, bluish pink.—E. M.

A new Chrysanthemum.—The first figure in the first number of the *American Garden and Forest* is a photograph of a remarkable Chrysanthemum named Mrs. Alpheus Hardy. It has large incurved flowers, and is of the Japanese race with broad white florets, the peculiarity of which consists in their being rather thickly studded with spine-like glandular hairs. These hairs are about an eighth of an inch long, and give a most peculiar echinoid appearance to the flower. The history of the variety is simple. It was sent to Mrs. Hardy, of Boston, by a Japanese student on his return to Japan, along with other kinds, as a token of re-

membrance of courtesies extended to him as a stranger student in America. The Japanese Professor Miybe, who saw the plant when in flower at Cambridge, says it is a radical departure from any variety he ever saw in bloom in his native "flowery land." Of course all Chrysanthemums possess these glandular hairs on the lower portion of their florets immediately above the seed, but this is the first time I ever saw them emerge from their hiding-place and develop themselves so markedly on the backs of the florets as in this case. We are not told if this singular variety is more fragrant than the ordinary Japanese kinds—a thing to be expected from the abnormal development of the glandular hairs. So distinct and striking is the flower figured, that one wonders where the surprises among Japanese plants will end, and especially whether the French raisers will not soon be eclipsed by those of the United States.—F. W. BURBIDGE.

Seasonable notes.—Much attention at this season of the year will be necessary in order to give the additional shifts to the young plants as fast as required, as at this season of the year roots are formed very quickly, and if allowed to become matted in the early stages of growth necessitate much stricter attention as regards watering, which in this stage of growth should not be neglected. Pompoms and single varieties which were previously struck two in a 3-inch pot will now need potting into $4\frac{1}{2}$ -inch pots, and should not be divided. All plants intended for "bush," specimen, or any other method where topping of the shoots is necessary, should not be neglected, as growth is now being made fast where the conditions are favourable. Give sufficient space between the plants so that they may not be drawn up weakly by overcrowding, and remove as fast as possible the plants from cool houses to the frames. Only the latest batch of struck or newly potted small plants should remain longer in the houses. Plants intended for some special purpose are more liable to be drawn up weakly by a prolonged stay in houses than when in frames. Attend well to the safe covering of the frames each night no matter what the character of the weather is at dusk, as changes in the temperature so quickly take place. The only exception to this rule is that the coverings should not be put on so soon—in fact, not during the daytime at all.—J. G.

AMERICAN NOTES.

ON the bottom lands of the Oconee River, near Gainesville, Ga., on the estate of Mrs. J. M. O'Neil, there is a thrifty Apple orchard of 600 acres planted exclusively with one variety, the Shockley. The entire crop is sold to local distillers for the manufacture of Apple brandy. Some distilling establishments in the vicinity use 20,000 bushels of Apples during the season.

FORCED flowers of the Japanese Quince (*Pyrus japonica*) are about the only novelty seen in flowers during the present season at our city florists'. The flowers are a little smaller than those that come naturally in spring, and instead of being a bright crimson are of a delicate shell-pink colour.

ANOTHER recent novelty is the weeping Mulberry, the original having been found in a bed of seedling Mulberries in Missouri. Naturally a trailing plant, we have only to graft it on stocks of any of the upright-growing species or varieties to produce a neat little weeping tree, the long slender branches growing almost in a direct course downward. This weeping Mulberry promises to be a desirable addition to our list of small weeping trees for garden and lawn. The fruit is black, sweet and good, and will no doubt serve the same purpose as that of other varieties in attracting the attention of fruit-eating birds.

HOVEY'S White Tea and the Meteor Roses are two novelties of the choicest kind for house growing. The delicate white Rose, whose colour seems to have faded in odour, contrasts well with the deep vivid Meteor, one of the velvety, blood-red, high-scented order, not so large as fine—a true boudoir Rose. A Dedham florist grows the Charles X. Rose, one of the most perfect pink varieties in colour, shape, and substance—a loyalist French Rose by the name, but

one on which further information seems wanting. It is a *débutante* which needs no voucher.—*American Garden*.

FLOWER GARDEN.

LILIUM SPECIOSUM KRÆTZERI.

THIS is the finest Lily of the speciosum class. *L. speciosum* first became known to growers in this country about the year 1833. There are two divisions of this species, *rubrum* and *roseum*; *Krætzeri* belongs to the former. It is a white Lily with a frosted centre, a very distinct green band and brown stamens. One of the great advantages of *L. speciosum Krætzeri* is the ease with which it can be cultivated, either in pots or out in the open, the latter fact being of immense advantage in our uncertain and variable climate. I have grown this

Lilies so grown are failures. Such is not the case. With the most ordinary care in planting, Lilies will flower and last for years in the open garden, and especially by placing them where they will neither be in complete shade, draughty places, under forest trees, or extremely hot or over parched positions.

The great and primary desideratum after getting sound Lily bulbs is to plant them in a bed of at least 12 inches depth of good loam; the greater the depth of loam available beyond this the better for the future success. They nearly all delight in peat, and I never plant any without it.

I frequently notice persons writing to you that they cannot grow *L. japonicum Krameri*. Now I have fully 150 of this species growing in different positions in my garden, and they do well in all. Last season I had stems



Lilium speciosum Krætzeri. Engraved for THE GARDEN from a flower sent by C. J. Grahame.

Lily for many years in the open, and have never found it fail.

It flowers in the open in the month of September, and it is interesting to watch the peculiar way the bloom opens gradually, and gracefully curves back, taking two or three days to develop its matured shape. I have invariably planted this Lily (an engraving of which is here given) in a mixture of two parts loam and one part peat, with a little sand round each bulb. There are usually about five flowers on a stem, but the number varies, and I frequently have had only one.

There is a very general and unfounded belief among those who have not had the experience or the patience to try Lily growing without the protection of glass that, as a rule,

with flowers varying in number from one to seven, the latter, I believe, being almost a unique specimen. I had the pleasure of handing it to you. But I had numbers with two, three and four flowers on the stem.

If Lilies be once planted properly and not too closely, they may be left undisturbed for many years. Manure is bad for Lilies if placed near the bulb in planting, but after the bulbs are established a top-dressing is beneficial. A few inches of Cocoa fibre will help to keep out frost. I grow successfully in the manner I have described the following:—

Lilium auratum, a. *rubro-vittatum*, *virginale*, *platyphyllum*, *macranthum*, *speciosum rubro-cruentum*, *roseum*, *album*, *Krætzeri*, *japonicum Krameri*, *tigrinum*, t. *splendens*, t. fl.-pl., *Humboldtii*, *monadelphum* - *Szovitzianum*, *Thunbergianum* fl.-pl.,

Leichtlini, *Batemanniæ*, *pardalinum*, *chalcedonicum*, c. *Heldreichi*, *dalmaticum*, *testaceum excelsum*, *candidum*, *longiflorum*, l. *eximium*, *croceum*.

I may conclude by giving as my personal opinion that the most beautiful and reliable are—

Lilium auratum, flowering July to October.
candidum, May and June.
japonicum Krameri, July.
speciosum Krætzeri, September.
testaceum excelsum, June.
tigrinum splendens, September and October.

With a good number of these six Lilies a garden, whether large or small, may be made "a thing of beauty" and very attractive during many months of the year.

C. J. GRAHAME.

Coombe Road, Croydon.

NARCISSUS AND DAFFODILS GROWN IN WATER.

ONE of your correspondents alluded to this subject a short time ago, and to-day I was reminded of the fact by seeing a very fine *Narcissus—Soleil d'Or*—growing in a glass of water along with some good *Hyacinths* in a window in Mount Street, Dublin. In China, where *N. Tazetta* is a favourite flower of the new year, it is the common practice to grow the bulbs in vessels of water and stones, the latter being used to fix the bulbs and their roots more firmly in the vessel. Those of your readers who will refer to THE GARDEN for 1872, p. 543, may like to read the charming Chinese legend or fable there published as to the moisture or water-loving tendency of the *Narcissus*. Formerly in England it was quite a common practice to treat *Narcissus* bulbs like *Hyacinths*; that is, so far as growing them in glasses of water instead of in pots of earth was concerned.

A hundred and fifty years ago—that is to say in 1730—a very interesting book was published called "The Curious and Profitable Gardener," by John Cowell, of Hoxton, an enlightened florist, or, as he writes it, flowerist, of the time. This book is more remarkable, as its author mentions "plants and flowers not alluded to in other works," and, to a certain extent, this is true. At p. 68 he writes:—

As for the *Ranunculus* roots, I find they grow very well without earth amongst my other bulbous roots, which I have in bottles of liquid; and so, likewise, does the *Anemone*, and, indeed, I do not know any bulbous-rooted or such like plant that will not, whether *Snowdrop*, *Crocus*, *Ornithogalum*, bulbous *Iris*, *Jonquil*, *Daffodils*, *Narcissus* of any sort, *Crown Imperial*, *Tuberose*, *Hyacinth*, *Tulip*, *Colchicum*, and *Cyclamen*.

Nearly all the old garden calendars and florists' manuals, however, give directions how to "blow" or flower bulbs in glasses of water, and of late years Moss culture has been recommended to the same end.

The philosophy of the water and Moss culture of bulbs is simply this. In all bulbs and tubers the incipient flowers are actually formed, and material for their future development is also present when the roots are dug in autumn, and this being so, the slightest assistance of heat and moisture suffices to enable them to bloom. When you buy bulbs from Holland, you are actually buying *Hyacinth* or *Narcissus* spikes *in situ*, the result of Dutch skill and culture, and especially of Dutch sunshine. All we do with roots of this kind is to afford them conditions suitable for their development, a very different thing altogether from conditions suitable for their permanent growth and perennial welfare.

F. W. B.

Hardy bulbs—Rows v. groups.—Now that many hardy bulbs are again coming in flower, one cannot but note the different effects produced in different gardens by the same kinds planted in different ways. The plan of putting single lines as

edgings to beds or borders of such things as Snowdrops, Crocuses, Squills, &c., is about the worst that can be devised, one bold clump or a group of fifty bulbs being far more effective than several hundreds set out in precise order. Generally speaking, there are sheltered nooks and corners in even small gardens where bulbs can be planted, and under the friendly shelter of an evergreen tree or shrub the Snowdrop, Aconite, and Crocus will look far more effective than in the soil-splashed beds, where they rarely make but a short display owing to the changeableness of our spring weather. I am well aware of the effect produced by later flowering kinds, such as Hyacinths, Tulips, &c., by cramming in bulbs as thickly as they are planted in pots; but March and May are different periods to cater for. Those who wish for the best results very early in the season should keep clear of freshly-dug beds, and concentrate their efforts on the sheltered mossy banks and cosy nooks, and plant their early bulbs in company with *Iris reticulata*, single and double Hepaticas, Primroses, and Daffodils. On no account disturb them with the spade.—J. G. H.

ANEMONE FULGENS AND THE FROST.

I NOTE that this *Anemone* has been cruelly cut by the late frosty winds, and am led to think that this may be one cause of its non-flourishing condition in many gardens. In the case of bulbous and tuberous-rooted plants an injury to the foliage is fraught with evil consequences, the strength of the bulb or tuber the following year naturally depending on the vigour of its growth. *Anemone fulgens* is not one of the easiest of hardy flowers to deal with, and no doubt is more sensitive to a check than things that more readily adapt themselves to our climate. Some plants I noticed had the foliage quite browned, and I cannot think that they will come at all strong next year. They are, I fancy, likely to disappear altogether. It is true that the common garden *Anemone* suffers in the same way, but it has such a fund of healthy vigour and is so completely at home with us, that it does not become permanently weakened. I suppose the *Pau Anemone* rarely, if ever, gets cut up in its native home. It would, therefore, seem that we ought to give it some protection, either naturally, by placing it where it does not get touched by north and east winds, or artificially. The slightest amount of protective material would keep the foliage all right. The natural shelter must not, however, be of a nature to shut out the sun in summer, for if there is a hardy flower that wants roasting when at rest, it is this *Anemone*. I tried for several years to get it to do well, but until I selected the hottest and driest position in the garden, it failed after the first year. The best clump is close to an *Arbor-vitæ*, where there is no shade, the sun shining there the whole day in summer, and the ground is, of course, extremely dry, owing to the roots of the tree. This clump annually increases in strength, whilst others only exist, and some have died away.

I have often thought of trying a few pots of this *Anemone* under glass. In a season like this, when the absence of sun renders the forwarding of flowers under glass a slower process than usual, one ought to be able to get *Anemone* blooms in plenty. This year it will be the end of April before *Anemones* are good in the open. For this purpose the tubers ought to be potted up in August, as the earlier they are put in the ground the sooner they come into bloom. The coronaria varieties might be used in the same way, and seedlings raised early in the year would be best. J. C. B.

Crocuses in the house.—We have had a bad time for Crocuses, which only show their full beauty in the open when the sun shines. Here since they appeared above ground on two days only have they expanded. It should, however, be remembered that they are not wholly dependent on the sun for expansion, and that in a warm room they will open for a few hours daily. Nothing has given me more pleasure through this dull time than a shallow dish of yellow *Crocus* blooms. In the dish were laid

sprays of Lawson's Cypress, the Crocuses being dibbled in between them. This arrangement is much better than crowding them in a vase, as each flower has plenty of room to unfold. When towards mid-day they open, they have a really charming appearance, like a patch of Crocuses in the open.—J. C., *Byfleet*.

NOTES ON HARDY PLANTS.

Alpine Primroses.—The first which we have seen this year is known in gardens under the name of *Primula Fortunei*, a name of which we can find no record whatever. It is also known as *P. erosa*, but is clearly not the plant figured a short time ago in the *Botanical Magazine* under that name. Dr. Watt, of India, considers it the true *P. capitata*, which does not at all agree with the plant so long grown in gardens under that name. In *P. Fortunei* the leaves are slightly mealy, as well as the flower heads before opening, and are broad, oval, and somewhat like those of *P. denticulata*. Flower-stems tall, two to three from each plant, bearing a large loose head of numerous lilac flowers, not drooping like those of *P. capitata* of gardens. In habit this plant is entirely different from anything we know. It is quite perennial, easily increased by division, while *P. capitata* is at best only a biennial, and cannot be divided. *P. Fortunei* is a most useful plant for the corridor or greenhouse. We have tried to force *P. rosea*, with poor results, only one out of half a dozen being at all presentable, the others going entirely to leaf, the flower bud remaining dormant. If this plant is desired early, it should never be put in a house with a temperature over 45°, and then only those with the most advanced flower buds should be chosen. *P. denticulata* is already showing finely, owing, doubtless, to the comparatively dry season. It is very remarkable how seedlings of this species vary, as out of over a dozen plants raised no two are exactly alike in tint or in the quantity of sulphur farina on the leaves. *P. denticulata* can also be increased by division, which method gives a quicker result than that of seed.

The Pyrenean Catchfly (*Lychnis pyrenaica*) is a plant that adapts itself to our climate more readily than most of the alpine plants from that region. It loves limestone, in a sunny position, almost perpendicular, where if allowed its own way, its seeds shed in early autumn will be found to germinate in all the crevices within reach, and in a few years to form quite a colony. Such a group has none of the stiffness of that planted, and reminds one of the old moat wall. It flowers profusely. The flowers are medium sized, white, with just a shade of pink, and even when out of bloom its abundant glaucous leaves are always attractive. In such a position, or, indeed, growing together, as we have seen them, *L. Lagasce* and the above make a pretty picture. The flowers of *L. Lagasce*, borne in the greatest profusion, are bright rose-coloured with whitish centre, much larger than those of *L. pyrenaica*, and almost hide the slightly glaucous leaves. It can be readily propagated by cuttings, although seeds are preferable, as they can be sown on the rockery in positions where it would be difficult to plant. Both natives of the Pyrenees, flowering in early summer. K.

Gray's Lily (*Lilium Grayi*).—Upon the trip which Dr. Asa Gray made to the Alleghany Mountains in 1840 he collected upon Roan Mountain, in North Carolina, a single specimen of a Lily which was considered by him to be a form of the common *Lilium canadense*, and as such it was preserved in his herbarium at Cambridge. During the last ten years the same form has again been found upon the same mountain, though not abundantly, and it has also been cultivated in the Cambridge Botanic Garden. Though evidently closely related to *L. canadense*, it yet differs from it so decidedly that it has been deemed deserving of specific rank and has been honoured with the name of its discoverer. As contrasted with *L. canadense*, the flowers are smaller, less pendulous, and broader at the base; the petals are broader in proportion, less tapering

at the top, and not at all recurved; and the leaves are perfectly smooth, and usually broader and less narrowly pointed. In *L. canadense* they are rough upon the edge and usually also upon the veins beneath, and sometimes over the whole lower surface. In this respect that species differs also from *L. superbum*. The flowers are dark coloured, of a deep reddish orange, uniformly dotted within with rather small purple spots. In its native locality it blooms in June. The bulbs are, like those of *L. canadense* and *L. superbum*, renewed from year to year upon a perennial rootstock, and respond as kindly to a similar culture. The species has been found upon the Peaks of Otter, in Virginia, and probably occurs in many other places in the Southern Alleghanies.—S. W., in *Garden and Forest*.

A fringed trunk Daffodil.—In 1886 Mr. Hartland, of Cork, sent me a flower of a very peculiar Daffodil having a fringed or goffered trumpet. This year I have received flowers of the same variety from its owner, a gentleman in Limerick, on whose lawn it appears to have appeared spontaneously, and probably as a natural seedling. Double and single varieties of *N. spurium* are growing near to the tuft which produces fringed flowers, and the inference is that it is a seedling from one of these varieties. The flower is normal in all ways, except that lobed bits of fringe of the same consistence as the trumpet itself are fixed to the outside of the corona or trunk, being attached by their centres to the midribs of the six coronal leaves, which being, as usual in Daffodils, coherent by their margins, necessarily form the trumpet of the flower. A similar state of things sometimes occurs in the case of seedling *Gloxinias*, but I have not seen it so regular and constant amongst these flowers as it is in the case of this Daffodil, which is known to have produced these fringed flowers for the past three or four years at least. Mr. Wolley Dod tells me that he has occasionally seen Daffodils having their trumpets more or less fringed down their sides, but that he deemed it a mere temporary freak of Nature which might not be repeated. I hope that lovers of Narcissi will keep a look-out for such flowers, seeing that "exceptions very often prove the law or rule."—F. W. BURBIDGE.

SHORT NOTES.—FLOWER.

Scoliopus Bigelowii.—This is said to be related to the *Trilliums*, and has the fetid odour of *T. erectum*; but, unlike the *Trilliums*, its most conspicuous feature lies in the three greenish white sepals, veined with deep claret, the three petals being reduced to mere threads. Mr. Ware states that it is a native of Southern California, quite hardy and fond of shade and moisture and a peat soil.—J. S., *Workshop*.

Tulip Ophir d'Or.—This early Tulip has been exceptionally well shown this season, and finds many admirers for the rich canary colour of its flowers. It has a full, bold cup-like bloom borne on a sturdy scape, and the leaves are robust. It is worth noting, as it always seems to come good, even being shown well in stands where other Tulips were very inferior. Another variety that all should have is *Proserpine*, a rich deep self mauvy pink.

Burser's Saxifrage.—This lovely Saxifrage has flowered well this year, although where the plants are in exposed positions, the wind, sleet, and keen frosts have tried them severely. It is now a mass of flower in many nurseries, and it blooms so freely that the dense mat-like vegetation is almost hidden. Burser's Saxifrage is also one of those alpine plants that does well in pots, but the best way is to form bold clumps in the rock garden, selecting nooks or jutting ledges where the pure white flowers will be best seen. It is one of the choicest gems from the Austrian Alps we have had.

Coloured Primroses are flowers that show a brilliant diversity of colours, from the purest white to the deepest crimson, and a row of thriving plants in the border is a picture of beauty during the spring months. It would be an advantage if the coloured Primroses were more often seen, as nothing is easier to grow than the Primrose if ordinary care is taken, and the flowers when bunched make an acceptable adornment for the table. Too frequently Primroses suffer in the summer from neglect, and the

results are too evident this season in the stunted condition of the plants. They are also useful for pots.

White Grape Hyacinth.—This is one of the best of this interesting group, and a proper companion to the blue form, as the colours contrast well. It is quite hardy, and the flower-spikes are borne well above the Grass-like leafage; moreover, they are of the purest white. A pan of it in full bloom is an excellent ornament for the greenhouse, and clumps of the type and its variety make bright patches in the open ground. Its botanical name is *Muscari botryoides albus*.

FLOWER GARDEN NOTES.

PHLOX DRUMMONDI.—These half-hardy annual Phloxes have of late years been so greatly improved, that no garden ought to be without them. As regards colour, they are now to be had of every shade, ranging from pure white to a dark, almost black-maroon, but personally I give preference to the striped and spotted-flowered varieties, such as pure white with a violet-coloured eye, or violet splashed and evenly spotted with white. The self or one-coloured varieties are perhaps best for massing, but the variegated-flowered varieties make the grandest nosegays, and are most useful for decoration. The habit of the two sections varies as greatly as do the colours. The dwarf, compact-growing section is matchless for planting small beds or in a mass in the front of wide flower borders. We had several large clumps of this section last year that never grew higher than 6 inches, and yet the growth was so dense and spreading, that the plants were full of flower from early in July till severe frost set in. Plants of the tall, or what is generally called the grandiflora section are best suited for positions where the growth can ramble at will. A thicket of these and seedling *Petunias* that we had last year growing on an out-of-the-way flower border would have certainly pleased those who appreciate wild gardening. We have just sown the several varieties in cold frames placed on the hard ground, over which was spread 5 inches of light soil. The reason for giving preference to this hard bottom is that the seedlings will transplant with less check than if planted in deep soil. Water having been given directly sowing was done, no more will be needed until the plants show above the soil, and until this takes place the lights will be kept closed.

PERENNIAL PHLOXES.—As a rule I give preference to growing these from cuttings, and this is the only way to get any given variety true to name. The old stools in the borders are now full of cuttings, and by taking the best of these off with a heel and inserting them in the ordinary way round the sides of pots and putting them in frames that may have been made up for Cucumbers, Melons, or forcing Asparagus, they quickly root, and by careful after-treatment as to potting as soon as rooted, the plants will be ready to put in the border before May is out, and most of them will flower in the autumn. Like *Chrysanthemums*, these young-struck plants produce much finer flowers than do the old stools. Those who have not the convenience for striking cuttings may increase their stock by cutting up the old stools with a sharp edging knife. It is getting too late for doing this work, but if free supplies of water can be given—should the weather prove dry—I would advise that it be done instead of keeping large old stools. Plants are also very readily raised from seeds, and if sown in heat at once there is yet time to get examples of sufficient size to bloom in autumn—at least some of them—and all will flower freely next year.

PINKS AND CARNATIONS.—Owing to want of house room for raising seedlings and propagation generally, we are often compelled to sow seeds in the open air that would be more expeditiously raised indoors if space could be spared. Amongst these are *Pinks* and *Carnations*. It is necessary that the position be a sunny one, the soil well drained and of a light nature. I use a good proportion of leaf-soil, and shallow drills are drawn 9 inches apart. The seed is then sown, and before covering over with the ordinary soil of the border the drills are thickly strewn with sand and then carefully filled in by hand. It is necessary to guard

against attacks of slugs and grubs as the seedlings emerge from the soil, and the best way is to trap them with bran baits. These should be put down in small patches between the seed drills, and when the pests are found thereon (and they soon will be if there are any in close proximity) pick them off and destroy them. We have a quantity of good plants sown last year still in the seed drills; these are about to be planted out together with layered named kinds. This would have been done long ago had the weather been propitious.

ANNUAL SUNFLOWERS.—These have become very popular, but I only really care for one of the many varieties that have recently come to the front, and that is the small-flowered and dense-branching-habited variety called *Miniature*. This variety is equal, and in some respects superior, to any of the perennial section, all of which are more worthy of cultivation than the coarse, ugly *Artichoke-like* annual kinds that some people profess to have such a liking for. The variety *Miniature* makes a magnificent bush, and the flowers in colour, size, and formation are almost identical with those of *Rudbeckia Newmanni*, for which many people take them when used as cut flowers. The plant is an excellent companion to the dark-flowered varieties of single *Dahlias*, and makes as an effective back line or central subject for large beds as the single *Dahlias*. Sow in heat at once, pot off as soon as large enough to handle, grow on slowly in an intermediate temperature, and plant out the third week in May. The coarse, large-flowered varieties may also be raised in the same way, and it is now time this was done.

HALF-HARDY BEDDING PLANTS.—*Calceolarias aurea floribunda* and *amplexicaulis*—the only two varieties we grow—must shortly be given more room, for if starved and stunted now, they are sure to die off early in the summer by what many call the "*Calceolaria disease*," which arises from starvation in the early stage of their existence, and how to prevent such decrepitude is, therefore, of the utmost importance. Our plants are still in the cutting frames, and as pots and boxes are not used in the cultivation of *Calceolarias*, they will soon be transplanted to a border at the foot of a south wall and have protection under the same covering as the fruit trees. The soil in which they are planted on these borders consists of a large percentage of leaf-mould, and is placed on the top of the fruit-tree border soil and moved before roots of fruit trees make their way into it. At planting-out time the plants are gently raised by running a spade under the layer of foreign soil; they are then singled out by the hand with all the soil possible adhering to the roots, and transplanting is then done without any apparent check; we are never troubled with the so-called disease.

LEUCOPHYTON BROWNII, commonly called *Whipcord Plant*, owing to its wiry, twisted appearance, we strike and winter exactly the same as *Calceolarias*. Its roots are brittle and strike down deep into the soil; hence lifting and re-planting prior to planting them out in beds are essential. This transplanting must be done the moment the *Calceolarias* are out of the way, as they will occupy their place in the frames. There is no white-foliaged bedding plant of a more refined nature than this, and it should be added, none more difficult to strike. It resents coddling in any form, the ordinary cold frame treatment suiting it best, both as to propagation and growth, until the planting season arrives.

GNAPHALIUM LANATUM.—This is also propagated in the same way and treated in every particular as in the case of *Calceolarias*. It is necessary to pinch out the tops of the plants to induce a branching habit of growth. Though old, it is still one of the best plants for clothing the ground beneath sub-tropicals and for forming enclosure lines to dark-coloured foliage and flowering plants.

HERBACEOUS LOBELIAS.—A mixture of the scarlet variety of *Lobelia fulgens* Queen Victoria, the lemon-coloured *Marguerite*, and the blue-flowered *Salvia patens* forms a piece of as perfect floral beauty as anyone could wish to see, and it is with a view of having a greater preponderance of such variegated colouring that we are now having

the roots of these *Lobelias* split up and planted out in shallow boxes of rich soil. Grow them in a warm pit for a month or so, then harden off by cold frame treatment for planting out early in May. I once raised a quantity of this plant from seed, but the produce was so unsatisfactory that it will not be done again. The flowers were varied in colour, certainly, but it seemed as if each one had vied with the other as to which could be the most dingy brown, purple and red. Out of some dozens of plants there was not one that had a distinct colour. No wonder, therefore, that I determined in future to leave the raising of seedling herbaceous *Lobelias* to others.

GENERAL WORK.—To protect with *Cocoa-nut* fibre spring-flowering bulbs, *Hyacinths*, *Tulips*, and *Narcissus*. To finish transplanting small shrubs that have done duty in flower beds for the winter, and afterwards to manure and trench beds for summer bedding plants. To clip *Ivy*, nail in the shoots of *Virginian Creepers* that have got loosened by wind, and to do the same to *Wistarias* and *Magnolias*. These last-named do exceedingly well on a south-west wall, grow vigorously and flower freely. They are planted in a border paved with flagstones, but openings are cut in the stones for the admission of moisture. They require top-dressings of fresh soil and manure about every third year, to apply which it is necessary to take up and relay the stones. I have seen the roots clinging to the rough surface just as tenaciously as *Vine* roots do to half-inch bones. This is a proof, I think, that stones are not the non-conductors of heat that they are usually considered. W. W.

The yellow Picotee.—I never look at the illustration of the yellow *Picotee* on page 70 of old Thomas Hogg's "*Treatise on the Growth and Culture of the Carnation, Picotee, Auricula, &c.*" (edition 1822), without wondering if such a *Picotee* ever existed. It is a medium-sized flower, of a rich deep golden yellow colour; the petals fimbriated, with flakes of crimson on the petal edges like the fine pencillings on the edge of a feathered *Tulip*, but with here and there stronger and broader flakes of colour running from the petal edge down to the centre of the flower. Perhaps, after all, it is only a fanciful flower sketched by the artist; but there it is, clear and bold, the colours as good and well expressed as when they were laid on over sixty years ago. If we had a flower now of such a depth of colour it would make a floral sensation. It appears that the Dutch were, in those days, cultivators of yellow *Picotees*, and the latter were to be met with in many parts of the Continent; but, as Thomas Hogg remarked, it is "always scarce, for there is never any great stock of it in the country. It is to be met with in many parts of Italy, Germany, Prussia, and Flanders, in the neighbourhood of Lausanne, in Switzerland, and of Grenoble and Lyons, in the province of Dauphiny, and other parts of France." I remember the yellow *Picotees* of nearly forty years ago, but they, like their Continental ancestors, were all of weakly growth, and it was difficult to get stock of and grow some of them. Things have improved since then. The new varieties raised by Mr. J. Douglas, and which are now being distributed from Slough, are all of strong constitution, and can be successfully grown with reasonable care. Mr. E. S. Dodwell, of Oxford, also has a fine strain (raised originally in Ireland) which he is improving, and from which he confidently anticipates something of fine quality. The two new yellow self *Carnations*, *Germania* (Benary) and *Will Threlfal*, are excellent growers. I have plants of each. They are of very robust constitution, and promise to produce plenty of "grass." I think there is a very cheering prospect before lovers of yellow *Carnations* and *Picotees*.—R. D.

The snowy Primrose.—*Primula viscosa alba* is one of the sweetest of all *Primulas*, having comparatively large heads of white scented flowers that rise just above the cushion-like deep green foliage. It is a gem for the rock garden, and deserves to be grown in a pot, together with the type, *viscosa*, which has rose flowers, the two colours making a decided contrast. These two kinds are not hard to grow, and have

already been shown in exceedingly good condition this season. Those who like alpine Primulas must have these two if they wish for anything like a good collection.

FERNS.

OUR NATIVE FERNS.

THE POLYSTICHUMS, OR PRICKLY SHIELD FERNS.

THESE are represented by two species and numerous varieties divided into two classes, the common Prickly Shield Fern, botanically known as *Polystichum aculeatum*, and the soft Prickly Shield Fern, under which denomination *Polystichum angulare* and its many varieties are classified.

P. ACULEATUM is a particularly strong, bold-growing Fern with numerous fronds, attaining a height of 30 inches and a breadth of about 6 inches at their widest part, produced from a stout tufted caudex and disposed in such a way as to give the plant the appearance of a gigantic shuttlecock. The fronds are of a dark bluish green shining colour on their upper side, while their under side is of a paler tint; the stipes as well as the crown of the plant are densely covered with large blackish brown scales. The fructification of that handsome species presents a peculiarity of special note, inasmuch as instead of the frond being fertile throughout, as is usually the case, the spores are almost exclusively confined to the upper part, where the masses form a parallel line of circles, gradually diminishing in size from the base of the pinnæ to its point on each side of the mid-vein.

THE COMMON PRICKLY FERN is one of the oldest known British kinds, for mention of it is made by Johnson in his edition of "Gerard's Herbal," when in this instance not only the name of the discoverer of the plant, but even the very day of its discovery is given. There it is described as *Filix-mas non ramosa pinnulis latis, auriculatis, spinosis* (Male Fern not branched, with broad ears and prickly leaflets). To the above he adds—

This I take to be *Filix-mas aculeata* major Bauhini (Bauhin's larger Prickly Male Fern), neither have I seen any figure resembling this plant. It groweth abundantly on the shadowy moist rocks by Maple Durham, near Petersfield, in Hampshire. John Good-ger, July 4, 1633.

We may also add that the Prickly Shield Fern is common in certain districts in England, where it is found in a wild state in widely separated habitats, for while it used to be plentiful in Osterley Park, Hampton Lane and Sion Lane, near Brentford; near Hastings, and other places in Sussex, as well as about Tanbridge Wells and near Gurnet Bay, in the Isle of Wight, it is to this day frequently met with near Halifax, and in the neighbourhood of Richmond, in Yorkshire; in Leigh, St. Anne's and Stapleton Woods, near Bristol; in the Isle of Man; near Bromsgrove, in Worcestershire; in Warwickshire; in Shapcombe Wood, near Painswick, in Gloucestershire; in Burton Wood, near Warrington, in Lancashire; in Charnwood Forest; at Kingsteignton, in Devon, and many other places in England. In Ireland the common Prickly Shield Fern is found near Clonmel, at Colin Glen, Belfast, and at Hedge Bank, near Carrickfergus; while in Scotland one still meets with it about Drumlanrig, in Nithsdale, at Peasebridge, and on Cartland Rocks, near Lanark. It is also found in goodly quantities in Wales, near Bangor and Carnarvon; at Cicle, near Beaumaris, and at Lleiniog Castle, Anglesey; and near Wrexham, in Denbighshire.

Polystichum aculeatum has produced but comparatively few striking varieties, although in a list published in March, 1865, by Mr. P. Neill Fraser, of Canonmills Lodge, Edinburgh, we find that no less than twenty-three of them are enumerated. But it was then at a time when British Ferns were at the height of their popularity, and it would be most interesting and most instructive, as a sign of the times, to know how many of these have survived and are now to be found in collections. The most striking variety at present in cultivation is *P. aculeatum lobatum*, a form so entirely

distinct, that by several authorities it has been admitted as a species, and its constancy is such that it has never been noted anywhere to have under cultivation assumed the form of *P. aculeatum*. It is exactly intermediate in size and also in character between that species and *P. Lonchitis*, its fronds being from 12 inches to 18 inches long. In his "Synopsis Stirpium Britannicum," Ray, who gives it as a distinct species, describes it as *Filix aculeata major, pinnulis auriculatis crebrioribus, foliis integris, angustioribus* (larger Prickly Fern, with closer and eared pinnæ and with the whole fronds narrower). And Sir J. E. Smith, who acknowledges that Ray has well marked the differences between *P. aculeatum* and *lobatum*, also rightly observes that the latter is always distinguished "by its much shorter, more crowded, and less scaly pinnæ." Its pinnules are also more entire, being but very slightly auriculate, very convex, thick, and of a glaucous green colour. Like the typical species, *P. aculeatum lobatum*, which is even harder than either *P. angulare* or *P. aculeatum*, it is generally found growing wild on shady hedge banks in nearly all parts of the United Kingdom, as in his "Analysis of British Ferns" Mr. Francis states that—

It is extremely common in Scotland and in the north of England, gradually losing itself towards the south and becoming more and more intermingled with *P. aculeatum*, which, in its turn, is superseded still more southerly by *P. angulare*. In the middle and south of England its recorded habitats are Leicestershire; common about Settle, Yorkshire; Pottery Car, near Doncaster; Matlock, Derbyshire; at Studley, Sambourne, Overley, and Weatherly, in Warwickshire; lane leading to the Vache from Chalfont, Bucks; near Bristol; near Dorking, Surrey; in Hants, &c.; near Yarmouth; Sussex and Kent. In Wales, near Wrexham, Denbighshire; and in Ireland at Colin Glen, near Belfast; Hermitage, County Wicklow; county of Derry; Glen Fee, Clova Mountains; as also in Braid Woods, near Edinburgh.

Of the several crested forms of *P. aculeatum* known, the most exquisite is undoubtedly the one called *acrocladon*, which, we believe, was discovered some thirty years ago in the west of England. In this variety the greater portion of the frond, which attains some 20 inches in length, is narrow, the short pinnæ being slightly crested; while its upper portion is many times divided or furcate, thus forming at the apex a head of dense multifid segments four times the width of the lower portion of the frond. In general appearance this splendid form may be said to correspond to the variety *grandiceps* in the section of *P. angulare*. The variety *densum*, originally found in Devonshire, is a very handsome, bold, and distinct form, with lanceolate fronds about 15 inches long by 4 inches wide, and whose ample and somewhat crowded pinnules give the plant an imbricated appearance. *P. aculeatum proliferum* is a very elegant form, with finely divided fronds, which are sparingly proliferous.

THE PRICKLY SHIELD FERN and its varieties are free-growing, easily managed, and very desirable Ferns for the rockery, fernery, and also for pot culture, as they are all evergreen, delighting in a mixture of sandy loam and fibrous peat in equal parts, resting on a sound drainage. Although when once established the influence of strong light is not injurious to them, they produce finer foliage when grown in a shady position. They require during the growing season to be supplied freely with water, and their roots must be kept constantly moist also during the winter. *P. aculeatum* is also an excellent Fern for pot culture, as it bears indoor treatment much better than most British Ferns. Its propagation is generally effected by means of its spores, which, if sown when they ripen at the end of the summer, make very nice young plants during the following summer, and are very valuable for the decoration of the greenhouse and conservatory during the winter.

S. G.

SHORT NOTES.—FERNS.

Gymnogramma schizophylla gloriosa.—I have before recommended this plant for basket-work, as it grows very freely, and the fronds being pendent, a good specimen produces a grand effect. I noted,

however, recently an excellent example in Mr. Connell's garden treated as a pot plant, and the effect is charming. It requires the heat of a stove, but it is of such an elegant vase-like contour, that all who possess the accommodation should grow it.—W. H. G.

Adiantum farleyense.—There are few Ferns to equal this for bold and massive character, and yet it is not done well in many places. This caused me to note how finely this plant is grown in Mr. Connell's garden at Tooting. It enjoys a high, brisk temperature, and is capable of withstanding a greater amount of sun than most Ferns, but the atmosphere requires to be well charged with moisture.—W. H. G.

—This exceedingly handsome Fern is most successfully treated at Sir Fowell Buxton's. In the stove were two magnificent specimens in 16-inch and 18-inch pots; also, in 4-inch pots, forty or fifty plants which were grown expressly for room decoration. A speciality is made of *A. farleyense* for that purpose, and from the admirable way the plants are grown and their handsome appearance no doubt they are highly appreciated. The plants are grown in good fibry loam, with plenty of crocks, broken fine and put through a quarter-inch sieve, silver sand, and a little good leaf-mould. It is to the use of loam alone, instead of the usual mixture of loam and peat, that the gardener attributes his success. In the same house were some good specimen plants of *Adiantum tenerum* and *trapeziforme*, also a grand piece of the old *Davallia Mooreana*, and several others.—H.

GARDEN FLORA.

PLATE 642.

NYPHÆA MARLIACEA.

(CANARY WATER LILY.)*

SINCE the introduction of the pretty yellow-flowered *Nymphæa* from North America a few years ago we have had no addition to the genus of so much interest as that here figured. The former flowered for the first time at Kew in 1882, and was figured in THE GARDEN in 1883 along with the blue-flowered Australian kind. *N. Marliacea* flowered at Kew in July last, and was greatly admired. It is a seedling raised in the nursery of Mons. Latour-Marliac; Temple-sur-Lot, Garonne, who sent the following information regarding it:—

This *Nymphæa* is from the beauty of its flowers, which measure 6 inches in diameter, and the size of its foliage, quite a distinct kind. It is quite hardy, even in the north of France, and its flowers, which remain open during the best part of the day, are produced in profusion from the beginning of May until the end of October. From the simple beauty of its leaves, which are richly marbled with reddish brown on the surface and blotched with purple on the under side, it may be called ornamental apart from its flowers. I have forwarded quite recently a plant of it to the Royal Gardens, Kew, and I am convinced that it will hold its own amongst the most beautiful of the *Nymphæas* grown there. *N. Marliacea* is the result of saving and sowing the seeds of many kinds ripened here.

The origin of this plant can only be surmised. So far as its botanical characters go, it is very near to *N. tuberosa*, the North American sister to our common white Water Lily. I saw the two carefully compared by Professor Oliver at the Kew Herbarium, and in the form, &c., of the leaves and the structure of the flowers it certainly showed close relationship with the plant figured in the *Botanical Magazine* as *N. tuberosa* (t. 6536). But Mons. Marliac dissents from this view,

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, September 20, 1887, and printed by G. Severeys.



YELLOW WATER LILY (NYMPHÆA MARLIACEA.)

for the very conclusive reason that *N. tuberosa* never produced seeds in his garden. Possibly though, this kind was accidentally crossed with another—it might have been *N. flava* (the marbled leaves and colour of the flower suggest this to me), and the result was a seedling partaking very much of the characters of *N. tuberosa*, obtaining colour only from the other parent. Whatever its origin, *N. Marliacea* is a distinct and beautiful Water Lily, and if it proves as hardy in England as *N. tuberosa* it will be of immense value. Even as an indoor plant it must take rank among the best of the Nymphaeas. At Kew last year, where two plants of it were grown along with the collection of tropical kinds, *N. Marliacea* was in flower till the end of October. It appeared to be quite happy in the tropical tank, producing its flowers usually in pairs, and, as Mons. Marliac states, they were open nearly all day; their colour was a soft canary yellow. At the present time (March) the plants are in full leaf; in fact, they never went to rest in the winter; whereas, all the other kinds, except only *N. flava*, did.

I have failed hitherto to see any difference between the plants which Mons. Marliac has named: (1) *N. Marliacea-chromatella*, and (2) *N. Marliacea-chromatella foliis hepatico-marmoratis*. The names, I need hardly say, are too formidable for these post-Linnean times, and the raiser's own name simply will suffice to enable us to distinguish his beautiful Water Lily from all other kinds.

W. W.

STOVE AND GREENHOUSE.

LACHENALIAS.

I HAVE read with much interest the article on Lachenalias by "Veronica" in THE GARDEN, March 17 (p. 249). He speaks of "ten or twelve species known in books." This is probably much under the mark, as Loudon (Hort. Brit.) gives thirty-six, and Pritzel (Icon. Bot. Index) notices upwards of forty as having been figured, though perhaps some of these may be merely varieties, or the same variety figured under two names. It is highly desirable that someone should take up and give a monograph of the genus, which at this time seems in utter confusion. There is some difficulty in obtaining many of the species true to name. I have had bulbs sent from the Cape Botanic Gardens (where it might be supposed all the commoner sorts would be known) which have not been at all true to name. I do not think any (at least so far as I am acquainted with them) beat *L. aurea* and Nelson's and my own seedlings from this, but I remember a very pretty one I had (now lost) called *reflexa*, of which I find no mention in Loudon, but it is figured in Andrews' "Repository" (5, 299). I have at the present moment a very pretty one in bloom, though small, *L. violacea*, and a new one from Oporto, *L. Cami*, which does not seem to differ from some of the varieties of *L. tricolor*. *L. rubida* I have had for years, and can never persuade it to bloom, and

L. stolonifera (which I think the same) is equally stubborn. Will "Veronica" say how this one is treated? The showy sorts are extremely handsome, but there are many among them not worth growing, except by those who take a real interest in them. If "Veronica" will send me his address I shall be glad to forward him a bloom of *L. violacea*. I should like to know what is called a "good spike" of Lachenalia, how many pips, and how long in the stalk.—A. RAWSON, *Windermere*.

— Like "Veronica" (p. 249), I am an admirer of these plants, and I have several times written about them in THE GARDEN within the last five years. But I do not admire all of them, and one had better make a selection of the fittest for gardens, leaving the others to the botanists. First, however, let me ask "Veronica" who is responsible for the substitution of the name *luteola* for that of *tricolor*. Certainly not Mr. Baker, nor anyone at Kew, so far as I know. There have been notes in THE GARDEN lately about *L. luteola* which have puzzled me, but now I understand; the notes described typical *L. tricolor*, and the name was wrong. Perhaps it will simplify matters if I use the names I know the different kinds by; and it will strengthen my case if I add that these names are Mr. Baker's, and of course used at Kew.

L. TRICOLOR.—This is the best of all. It grows and multiplies freely under ordinary treatment; it flowers well whether forced or not, its blooms last, and it is graceful and pretty. The colours are perhaps wanting in vividness and clearness for some tastes, but, as a rule, the flowers are much admired. The varieties of *L. tricolor* are *luteola* and *quadricolor*, the former being exactly the same as the type, except that it has not the greenish brown colour on the upper part of the flower segments. I have had and grown this with a spike 10 inches long bearing twenty-three flowers. It is not as good as *L. tricolor*. *L. tricolor* var. *quadricolor* is now in flower at Kew, and, if I am not mistaken, Mr. Moore, at Glasnevin, can show it to "Veronica." It used to be grown as *L. superba*, and I have seen plants of it labelled *L. tigrina* Warei. When well grown this four-coloured variety is a gem, as "Veronica" says, but it becomes weak under cultivation, and must be renewed through imported bulbs if possible. Let me recommend growers of these plants to apply to Professor McOwan, director of the Botanic Gardens at Cape Town, for missing kinds. A large stock is grown there, and they are supplied very cheaply.

L. AUREA is better than *L. Nelsoni*, infinitely better in colour, but the latter has gained strength from *L. tricolor*, one of its parents, and on that account it retains its vigour year after year; whereas *L. aurea*, the other parent of *L. Nelsoni*, is apt to become weaker. There is a batch of *L. aurea* in flower in the Cape house at Kew now. The flowers are a clear soft golden colour, without a shadow of green, or brown or crimson, and the bells are large, with slightly spreading mouths. If anyone wants a better looking flower than that of *L. Nelsoni*, then he must get *L. aurea*, but it is a little more difficult to manage.

L. PENDULA is all that "Veronica" has said about it, except that it is exceedingly variable in colour and size of flowers. The best form has stout erect spikes 15 inches long, with from thirty to forty flowers on a spike, each flower $1\frac{1}{2}$ inches long by one-third of an inch wide, and the colours vermilion-red, marked and tinted with sea-green and purple at their apices. The worst form is too plentiful; it has long, weak spikes, bearing only a few flowers less than 1 inch long, and the colours dull.

L. REFLEXA is not much known, but it is now in flower at Kew. It has broad green leaves and erect spikes 6 inches long bearing semi-erect yellow and

green-tinted flowers, which are narrowed at the base and apex. There is a hybrid of this which is better known. Its parents were *aurea* and *reflexa*, and Mr. Nelson is supposed to have raised it. The spike is nearly 1 foot long, and it bears twelve to fifteen semi-erect flowers, which are 1 inch long and one-third of an inch wide, their colour being golden yellow, tinted with purple. The leaf is 8 inches by 2 inches. This plant, named *L. aureo-reflexa* by Mr. Baker, is at Kew, Glasnevin, and in Professor Foster's garden. It used to be called *aureo-reflexa*.

L. ORCHIOIDES is an old stager at Kew, but it looks better in a picture than in a pot. The spike is a foot or more high, half of it covered with flowers half an inch long, packed closely together, and purple-brown or pale purple in colour. It flowered plentifully at Kew last year, as also did *L. contaminata*, *L. fistulosa*, *L. racemosa*, *L. pustulata*, *L. versicolor* var. *Wightii*, and *L. orthopetala*, all of which are certainly beneath the notice of horticulturists, except perhaps for hybridising purposes.

I had almost forgotten *L. Cami*, which is a very strong, free-flowering, deep-coloured form of *L. tricolor*, and of which there are several potfuls now in flower at Kew. It was distributed last year by Herr Max Leichtlin. *L. rubida* is a handsome plant, a sort of mixture of *L. pendula* and *L. tricolor*, but I doubt if it is in cultivation. There are plants under this name at Kew, but they will not flower in spite of all kinds of coaxing. It is the same as *L. stolonifera* and *L. unifolia* of gardens (not of botanists), and is certainly not the true *L. rubida*. The following list comprises the good kinds of Lachenalia, those excluded not being of any value horticulturally: *L. aurea*, *L. aureo-reflexa*, *L. Cami* (Hort.), *L. Nelsoni*, *L. pendula*, *L. tricolor* and its variety *quadricolor*.—W. W.

Cinerarias.—The Cinerarias at Theydon Grove, Epping, are well worthy of notice, the plants having that robust and compact habit, combined with plenty of good healthy foliage one so loves to see, while the size of the blooms and great variety of colour are also very fine. The heads of bloom vary from 12 inches to 16 inches across, and single flowers measure as much as $2\frac{3}{4}$ inches in width. The seed was sown in two batches in March and May, and the plants grown in sound loam, leaf mould, a little manure from an old Mushroom bed, and silver sand. They were kept in cold frames under a north wall till October, when the cold and frosty nights compelled them to be moved to heated pits, where they remained till they came into bloom.—H.

An old *Heliotrope*.—As an instance of the longevity of the common *Heliotrope*, there is a plant here that has attained to a considerable old age. There is not any record as to the time when it was placed in its present position, but it is now twenty-six years since I first became acquainted with it. It is growing in a 16-inch pot, and trained up the cool and shaded end of a greenhouse. It has frequently been re-potted and top-dressed with fresh, light, and rich loam; also, during the growing season, liberal doses of various kinds of liquid stimulants have occasionally been applied. Towards the end of the season it has been annually cut or spurred back. With this little care it has never failed during eight months in the year to supply when required a few sprays of modest-looking and fragrant flowers.—W. B., *Windermere*.

Isoloma hirsuta.—This is a pretty and useful plant for flowering during the winter and spring months, at which time of the year its blossoms are borne in the greatest profusion, though it will often flower in the summer. It is a Gesneraceous plant and a near ally of the *Tydas*, which it somewhat resembles, and the same mode of treatment is suitable for both. The *Isoloma* is of looser habit than the *Tyda*; indeed, it is of a rambling growth unless pinched frequently during its earlier stages, but when this is done it may be grown into an effective specimen. The blossoms are about a couple of inches in length, orange-scarlet in colour, and

not only do they remain in beauty a considerable time, but a succession will be kept up for months. The specific name of *hirsuta* is derived from the brownish hairs, which cover leaf, stem, and blossom; indeed, they form quite a prominent feature of the plant.—H. P.

Aphelandra aurantiaca.—It is possible to have some of the *Aphelandras* in flower nearly all the year round, and not only are the blossoms of almost all the kinds very showy, but the plants are also of easy culture. Of *A. aurantiaca* we have scarcely been without blossoms for the last six months, and there are a few still as bright as ever. I strike *Aphelandras* during the summer months and encourage as dwarf a growth as possible, so that they bloom when in pots 4 inches to 5 inches in diameter, and the plants at the most are not more than 6 inches high. In this way they can when coming into bloom be grouped in pans or otherwise if required, or they may be retained in their small pots and arranged where needed. The vivid colouring of this *Aphelandra* causes it to stand out very conspicuous from most of the stove plants now in flower. The *Aphelandras* are all of easy propagation and culture, for cuttings strike root readily enough during the growing season, and I have also raised a quantity of seedlings of *A. aurantiaca*, but the progeny did not differ from the parent, and seedlings have the disadvantage of running up taller and more naked at the bottom before they flower. In order to retain the leaves as far as possible, the stout terminal shoots which would flower if allowed to remain on the plant should be chosen in preference to the weaker ones, as these last would remain longer, and consequently reach a greater height before blooming. Though the blossoms last fairly well when on the plant they do not retain their freshness long when cut. The foliage of some of the *Aphelandras* is also very ornamental.—T.

Spot on Pelargonium leaves.—I remember some few winters since when visiting Mr. Cannell's Swanley Nursery remarking that, whilst all the other plants were then standing on impromptu soil beds or stages, the show and fancy *Pelargoniums* had trellis stages on which to stand. Asking the reason of the special luxury in that case, Mr. Cannell stated that previously when the plants stood during the winter on the soil beds or stages they suffered very much from spot, and the change was made to open wood stages to get rid of that infection, and with the best results. The obvious inference would seem to be that spot originates very much from damp arising from the soil on which the plants stand, or in some cases, perhaps, from damp arising from the floor of the house. But it is equally possible that it occurs through the water in the pots becoming stagnant through lack of good drainage, as in Mr. Cannell's case it is very probable that drainage on a soil bed was in the pots very deficient or considerably checked. Generally, show *Pelargoniums* also enjoy not only a free circulation of air about both pots and plants, but like some warmth beneath them, especially when very cold or damp weather prevails. All growers cannot get their plants into sweet loam, and a stiff soil lacking in fibre soon gets waterlogged and sour. The best help generally is found in such cases in a liberal mixture of road-saved horse droppings well rubbed through a coarse sieve, as the fibre found in this material is fairly enduring. Still with such material potting must be firm. Over-potting is a too common evil. One of the secrets of successful market plant culture is that the soil is never waterlogged in the small pots employed.—A. D.

Carnation Souvenir de la Malmaison.—This beautiful *Carnation* is fast becoming a popular favourite, for there are few gardens of any size in which a few plants may not be found. The expense of cultivating them is small compared with that of many other things, as they can either be grown in a greenhouse with just sufficient fire-heat to keep out frost, or plunged in a cold frame; but I prefer the greenhouse with plenty of air day and night, except in very severe weather or when cutting winds prevail. They require the greatest care and atten-

tion possible in the matter of watering. The plants like a good sound fibry loam, leaf mould, and silver sand, and no manure is necessary until they are showing bloom, when a little liquid is beneficial. I know several places where they are grown in quantity. At one place there are over 700 plants, and a splendid sight it is to see them in bloom and nicely arranged in a large span-roofed house. Some gardeners grow them on five and six years, but, as far as my experience goes, I think that a period of three years is quite long enough to keep them, as after the second year the plants begin to get leggy. The flowers from an old plant cannot be so good as those from a young one. If two or three-year-old plants are planted out in a cold frame (as soon as they have finished blooming), and layered in the usual way in some nice soil, they will soon be rooted sufficiently for lifting, when they may be put into well-drained 4-inch pots. When well rooted in these the strongest plants may be potted into 8-inch, and the others into 6-inch pots. After potting, it is as well to shade them and withhold water for a fortnight or so. This prevents the soil from getting wet and sour before the roots take possession of it.—H.

WOOD BOXES V. FLOWER-POTS.

I THINK it is Young, in his "Night Thoughts," who says, "Man's greatest strength is shown in standing still," and if Mr. D. Wilson (page 243) had contained himself a little longer until he had fully thought out and comprehended this question on all sides, a good idea might have got at least a fair start. For many purposes connected with plant culture boxes are decidedly better than flower-pots. They are not so easily broken by exposure to frost, nor are boxes to the same extent the chilly refrigerators that pots are to tender plant rootlets at all times when exposed to the weather. One main point in favour of boxes is that they are often waste products, and boxes three times the size mentioned by Mr. Wilson may be purchased for the price (4d.) he names. Cases which have held a dozen of wine cost from 4d. to 6d. each, and I have bought them at 3s. per dozen, but at 6d. each they are cheaper and better than pots for the use specified by Mr. J. Groom (p. 243). Plants in boxes do not become dry so soon as those in pots fully exposed to the air—in a word, they are conducive to a more equable temperature, being cooler in summer and warmer in winter. One cannot readily make and bake one's own flower-pots, but boxes are easily knocked together, and if a coat of brown paint be given them, they are not at all unsightly.

When we come to compare the price of large bushel flower-pots with that of old oaken oil-casks sawn in half, the balance is in favour of the box or tub. Colza barrels cost 2s. 6d. to 3s. 6d. each, so that strong tubs may be had for 1s. 3d. to 1s. 9d. each. We char them clean by setting fire to them inside with shavings before they are used. Painted chocolate colour and the hoops black, they are even more sightly than large pots, and are moved from place to place with less risk from breakage. The point of the whole question is not whether boxes or tubs are to supersede pots, but whether in certain cases they may not prove to be cheaper and more readily obtainable. Mr. Hartland's splendid specimen of the Riverston variety of *Helleborus niger* (engraved in THE GARDEN, March 10) is growing in half a paraffin barrel or oil cask; and I know of a fine collection of *Camellias* which are growing in the same receptacles, neatly painted and having hooks screwed to their sides for convenience of transit. The cost of these tubs, well painted and fitted complete, is about 3s. 6d. each, a price that will compare very favourably with flower-pots of equal capacity. That flower-pots absorb water (p. 243) is a very questionable advantage. Mr. David Thompson, of Drumlanrig, long ago demonstrated that glazed flower-pots (i.e., non-absorbent and non-evaporating) were cleaner and in every other way equal, even if not actually superior, to porous ones as usually made and used in gardens. In China and Japan glazed flower-pots are the rule, and one of the most ancient of natural flower-pots was a box—that is to say, a half joint of a thick, hollow Bamboo cane. I have

seen the *Chrysanthemums* as grown by Mr. Morrison at Narrowwater, near Newry, in boxes, and I can say that such wood and foliage are very rarely seen on plants in pots. The fact of the matter is that, useful as pots may be, boxes and tubs may be quite equal, and now and then superior, to pots for special cultural purposes. That they may often be obtained in larger sizes and at a much cheaper rate than flower-pots goes without the saying. F. W. B.

Beaumontia grandiflora.—There are not many flowers with the beauty and fragrance of this fine *Beaumontia*, and though it has been introduced over fifty years ago, it is surprising how seldom one meets with it, even in gardens where a good collection of stove plants is kept up. A feature of the last meeting of the Royal Horticultural Society at South Kensington was this *Beaumontia*, and the great point of interest was that the large head of magnificent flowers was cut from a pot plant, and not from one trained on the roof, as is usually done. The exhibitor, Mr. J. Anning, of Digswell House Gardens, Hertfordshire, told me that he has a specimen in the East Indian Orchid house which has borne 450 flowers, the average number to each head being about nine. It grew from a cutting in two and a half years, and the temperature of the house is seldom below 60°. No pruning has been done, but the plant has simply been grown on, and is now in a 15-inch pot. That pot culture suits *Beaumontia grandiflora* is obvious, although it is generally considered best grown as a climber. The flowers last several days in good condition, and it needs but very few in a room, as their fragrance is so powerful as to become sickly and unpleasant.

Winter Heath (*Erica carnea*).—This is the earliest of our hardy Heaths to flower, and it is very bright and cheerful at the present time. During mild winters the earliest blossoms of this little Heath will be open soon after Christmas, but this season it is later than usual. I once saw a bed of it one sheet of bloom, the regularity of which was broken by a number of yellow *Crocuses* which cropped up here and there through the Heath and formed together a very bright and glowing spring picture. It is suitable as an edging to the larger *Ericaceae*, and when forming an edging to a mass of the pure white *Andromeda floribunda* the combination is very pleasing, as both of them bloom during the spring, and are consequently at their best about the same time. There is a form of this Heath with white flowers, but it is scarce, and though well worth growing for the sake of variety it is less useful in a general way than the ordinary type. I have seen this Heath employed for flowering under glass, a purpose for which I am surprised it is not more often used, as no forcing is necessary. All that is wanted in order to have it in bloom by midwinter is simply to give the temperature of an ordinary greenhouse. The lighter the position it occupies the deeper will be the colour of the flowers. So close and compact are the roots, that when the plants are required for flowering in pots all the preparation that is needed is to lift them carefully in the autumn and pot them at once. They may then be stood in a cold frame, care being taken that they are not allowed to become dry at any time.—T.

SHORT NOTES.—STOVE AND GREENHOUSE.

Strap-shaped Saxifrage in pots.—Some fine specimens of the early-flowering *Saxifraga ligulata* are now flowering finely in my cold house, and have thrown up many bold spikes of flowers. The plants have been in pots for several years past, and have grown to a large size, and though it might be supposed the soil was exhausted, still the plants flower freely. But it has become necessary to divide and repot them, and this will be done directly the plants have gone out of bloom.—R. D.

Andromeda japonica variegata.—This is a variegated form of the handsome *A. japonica*, and forms, under glass, a worthy companion to the Japanese *Eurya latifolia variegata*, which is frequently met with grown as a greenhouse shrub. This variegated *Andromeda* is quite hardy, but under glass the variegation is brighter and more defined than when the plant is in

the open ground, particularly if it is in an exposed position. In the case of the ordinary green-leaved type, when forced early into bloom the young shoots become of a bronzy-crimson hue, and as this character also belongs to the variegated variety, the opening leaves stand out well from the purely marked variegation of the larger ones. The pure white wax-like blossoms add to its beauty.—H. P.

FORCED HARDY RHODODENDRONS.

A FEW fine plants of these in one of the vineries at Syon House illustrate their value for forcing. They are nice, symmetrical, medium-sized bushes, literally covered with large bold trusses of bloom; one, *Blush Superb*, had very fine trusses of white flowers; the other, *ochroleuca*, had light flowers and was densely bloomed. Decorative objects of greater value at this season of the year can hardly be imagined, and a great many of the hardy sorts are available for forcing both in early and late varieties. A judicious selection would ensure a blooming period commencing in November, and going on until the earlier varieties flower in the spring. It is recommended that any varieties employed for forcing should be potted soon after the flower buds are fully formed, and then be placed in an open sunny position until frost sets in. The cultivator can have some in flower by the end of December, but, taking it altogether, that is perhaps the best month for commencing to force into bloom. The early varieties are found to be quicker in expanding their blossoms than the later-flowering ones. It should be stated that in potting up for forcing purposes only plants well set with buds should be selected, and the balls of roots should be very sparingly reduced. It is the fibrous roots upon the circumference of the ball that are required for the purpose of rooting quickly into the newly added soil, and to needlessly cut these away is to endanger the well-being of the plants. Mr. Woodbridge recommends that

While forcing, a moist atmosphere should be constantly maintained, the plants twice a day syringed overhead, and the roots abundantly supplied with tepid water, with an occasional dose of weak liquid manure after the buds begin to swell. After the flowers are fully expanded, and not a day before, as they will be completely checked and make no further progress with a sudden change of temperature, the plants may be transferred to the conservatory, where the more they are shaded from the sun the longer they will continue in perfection, adding to its attractions, and eliciting from even the most unimpressible of its visitors the warmest expressions of admiration.

When the plants have done blooming they should be placed aside, but not be neglected, until they can be planted in the open air. Forced plants do not set their buds sufficiently numerous the succeeding summer to be of value for forcing, and therefore it is best to have two or three relays, so that each plant might rest at least a year before it is again potted for forcing. R. D.

Rhododendron Countess of Haddington.

—This beautiful hybrid *Rhododendron* has been grown for many years, yet in its way it is surpassed by none of the newer hybrids; indeed, in general characters it stands out quite distinct from any of them. It is the result of a cross between the compact-growing *R. ciliatum* (the parent of so many hybrids) and the primrose-coloured *R. Dalhousiae*. In growth it is more vigorous than either of its parents, for *R. ciliatum* forms a low, much-branched bush with flowers of a pinkish bluish tint, while *R. Dalhousiae* is of a loose straggling growth, and by no means robust in constitution. *R. Countess of Haddington*, on the other hand, forms a good bold specimen, which is more fitted for growing into a large plant than for flowering in a small state. The buds are deep pink, but after expansion they quickly become paler, while the interior of the flower is nearly white. The individual flowers are not so large as those of a good form of *R. Dalhousiae*. It is a grand variety for the conservatory, as it may be either confined in a pot or tub, or planted out with equally satisfactory results. A variety is sometimes met with superior to the kind usually grown, and this is no doubt owing to the fact that a quantity of

seedlings have been raised, and, as a matter of course, there will be a certain amount of variation amongst them. I once raised a quantity claiming the same parentage, and found on flowering that the colour varied considerably, some of the blooms being nearly white. However, there was not one better than the ordinary *Countess of Haddington*. This variety can be struck from cuttings about as readily as any *Rhododendron*, contrary to what one would think, for in a general way plants with hairy leaves are more difficult to root than those which have smooth foliage.—H. P.

WORK IN PLANT HOUSES.

GREENHOUSE.—**KALOSANTHES.**—These free-flowering, showy subjects may be propagated at any time during the spring or summer. But there is an advantage in having the cuttings struck early, as it gives time for the plants to attain a larger size before autumn than when the work is carried out later. Medium-sized shoots should be chosen, selecting them from plants that are strong and short-jointed. The cuttings may either be put singly in small pots, or if the specimens are required to be as large as possible at the time of blooming the summer after next, half-a-dozen shoots may be put in pots a little larger and grown on together. The cuttings should be about 4 inches long. The lower leaves must be removed, for if any are buried in the sand, they will be liable to damp and cause the cuttings to decay. Be careful not to give much water, and do not confine them, as is done with cuttings of ordinary plants; neither is much heat necessary, as a temperature of 55° will answer. They will strike in a few weeks, when they should be moved into pots a size larger. Good rich loam, with a little sifted manure and some sand, is the best soil to use. Many who grow *Kalosantes* still confine their attention to the old sorts, as *K. miniata* and *K. coccinea*. The last-named, unless thoroughly matured by standing out of doors for a long time during summer, is shy-blooming; whereas the varieties *K. Phoenix* and *K. Frederic Dubois* are equal to it in colour and in the size and character of their flowers. They are also more free-blooming and of a better habit of growth. Plants that are intended to bloom this season will now be growing, and should have more water than has been given them through the winter. Keep them close to the glass, letting them have the full force of the sun. Smaller stock that is to be grown on for blooming next year should now be moved into pots two or three sizes larger. Cut out the points of the shoots to induce them to break back.

PELARGONIUMS, LARGE-FLOWERED.—Cuttings of the large-flowered section of *Pelargoniums* and the fancy sorts are mostly put in at the time the old plants are cut back after flowering. But by striking them in spring the young stock gains in size, so that a far better display of flowers is obtained the following spring. The cuttings should consist of stout shoots, produced by plants that have stood during the winter where they have had plenty of light, so as to keep them strong and short-jointed. Put them singly in small pots, drained and half-filled with a mixture of loam and sand, the top all sand. Keep the material moderately moist; and the cuttings will be better not confined, as when exposed to the full air of the house they will not flag. A temperature of about 60° will be sufficient for them. The early-flowering varieties, that with the assistance of heat can be had in bloom in March, are much better for being struck at this season, as the additional size they grow to before autumn admits of their giving proportionately more bloom. When the cuttings are struck, an ordinary greenhouse temperature is best for them. As soon as the pots are moderately filled with roots, move the little plants into others two sizes larger, and pinch out the tops so as to induce the formation of side shoots near the bottom, as without these the plants never look well.

BRUGMANSIAS.—These noble conservatory plants are of easy cultivation, and will do stored away during winter in places where many things that are less effective would not live. Specimens that

were cut back in the autumn after flowering will now be breaking into fresh growth, and should be turned out of the pots or tubs they have occupied. If these are not large enough, others that are bigger should be given. But much may be done to keep large plants in a vigorous blooming state by annually removing a portion of the old soil and replacing it with new that has been well enriched. Manure water may be given from the time the roots have begun to move freely until the flowering is over. See that the drainage is right, as the plants require copious supplies of water, which must be able to pass readily away, or the fleshy roots will soon get out of order. From one-third to one-half the old soil from the upper part of the balls may be removed. Make the new material quite solid by pressing it firmly down. Good turfy loam, not too light in texture, with one-seventh of rotten manure and some sand added, is a suitable compost. After repotting, the plants will be all the better if placed for a few weeks where they can have a little extra warmth, say from 45° to 50°. With this assistance both root and top-growth will be benefited. Afterwards an ordinary greenhouse temperature will suffice. To keep the plants free from the attacks of red spider, to which they are somewhat subject, the syringe should be well used every day during the whole season of growth. The mistake that is often made with these and other plants that are liable to suffer from this troublesome pest is that daily syringing is delayed until the growth has made considerable progress, during which time the insect gains a footing. *Brugmansias* that are planted out in beds or borders attain a large size when allowed sufficient head room, and consequently soon exhaust the limited amount of soil to which their roots have access. About 6 inches of the surface of the border should now be removed, replacing it with good loam, to which add about one-fifth of rotten manure. By this means, and liberal applications of manure water later on, the necessary vigour can be kept up.

NERIUMS.—Where a sufficient stock of these old favourite plants in small pots is provided, the plants come in very useful during the spring and early summer both for ordinary decorative use or for cutting. For the latter purpose the flowers are little, if anything, inferior to *Carnations*. Plants that had their growth well ripened last autumn, and that now have their bloom-buds prominent, if put in moderate warmth, will readily open them; but they are somewhat impatient of much heat and of too much water overhead, either of which often causes the buds to drop. It is safer, therefore, to give the plants an intermediate temperature than subject them to more heat. It is best to divide the stock, bringing a portion on to bloom at intervals of a few weeks. The ease with which these *Neriums* can be grown, the little room they occupy, combined with their distinct character, contrasting, as they do, with all other things, make them worth being grown more than they now are. *Neriums* answer well for covering a bare back wall in a cool stove or intermediate house, the heat in a house of this description having the effect of ripening the wood sufficiently to enable the plants to flower in the same way that exposure to the sun in the open air acts on the plants when the growth has been made in a greenhouse. But when turned out in the manner described, it is essential that the plants should be in a position where their tops will be near enough to the roof so that they may get plenty of light. The enduring nature of the leaves of these *Neriums* is such as to particularly adapt them for covering walls where most plants would get bare. With care in cutting out a portion of the branches low enough down each year, the surface to be covered can be kept well clothed. The free growth of the plants soon robs the soil of its fertility, so that rich surface-dressings require to be given each spring. *Neriums* are extremely free-rooters, but as much soil should now be taken away as can be done without destroying too many of the roots. Loam made rich with rotten manure, and some sand added, will form a suitable top-dressing. After the plants have flowered, and during the time they are making growth, surface-dressings of concentrated manure or manure water should be frequently given.

ERICAS.—It is still necessary to be careful in giving air to Heaths, for the weather is proverbially changeable in the coming month, and if the plants are subjected to cold, cutting winds, the foliage is sure to suffer. Cold winds in spring have an adverse influence on Heaths; the affected leaves turn a deep bronzy colour, which to the inexperienced seems an evidence of rude health, but the foliage so affected soon goes brown and loses its vitality, ultimately falling off or having to be removed. The result of this is that the plants become bare and naked at the bottom, a condition from which they never recover.

POTTING ERICAS.—There are two seasons in which Heaths in general, but more especially the hard-wooded section, can be potted: in spring before the hot, dry weather sets in, and September. No time should now be lost in getting all the plants, both large and small, that require shifting moved into larger pots. See that the balls are well moistened before potting. In carrying out the work ram the new soil sufficiently firm to make it as solid as the balls, without which the latter are sure to get too dry for the roots on account of the water passing off through the new material. The best soil for Heaths is good fibrous brown peat with plenty of vegetable fibre in it. It should be of medium texture, neither too light nor too heavy; better the former than the latter. The heavy, hard, black peat on which the common Heather alone has grown, though sometimes recommended for Heaths, is the worst material that can be used for them. Only a few of the most hard-wooded, slowest-growing sorts, such as the aristata varieties, do well in close hard peat. After potting, keep the house or pit where the plants are stood comparatively close, giving less air, and that at the roof, than at ordinary times. Keep plenty of water thrown about where they stand, and when the weather is sunny put on a thin shade. Continue this for three or four weeks, and by then the roots will begin to move freely.

T. B.

ORCHIDS.

W. H. GOWER.

BLETIA.

MANY of the species of this genus are extremely pretty and ornamental when in bloom, and as the season of flowering in the majority of the kinds extends from the beginning of autumn to the spring months, Bletias are decided acquisitions to a collection, and I find them being asked after. The species are all terrestrial, and, to an ordinary observer, are almost inseparable from Phaius, but on a closer examination of the last-named genus, the labellum will always be found connate with or grown to the base of the column and spurred; whereas in Bletia it is constantly articulate with the column and never spurred. The species here quoted are nearly all natives of tropical America, being mostly found in wet and swampy situations, and under cultivation all will succeed in the cool end of a Cattleya house, or even in a lower temperature. These plants should not be elevated above the rim of the pot, but placed an inch or so below the soil, which should consist of light turfy loam, leaf-mould, and peat, to which should be added some sharp sand. Drain the pots well and water freely during the growing season, and immediately the Grass-like leaves begin to change colour reduce the quantity and continue to do so until the foliage is all gone, when no water will be necessary until fresh signs of life appear. If requisite, Bletias should be re-potted soon after growth has commenced. Whilst the plants are dormant, they should stand in a cool (not cold), dry place, but as soon as they begin to push up their flowers and new growth remove them to the Cattleya house, where the pleasing colours of their flowers will

be very attractive. The following are amongst the most desirable kinds:—

B. SHEPHERDI.—The flowers of this I have always considered the most pleasing of any of the species I know. Large examples of this plant used to bloom annually in the Kew collection during the winter months, and, if I mistake not, the species still exists there. It is a somewhat tall grower, bearing broadly-lanceolate, plaited, bright green leaves, with numerous, but moderately-sized rosy purple flowers, the lip having some yellow lines on the crest. It is a native of Jamaica.

B. SHERRATTIANA is a fine large-flowered species introduced by the Messrs. Low, of Clapton, somewhere about the year 1864. It has circular, flattened, corm-like pseudo-bulbs, and bears numerous large rosy purple flowers, the lip being the deepest coloured and having three golden yellow lines, which extend the whole length. It comes from New Grenada.

B. GRACILIS is the smallest-flowered kind I know, but what it lacks in size it compensates for in quantity, as it blooms very freely. In general habit it resembles the other varieties, but it produces a much-branched scape, which bears a profusion of lilac flowers with a purple lip. It blooms in late autumn, and comes from Mexico.



Cymbidium Lowianum.

B. PATULA is a fine West Indian species, which does not differ in general outline from the others; the flowers are of moderate size, about 2 inches across, of a rich rose colour, and bearing on the disc six white fringes, which extend nearly the whole length of the lip. It blooms during the spring months.

B. CAMPANULATA produces usually in the spring only a few flowers, which last a long time in full beauty; the flowers are of a uniform deep purple, with some white streaks on the lip. It is a native of Mexico.

B. HYACINTHINA is a native of China and Japan, and is said to be hardy. I have grown it at the coldest end of the Odontoglossum house in the Messrs. Rollisson's nursery at Tooting, the end furthest from the boiler being very cool. It is a strong growing plant and produces large, fragrant flowers, which, however, are not so spreading as those of the American kinds. The scape is slender and erect, 1 foot or 15 inches high, and bears numerous flowers, the sepals and petals of which are rosy purple, whilst the lip is white, edged with purplish crimson, and streaked with red in the centre. The variety albo-striata does not differ in the colour of its flowers, but the plaited leaves are prettily veined with white.

The Mexican Tulip is an appropriate English name for Cattleya citrina, an Orchid that is now

flowering at Messrs. Veitch's and several other establishments. Its pendent flower is very much like that of the yellow Tulipa sylvestris, the colour strikingly rich and the fragrance most delicious, something like honey. It blooms freely when kept cool, and a row of plants in full flower gives great beauty to the Orchid house, besides loading the air with a powerful refreshing perfume. As is well known, it must be tied to the block, with the leaves hanging downwards, as under these conditions it is found on the trees in its native Mexican home, and refuses to grow in any other position.

CYMBIDIUMS AT STREATHAM.

IN Mr. Southgate's garden there are at the present time several good examples of this genus in bloom, and none are grown in the great heat that was once considered necessary for Cymbidiums. There are some good specimens and excellent varieties of *C. Lowianum*, named in honour of Mr. Low, of Clapton, (who, by the way, has a magnificent lot of this species). The spikes are very long, bearing numerous flowers; these are large, yellowish green in the sepals and petals, lip cream coloured, blotched on the disc with maroon, the middle lobe being broadly bordered with velvety

maroon. *C. Devonianum* is another species now flowering here which one does not often see, although it appears to have been introduced nearly fifty years ago. It is a dwarf compact-growing species with somewhat the habit of *C. eburneum*, but having broader leaves, which are of a deeper green. The spike is pendulous, from a foot to 18 inches in length, bearing numerous flowers, each of which is about 1½ inches across. The sepals and petals are olive-green profusely lined with spots of deep purple; lip heart-shaped in front and recurved, reddish purple in colour, and bearing an eye-like spot of deep velvety purple on each side of the throat. It is a native of Northern India. *C. eburneum* is also a native of the northern parts of India, in positions where in the cold season it frequently gets snow upon it, and yet we used in the early days of Orchid growing to keep this species in the hottest place because it came from the East Indies. The result of such treatment was that it seldom flowered. Happily, one now frequently sees its large, white, Tulip-like flowers. It is compact in growth, with narrow, dark green leaves from 1 foot to 18 inches in height. The flowers are large, borne singly or in pairs on erect scapes, are thick and fleshy in texture, and pure waxy-

white, saving a stain of yellow along the centre of the lip. In some forms there are spots and dots of crimson on the lip. W. H. G.

Cool treatment of Odontoglossums.—In the Messrs. Jackson's nurseries at Kingston there is at the present time quite a show of *Odontoglossum* flowers, especially of *O. Alexandræ* in variety and *O. triumphans*. It is not, however, to draw attention to their extreme beauty that I send you this, but to note the fact that during the past winter they have been subjected to a very exceptional temperature, for the glass has frequently been as low as 38°. This I, however, consider too low, and although it does not appear to have had any detrimental effect upon the flowers, the foliage is somewhat yellow. The cool treatment of Orchids was commenced in these nurseries many years ago, but I do not think they will succeed without heat.—G.

Dendrobiums at Dunedin, Brixton.—I here noted recently some of the most beautiful forms of *D. Wardianum* I have ever seen, remarkable alike for the size of the individual flowers and the great depth of colour in the sepals and petals. These plants were growing in pots suspended from the roof, and the shoots hung in a natural manner, which I think far the best, for although I cannot affirm that to tie them up straight influences the colour, I am decidedly of opinion that it reduces the size of the flower. Here also I noted numerous examples of that gem of the genus, *D. Devonianum*, with its large lip fringed like the calyx of a Moss Rose, and stained with rich orange; the flowers are very delicate, and hence they do not last so long as do those of some other kinds. Plants of *D. nobile* were also good, and the same remark applies to *D. crassinode*, which comes in some instances very like *Wardianum* in growth. What I think is a somewhat rare form is *D. crassinode albiflorum*, in which the sepals and petals are pure white, the lip also white, stained at the base with a yellow blotch. This is apparently a recently imported plant, and should be taken care of.—W. H. G.

Lycaste Measuresiana.—I recently noted this very pretty plant flowering profusely in The Woodlands collection at Streatham, and I am somewhat surprised that such a gem should not become more widely popular, especially as it is a plant so easily grown. In habit of growth it much resembles *L. plana*, and bears stout oblong-obtuse bulbs, which support large deep green leaves. The sepals are spreading and bronzy-red, running into green at the tips, petals small, projecting forward, convolute over the column and recurved at the tips, white, ornamented with a profusion of spots and dots of bright rose colour arranged in lines, which, however, do not run out, but stop short, leaving a clear white border all round; lip rather small, similarly coloured to the petals. It produces a quantity of flowers from each bulb, and they remain a long time in full beauty. The plant appears to thrive well along with *L. Skinneri*, with numbers of which, in great variety (including the white form), they were associated.—W. H. G.

Cypripedium Godefroyæ.—A beautiful species of Lady's Slipper, which is now becoming more popular and plentiful than it was a few years ago, and which, like all the other forms of this now extensive genus, appears to vary much in different plants. An excellent variety of it, however, was recently in bloom in the gardens of Mr. Measures at Camberwell. The ground colour of the flower is creamy white, blotched and spotted profusely with purplish chocolate; the lip is slightly compressed, and is creamy white dotted all over with crimson. This plant also has very handsome foliage, resembling somewhat that of *C. niveum*, to which section it belongs, but it is much freer than that species. It comes from Cochin China.—H.

Polystachya pubescens.—This is a very pretty and delicately fragrant species from South Africa, and although not very showy, it would appear to be a perpetual bloomer, for I do not think it has been without flowers for the last twelve months in Mr. Measures' garden, where it is much prized. The flower-spikes are produced from between the leaves, and attain a height of 6 inches or 9 inches, densely clothed with golden-yellow flowers, more or less streaked with red,

and which appear to be turned upside down. Mr. Ellis, at Hoddesdon, used to possess a very large form of this plant, which he had gathered himself, but I do not know from what locality.

ORCHIDS AT BUSHEY DOWN, TOOTING.

THIS, the residence of Mr. Connell, is pleasantly situated on Tooting Common, and has always been noted for its plants; but on a recent visit I was much surprised to see the increase in house room for their accommodation and at the quantities of Orchids now to be seen flowering in them. Amongst the most notable now displaying their charms are a goodly number of *Cattleya Trianae*, and amongst them some remarkably fine varieties both in the delicate section as well as those with richly-coloured lips. I have observed in my ramblings that this *Cattleya*, as a rule, is not nearly so fine as last year in the majority of places, but here Mr. Mason says he finds no difference. The plants appear to luxuriate in the situation they occupy, which is a light and airy house large enough to allow of good specimens. Associated with these are beautiful examples of *C. amethystoglossa*, the bright-flowered, sword-leaved *Lælia harpophylla*, *Dendrobium primulinum giganteum*, *D. Jamesianum*, *D. nobile*, and *D. Wardianum*, some fine varieties of the old *Oncidium sarcodeum* and *O. Kramerii* and *Papilio*. There also are some *Vandas* and an excellent form of *V. cærulescens*, together with several varieties of *tricolor*, which quite perfume the house with their aromatic odour. Numerous *Cypripediums* contribute to the display, the most remarkable being the now seldom-seen *C. hirsutissimum*. Amongst *Phalænopsis* I noticed one grand variety of *grandiflora*, the flowers being of immense size; indeed, it seemed to be the largest variety which has come under my notice of late years. Growing with the *Cattleyas* were also some flowering plants of *Odontoglossum Phalænopsis*. These, I was told, were grown in the situation in which I saw them, affording proof that this species does certainly require more heat than the *O. Alexandræ* type. With this also is now flowering *Cymbidium eburneum* and many other things. In a cool house were numbers of *Odontoglossum Alexandræ*, *Rossi majus*, the now by no means plentiful *O. cirrhosum*, and various forms of *Sophranitis*, including a form called *aurantiaca*, which is distinct and beautiful, the whole flower being of a yellowish orange, and producing a striking contrast with the scarlet of the other flowers. W. H. G.

SHORT NOTES.—ORCHIDS.

Odontoglossum cordatum sulphureum.—This is a somewhat singular plant, resembling the species in habit, but having the sepals and petals of a more or less pale yellow hue, the lip being white. I believe this was introduced by Mr. Sander, of St. Albans. I recently noted several plants flowering with Mr. James at Norwood.—W. H. G.

Dendrobium Draconis, perhaps better known to some as *D. eburneum*, is both distinct and beautiful. It belongs to the nigro-hirsute section, producing fusiform stems about a foot in height, which bear somewhat coriaceous leaves. The flowers, which are produced on lateral racemes near the apex of the stems, are large and pure white; the lip is broadly striped with Roman red. It is a native of Burmah. Nice examples are now flowering in the nursery of Mr. James Castle, of Dulwich.

Dendrobium Findleyanum.—This is a most desirable species, especially when seen in the condition I recently noted it in in Mr. Southgate's collection at Streatham. A plant was growing upon a block and bore hundreds of fully expanded flowers, which are large, and produced on short racemes two and three together. The sepals and petals are white, faintly suffused with pink; lip woolly, golden yellow, and with a pinkish margin. It is an early bloomer, and, consequently, invaluable to those requiring flowers through January and February.—W. H. G.

Trichopilia suavis alba.—The flowers of this, as in the case of those of the type, are very fragrant, the odour resembling that of Hawthorn. In general habit the variety resembles the typical plant, which used to be so well and so largely grown by the late Mr. Day, of Tottenham. The flowers are entirely destitute of the rosy dots of those of *T. suavis*, and

are pure white saving a yellow blotch in the throat. It succeeds best in the temperature of an intermediate house. This plant was recently flowering in Mr. Measures' collection at Camberwell.—W.

Lælia flammea.—This is a very rare Veitchian hybrid, the result of a cross between *L. cinnabarina* and *L. Pilcheriana*, the latter plant itself a hybrid, obtained by Mr. Dominy between *L. Perrini* and *Cattleya crispa*. *L. flammea* is of medium height, the bulbs stem-like and bearing a single leaf. The scape carries several flowers, which are nearly 4 inches across, sepals and petals of a brilliant cinnabar, whilst the three-lobed lip is rich crimson, the side lobes, which are rolled over the column, being yellowish orange. This rare and handsome form was just passing out of flower on my last visit to Mr. Southgate's collection at Streatham Hill.—W. H. G.

KITCHEN GARDEN.

SENSATIONAL CROPS OF POTATOES.

It frequently happens that when a new variety is first distributed the description of it is accompanied with glowing testimonials from some of those who have been favoured with a few tubers for trial. Naturally only those highly favourable in character are published, and what are most preferred by the vendors are statements giving the weight of the crop obtained from a certain space of ground. The first impression on reading these statements is that either the variety yielding such enormous crops is altogether out of the common category, or the figures given are grossly exaggerated. As it happens, they may be neither one nor the other, and the worst that can be said about them is that the descriptions or testimonials are misleading, and consequently would have been better left out of the catalogue. The inexperienced are not supposed to know that such extraordinary crops are the result of first-class culture, the figures given being in reality no criterion of the value of any particular variety. Under ordinary culture many of the newer kinds I believe to be superior, as far as weight of crop and appearance are concerned, to the older favourites, but the purchasers of them expect something immeasurably better, and are disappointed accordingly.

Those who may have a few tubers they are anxious to make the most of should adopt the plan of rapidly increasing their stock that I used to practise when the rage set in for exhibition Potatoes. I have given as much as 4s. a pound for the tubers of some of these varieties. One of my first investments in this direction consisted of two tubers, one large and sound, the other small and slightly diseased. To commit these to the ground in small pieces would have been too risky, and remembering that in Germany rooted sprouts had in a time of scarcity been planted with excellent results (the tubers being eaten), I decided to try what could be done in a similar direction. Early in March the tubers were laid in a pan, covered with fine sandy soil, and set on a warm staging in front of an early Peach house. Every eye soon pushed out one or more sprouts, these being well furnished with roots. When the shoots were about 3 inches high the tubers were taken out of the soil and all the former carefully pulled off, the latter being then returned and covered with soil as before. The sprouts were divided, and all were then potted off singly, good loamy soil, previously warmed, and 3½-inch pots being used, some of the roughest of the compost being all the drainage given. These were also set on the front staging of the house and watered. The sprouts soon became well established, and this batch was then transferred to a greenhouse shelf. A second and much more plentiful crop of sprouts was again formed on the tubers, these being eventually

treated similarly to the first lot. Even then the old tubers were not quite exhausted, and a few more good sets were obtained, but this time they were divided into as many pieces as there were rooted sprouts. Altogether sufficient plants were obtained to form a row 17 yards long.

By the middle of April all were of good size and strength, and hardened off sufficiently to be planted out. They were given a deeply-dug, thoroughly pulverised ground, and were planted 8 inches apart in a shallow drill, and at once well moulded up. The tops were further protected by inverted flower-pots with the holes covered whenever frosts were anticipated, branches of Evergreens being substituted later on. From first to last capital progress was made, and excellent early crops were lifted. I ought, perhaps, to add that the variety experimented on was the *Pride of America*, and which was to surpass all other previous introductions. Under my special treatment it produced extra fine and handsome tubers, but under ordinary cultivation it differed only slightly, if at all, from *Snowflake*. Four bushels of tubers from 6 lbs. of sets may safely be considered a grand crop, but I lifted 2 bushels from the produce of 1 lb. of seed, and as they were sold at a high price for retailing purposes I was well repaid for my pains. Since that time I have rapidly increased scarce varieties in a similar manner, *Village Blacksmith* being the last experimented on, but not for the purpose of supplying sensational or misleading testimonials to vendors of novelties.

Those who receive Potatoes for trial ought not to unduly favour these in any way, but if grown alongside older varieties and prove much superior to these under similar treatment, they deserve a good testimonial, and the vendor is justified in making a fair use of it. Now that the novelties are sent out at a cheaper rate than formerly, 1s. a pound being perhaps the average price, there is less need to resort to the method of increasing the stock just detailed, but it is unwise to plant without some kind of preparation, especially if it is thought advisable to freely cut up the tubers into small sets. Tiny pieces of Potatoes are apt to die or the weakly sprouts formed on them eaten by slugs. All may well be started into growth before they are cut and planted, and preferably in boxes of fine soil set in a cool house or frame, in which case the sprouts are stronger and better rooted than are those uncovered. When the shoots are about 3 inches long the tubers may be cut into as many sets as there are sprouted eyes, and be at once planted in the open ground. The soil ought to have been thoroughly well prepared for them, and if it cannot be got into a finely divided state, the sets when planted must be surrounded with fine light material from the frame ground, as it is useless to plant the delicately rooted Potatoes in lumpy soil. They ought at once to be moulded up and lightly protected from late frosts. A large crop is often obtained in this way from a small number of tubers of a new variety; but it does not follow that the latter is so much superior, as equally good results may be obtained if older sorts are similarly treated. The many-eyed round or flattish kidney varieties can be most rapidly increased, the *Ashleaf* and *Lapstone* types being the worst in this respect. One strong set of either of the latter with uninjured central sprout planted intact and given good room will frequently yield more tubers than several cut sets. They are among the best croppers we have, but are not of the description that affords grounds for a sensational paragraph. W. I.

CROPPING A KITCHEN GARDEN.

I FIND it of great assistance to arrange at this time of the year a complete plan of cropping for the whole season, the object being to facilitate the work at a busy time, and make the most of the ground by ensuring a good system of alternate cropping and the classification and assignment of the different sorts of vegetables to the best positions. For this purpose the first thing to do is to take a rough sketch or plan of the garden and make a note of the existing crops and ground they occupy, so as to know when the ground is likely to fall vacant. This done, the full extent of ground for the earliest as well as main crops can be allotted out. Presuming that by the beginning of March all vacant ground has been well manured and dug, it will be easy to call to mind the exact positions of last season's crops, and thereby avoid a repetition of the same again, for I believe that the variation of crops is a sound principle to work upon, and each crop should be as dissimilar as possible from the preceding one; for instance, the ground that last year grew Parsnips, Carrots, or any other tap-rooted crop should be succeeded by those of a fibrous-rooted one, or *vice versa*. It is, I believe, generally acknowledged that a succession of crops of the same kind will impoverish the soil much more than the variation or rotation system, and the crops are likely year by year to become deteriorated, although heavy manuring may in some measure improve the fertility of the soil. Again, some crops are more exhausting than others, and this should be carefully noted, for, when manure is limited and the garden small, it may be impossible to vary the crops so precisely as to give every one its proper place. It will be found an advantage to classify the main crop by sowing Parsnips, Carrots, Beetroot, Salsafy, Turnips, Onions on one plot of ground one after the other; the same may be said of Brussels Sprouts, the different sorts of Broccoli, Cabbage, winter and spring greens, all of which occupy the ground for the greatest length of time; the soil then becomes vacant in more regular order. Peas, Beans, Potatoes, Leeks and Celery should be subject to the same arrangement. Having now given a general idea of arrangement, the next important matter is to choose a plot of ground for the sowing of small seeds; this ought not only to be a sheltered place, but should have some extra preparation by adding a fair quantity of charred refuse rather than manure; dig it over in two or three ways, and leave it as it falls from the spade to be raked down fine as wanted. Here nearly all the plants that are wanted for the season can be raised by sowing at different times, choosing a day when the surface is dry.

I will now begin with the early crops, and treat them separately, as they ought to have the best and driest soil, as well as the most sheltered position in the garden, which is generally on a border with a southern aspect, the soil of which should have been previously prepared during the winter. Here may be grown Peas, Broad Beans, early sorts of Potatoes, French and early Short Horn Carrots, and a few Turnips, while between the Peas a few rows of Spinach, Lettuce and Radishes, which come off quickly, and are therefore no hindrance to those crops of larger growth. A piece of ground on this border should be reserved for the earliest Cauliflowers from frames, and later on for a crop of dwarf Beans. All the crops above mentioned will come off in time for Cauliflowers, a late crop of Kidney Beans, Cape Broccoli, Endive and Lettuces or any other crop of short duration.

Coming to the main crops, for instance Peas, which are an important crop on account of the great demand for them while in season, and which will do well on ground previously occupied by Celery, or even where Parsnips and Carrots have grown, a good plan practised by myself and others is to sow on the ridges between Celery trenches. I, however, only do this when short of ground and am able to get the trenches out sufficiently early. Parsnips, Carrots, and other tap-root crops may succeed Potatoes, while the latter can take the space the former occupied; but the plot for Onions I prefer to have manured in autumn and laid up rough or in

ridges, broken down early in March, and allowed to get well pulverised and dry before sowing. Firm soil suits Onions well.

The space occupied by Brussels Sprouts, Broccoli, and spring greens I generally square off for the whole crop of Celery, Leeks, Cardoons, and some late Peas, Beans, and Spinach, and as this soil has carried a rather exhausting crop and lain so long unmoved, extra manure and labour will be necessary to restore it to its former state. Runner Beans I generally grow next to the Peas, provided the soil is rich and I can give them room enough. These require mulching in dry weather and frequent waterings; therefore, grow them where this can be plentifully supplied. Success depends as much or more upon that than a deep rich soil. The space for the main summer crops being provided for, a very important consideration is those that are to stand the winter and afford a supply for several months. The first of these are Brussels Sprouts, and as they should be planted early there will be no time to take a crop from the ground previously; therefore a plot of sufficient size of the winter-prepared ground should be selected not only on which to grow this crop, but most of the late Broccoli also. By this arrangement a large plot of ground will fall vacant about the same time for summer use the following year. Autumn and winter Broccoli may follow these if space can be allowed, arranging the sorts so as to come in rotation as near as possible. For such important crops I do not like to see so much of a patching system carried on. It is a great hindrance to a systematic cropping, and increases the difficulty of the preparation of the soil for any particular crop.

Savoy, Rosette Colewort, Sprouting Broccoli, and winter greens of sorts are the next to consider. Space for these can be found from that taken up by early summer crops as they come off, such as where Spinach, Broad Beans, Peas, and Potatoes have grown. There are many crops to be considered which are important and indispensable, but which occupy but little space, and yet come quickly into use, such as Spinach, Lettuce, and small salading; there will always be found ground at command for them. I have so far said nothing of ridge Cucumbers, Vegetable Marrows, and Tomatoes. The former are generally planted on a prepared bed of heating material; while the Marrows will do well on a mixture of garden rubbish and manure, and do not occupy much space; while Tomatoes will occupy a suitable position on the walls.

I have penned the above remarks with a view of encouraging a little more thought and system in kitchen garden work among young gardeners, and I hope they will find it, as I have done, a very necessary part of their work. THOMAS RECORD.

Mushrooms on spent Melon bed.—In a span-roofed house last summer I grew a crop of Melons, they being trained up to the wires. A bed about 2 feet deep was made up with leaves and hot manure. When the fruit was swelling I top-dressed the Melons with fresh cow droppings gathered from an adjoining field. Nothing was done to the bed after the fruit was cut until the autumn, when the house was required for wintering *Pelargoniums*, &c., the cow droppings being then quite dry. The bed was levelled down and made firm, the cow droppings being mixed with the soil and a covering of ashes put on the top. The house was kept at about 40° until nearly a month ago, when I perceived something pushing up the soil, and found that the pots standing on the bed were being tilted to one side. On examining the bed I found it to be full of spawn. I gave it a good watering, and raised the temperature to 50°, and kept a little moisture about the house, and now the bed is producing a quantity of beautiful Mushrooms.—H. W. P.

Peas.—"Hortus" in THE GARDEN, March 17 (p. 244), asks someone to name a better Pea than *Ne Plus Ultra*. If he means quality and a sweet Pea, probably there is no better. But everyone does not like so sweet a Pea. I rarely ever grow *Ne Plus Ultra*, and never *British Queen*; in our rich heavy soil these varieties grow so weedy, that in a wet season they are a very unprofitable crop. That,

no doubt, is the case with many other growers; some I know to be so. I once had the straw of British Queen 14 feet long; it grew to the top of the sticks, then came down and up again, I grew one row of Ne Plus Ultra last year. But this year, although I grow a great many Peas, not one of "Hortus's" special favourites is amongst the number. Few gardeners have a greater demand on them for Peas than I have. I have no great space to spare; therefore, all my sorts must carry a heavier crop than those mentioned by "Hortus." Nurserymen, as a rule, know the wants of their customers, and are able to give advice as to the different soils. A nurseryman near here, last year, was sold out of his stock of Telegraph three times, so great was the demand for it among farmers.—NORTH YORKSHIRE.

KITCHEN GARDEN NOTES.

WHEN TO PLANT ASPARAGUS.—There is no fixed time for planting Asparagus, so much depending upon circumstances. As a rule, the planting on naturally cold and heavy ground may well be delayed till the end of April or early in May, at which time the soil should be fairly warm and in good working order. If done much before that time, the chances are that fully one-half the plants will perish and the remainder not grow strongly. Where the soil is light and warm and on a gravelly, well-drained subsoil the case is very different, and early planting may safely be resorted to. On no account should a start be made during the prevalence of cold, drying winds, as these injure the delicate roots. Home-raised plants are preferable to those that have to be brought in simply on account of the former being much longer exposed to the atmosphere, several days frequently elapsing before they reach their destination. Those raised near where they are to be finally planted are usually most carefully lifted, fewer roots thus being broken, and if kept in flat baskets or on handbarrows and closely covered with mats till they are replanted, not much check is given them. I prefer either strong one-year-old or good, thinly-grown two-year-old plants, and these are never moved until active growth has commenced; but if I had to obtain plants from a distance, they would be ordered before the end of March, or before either the shoots or roots were active. Instead of at once planting these, they would be set closely in a cold frame and well covered with light fine soil, and not allowed to become dry. Thus treated, they will have partly recovered from the severe check given, and may safely be transplanted after they have made both top and root growth. Asparagus may safely be planted any time in May. It is better to wait till then than to risk the loss of many plants by planting before the ground is in proper condition.

METHODS OF PLANTING ASPARAGUS.—On deep, well-drained alluvial soils the Asparagus frequently thrives surprisingly well, even when no more pains are taken with it than with ordinary vegetable crops. In such instances, or where the soil by good cultivation has been gradually brought into excellent order, say to a depth of from 18 inches to 2 feet, there is no necessity to go to any farther expense, nor, unless for the sake of securing extra early produce, is there any need to form raised beds. Some of the most profitable Asparagus plantations I have yet seen are on the level, and I would advise the plan being given a trial on a small scale generally. If it succeeds, the majority of new plantations may be formed on the level, and if it fails, then the older methods must still be followed. Newly-formed fruit plantations are capital positions for experimenting in the direction indicated. The wonderfully strong growth made by a few Asparagus plants dotted among fruit bushes first caused a large market grower to plant largely on ordinary well-manured, deeply-dug ground, and he now finds Asparagus the most profitable of any vegetable crop grown. Supposing the ground has been previously got into good working order, the surface being thoroughly broken down with forks, wide drills may be opened with the spade 3 feet apart. In these drills little hillocks should be formed about 2 feet apart, and on each of these set a plant, carefully spreading out the roots and covering with some of the finest surface soil. The crowns when

covered in ought to be 2 inches below the surface. A handful of bone-meal given to each plant is not lost on them. If raised beds are necessary these may be 6 feet wide, with 2-feet alleys between them, these to hold three rows of plants, while if formed 4 feet wide they will hold two rows of plants. The produce will be somewhat earlier than in the case of wider beds. The outside rows in the latter should be 15 inches from the edges, and in the narrow beds each may be formed 12 inches from the edge. Open drills as just advised, and form the hillocks 18 inches apart. If the soil is of a heavy nature it is advisable to surround the roots with fine light compost, such as old Cucumber and Melon soil, old potting soil, leaf soil and sand. The corners of all raised beds ought to be marked with stout pegs.

SOWING ASPARAGUS SEED.—About the first week in April is a good time to sow seed of Early and Late Giant, Purple Argenteuil, Conover's Colossal, and the Giant or Battersea. Select an open, well-prepared piece of ground and draw the drills about 1 inch deep and 12 inches apart. Sow the seed thinly, cover with fine soil, and eventually thin out the seedlings to about 6 inches apart.

PLANTING SEAKALE.—Where large quantities of roots are lifted and forced every winter, fresh plantations have to be made annually, and it is also advisable to replace worn-out plants that are forced where grown. Given plenty of manure, the latter will with very little further attention remain in a profitable condition for six years or longer, but sooner or later the plants become exhausted and less profitable than young roots. One-year-old or at the most two-year-old roots are the best for lifting and forcing early in pots, boxes and Mushroom houses, and no time should be lost in commencing their preparation. The strong young roots or "thongs" saved when lifting for forcing took place, many more being cut off the old stems after they were forced, cut into 4-inch lengths, and the smallest end snicked by way of a guide to those planting, are suitable for planting. We prefer to first dibble them rather thickly in boxes of fine soil, setting them in a cool house or frame where they soon commence both top and bottom growth, and they are naturally well ahead of those not so started from the first. The root cuttings, whether previously started or not, should, early in April, be put out 12 inches apart in rows 18 inches apart, and only just below the surface. If planted in good, well-manured ground, fine strong crowns will be formed during the growing season, and will be far better than any raised from seed. Some of the best of the forced roots may also be re-planted, and if given rather more room will have formed several good crowns by the end of summer. These may either be forced on the ground or moulded up with leaf-soil, spent tan, or clean ashes, and allowed to start and blanch for use during April and May.

PERMANENT SEAKALE BEDS.—It is from these that the finest and most succulent Seakale is cut, though seldom so early as it can be had from lifted and forced roots. The hotbed material used for forcing being of a rubbishy character, it is advisable, where possible, to form the beds outside the garden walls and conveniently near the frame ground. It should, however, be well away from trees or shade of any kind, and the ground ought to be frequently manured and deeply dug. In order to enclose several crowns under one pot and as many pots in one hotbed as possible, it is necessary to group the plants when the bed is first formed. If more than one bed is formed, each may consist of two rows 2 feet apart with a 3-foot alley or space between. Plant in groups of three 6 inches apart each way and the stations 2 feet apart in the row. Strong seedlings of last year's raising are very suitable for forming these permanent plantations. As most of them usually develop a flower-head, this ought to be prevented, and can be done by cutting the crown clean across, as is done when cutting Seakale for use. Each will then form a number of side shoots, and these being reduced to three in number will be followed by strong crowns. If seedlings are not to be had plant either the best of the lifted and forced plants or root cuttings, and in

every case put them well into the ground, the tips only showing on the surface. Slugs must be destroyed or kept away, as these feed on the young growth. The variety known as Lily White is most to be relied upon, as it blanches more perfectly than the old form, and ought therefore to replace it.

SOWING SEAKALE SEED.—Now is a good time to sow Seakale seed. An open and fairly rich piece of ground is suitable, and the seed may either be sown thinly and broadcast, and pressed into the surface and covered with about 1 inch of fine soil, or thinly in shallow drills drawn 12 inches apart. Slugs and the Turnip fly are troublesome to the seedlings, and they must be kept off by dustings of soot and lime.

CHOU DE BURGHEY.—If an autumn supply of this Cabbage Broccoli is needed, a pinch of seed ought to be sown in gentle heat any time during March, the seedlings being duly hardened off and pricked out on a sheltered border in common with early Broccoli and Brussels Sprouts. More seed may also be sown on a warm border early in April, the plants thus obtained affording a good succession to those raised in heat. Finally transplant them to an open well-manured quarter, where the plants will attain a great size, and form large, close, conical heads, which are available any time from October until mid-winter. After repeated trials I have arrived at the conclusion that these early crops of Chou de Burghey are, as far as this place is concerned, of no value whatever, no one caring to eat them, while Broccoli, Coleworts, and Savoy are plentiful. It is during February and March when it is most appreciated here, and only late crops are now grown. The seed is sown thinly on good open ground either late in April or the first week in May, and the plants when ready are at once dibbled out in close succession to early Potatoes. Planted 15 inches apart in rows 2 feet apart, they do not become unduly coarse, but, on the contrary, form neat, well-blanch hearts, which if covered with the side leaves are uninjured by frost and very tender when cooked.

EARLY SAVOYS.—A few early Savoy are sometimes acceptable. Little Pixie or King Koffee after an early frost will, if well grown and properly cooked, be found very tender and mild in flavour, and as these take up but little space, a few short rows may well be planted. The seed may be sown now on an open border and the plants put out before they become leggy. Being of neat habit, they may be planted 12 inches apart each way, or they may form an edging to other taller-growing varieties.

W. I. M.

Brussels Sprouts.—Although I have often seen taller and altogether bigger plants of Brussels Sprouts in private gardens, yet I have never seen in the actual Sprouts better average quality than what is fairly abundant in market fields in the autumn. No doubt strains have much to do with this fine quality, as now and then a grower is unfortunate enough to get hold of a very fluky breadth, and then his seedsman has to hear of it in anything but pleasant terms. Still, this certainty of hearing of it and in a somewhat costly way compels exceeding care in the selection of good strains; hence the market grower, as a rule, gets the best. And then his style of cultivation, no doubt, has something to do with the securing of stems of hard, medium-sized Sprouts green as Grass, for the soil is not more than 12 inches in depth, though highly manured, but at planting time is firm and later gets trodden almost hard, and that hardness tends to restrict coarse leaf-growth and to make the Sprouts, which cover the stems so abundantly, hard and clean. Usually Brussels Sprouts seed is sown out in the open ground as early as the weather will permit in March. No other course is open when plants are required for some 8 acres or 10 acres. Runner Beans sown at 4 feet apart enable the Sprouts to be dibbled out between them as soon as ready, and thus they get ample light and air. The fine sprouting selections sometimes thought too large under high garden culture come first-rate treated as thus described out in the open field.—A. D.

So good an authority as the late president of the chemical section of the British Association has recently

said that after all the work done we still know nothing of the manner in which potash, lime, phosphoric acid and the inorganic constituents of soils produce their favourable effects on plants. We cannot tell why potash is valuable for some plants and lime for others.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

Akebia.—An elegant, twining evergreen shrub from China usually grown in greenhouses, but hardy enough for the open air in the southern and west coast counties. It is a charming plant for covering a trellis, pergola, wall buttress, or any place where in case of very cold winters it can have protection if needed. In some mild



Flowering branch of Chinese Akebia (*A. quinata*).

localities it does not need this even, but rambles over shrubs like a Traveller's Joy. It is best to let it run over an Evergreen, as then it is better protected against cold winds, which injure its flowers. It has long, slender shoots, foliage with five leaflets, and its flowers are of two kinds—large and small, produced in drooping spikes. They are of a deep claret-purple and fragrant, produced in February in greenhouses, but later in the open air. Propagated by cuttings, it grows to the height of about 12 feet.

Aloysia (Sweet-scented Verbena).—The favourite old Lemon plant, though not grown for its flowers, is too important to leave out of our list. Every garden should have a bush of

this deliciously perfumed plant, if only to pick from to mix with odourless flowers in bouquets or vases. Its pale green foliage goes well with any flower, and a good-sized bush will give an abundance of shoots. It is as hardy as most plants from Chili, and where there is no greenhouse it may be grown against a sunny wall, where if protected by a heap of ashes over its roots and a warm straw mat over its branches, it will pass through the winter safely. When uncovered in spring, care must be taken that the young growths are not nipped by late frosts. It is easily struck from cuttings under a hand-light in spring.

Amelanchier (June Berry).—When clothed in a mantle of snow-white bloom in early April the June Berry forms a beautiful picture in the spring garden, and is the more enjoyable as it blooms usually before the full tide of early tree bloom has set in. There are two kinds of June Berry, the American *A. canadensis* and European (*A. vulgaris*), while the many varieties one sees in gardens may be classed under either of these two. They are all small trees or bushy and rather graceful growth, associating well with the Almond, Laburnum, the Cherries, Plums, and other low-growing trees. *A. vulgaris* is a delightful tree, as it never fails to produce a mass of bloom, lasting a long time in beauty. The American species, though rather later in flowering, are equally beautiful, but do not produce such a quantity of bloom. Of *A. canadensis*, which name by the way is not often found in English nursery catalogues, there are several so-called varieties, the commonest being those named *Botryapium*, *florida*, *ovalis*, *alnifolia*, and *sanguinea*, though how far these can be considered distinct botanically is an open question, as the names in this genus are much confused. They are all white-flowered and do not vary much in growth, so that any Amelanchier may be considered worth planting. They grow freely in almost any soil, but they dislike exposure, especially to east winds, when flowering. Like the Almond and other similar trees, the best effects are obtained by planting the June Berry in groups of three or more, with a background of Evergreens rising from an undergrowth of the same.

Amorpha (Wild Indigo).—North American shrubs of not much importance for their flowers, but their deciduous foliage is elegant, and they have the merit of flourishing in the poorest and driest of soils. The common species is *A. fruticosa*, from Carolina. It makes a loose bush from 3 feet to 6 feet high, and the pinnate foliage clothing the stout, erect shoots is very light and graceful. The flowers are small, borne in crowded clusters at the tips of the shoots. Though their colour is of the richest purple, they are not very conspicuous on the bush, but, being produced at the end of summer when few other shrubs are in bloom, they are more noticeable. It is a good shrub for planting in groups on dry banks or other spots. In order to keep it dense in growth it should be when in good soils cut down or pruned hard back to the main stem every two or three years, and as it sends

up strong suckers, it soon spreads. There are a dozen or more so-called varieties enumerated in catalogues (especially in those of foreign nurserymen), but they differ very little from the original, excepting those that vary in size, such as the dwarf nana, which is only about half the size of the type. Those named *dealbata*, *crocealana* have paler foliage, and *A. canescens*, the Lead Plant, a distinct species of dwarfer growth than *A. fruticosa*, has the leaves covered with hoary down. It belongs to the Leguminosæ, or Pea family.

Amygdalus (Almond).—The loveliest and most welcome of early-flowering trees is the Al-



Flowering branch of dwarf Almond (*Amygdalus nana*).
Natural size, colour pink.

mond, as it heralds returning spring often before the icy winds of winter are gone. It makes otherwise flowerless gardens cheerful, and though it is among those common trees that are planted indiscriminately, especially in small suburban gardens, we can scarcely have too much of it. But we should like to see it more plentiful in public parks and the larger private gardens, planted not in an isolated or "spotty" way, but

in bold groups of three or more together. The Almond has also a telling effect in the landscape, particularly if rising out of green undergrowth or with a background of bold Evergreens; in fact, in planting an Almond tree in a garden, large or small, it should be associated with evergreen growth, which acts as a foil to set off the bloom. A tree so common needs no description, but it may be well to point out that the varieties are not of equal merit. The common sort has pale pink and rather small flowers, abundantly produced. This is the Bitter Almond (*A. communis amara*), and those of the Sweet Almond (*var. dulcis*) are very similar. The double variety (*fl.-pl.*) lasts longer in bloom than the single sorts. But the finest of all is the large-fruited Almond (*A. macrocarpa*), which has flowers much larger than those of the common form, and they expand considerably earlier. It differs also in growth, being more erect. The flowers are white tinged with pink. It should always be planted in company with the others, and if space allows only one Almond it should have the preference, as it sometimes flowers before February is past. *Amygdalus nana* (*syn., A. Bessieriana*), of which the annexed illustration represents a flowering branch, is a native of Tartary, grows from 2 feet to 3 feet high, and bears rose-coloured flowers in abundance almost as early as the common kind. The dwarf Almond makes a twiggy bush, which sends up suckers freely, by which it may be propagated. A group of a few plants of it makes a beautiful and appropriate foreground to a mass of taller flowering trees, as Thorns, Cherries, or Almonds. There are several botanical varieties, but that obtained from nurseries is the most ornamental.

Banished Conifers.—When the proprietors of the great English nurseries who make a speciality of hardy trees and shrubs strike out of their lists any tree that in their opinion is worthless for general planting one may be sure that the merits of that particular tree are not great. I know of one great nursery where the *Araucaria*, or Monkey Puzzle, is banished as worthless, or at any rate not worth growing for sale, and the same fate threatens the *Wellingtonia* and others of the so-called ornamental Conifers which have unfortunately too much engrossed the attention of nurserymen during the past twenty years to the neglect of really valuable trees. That nurseryman who in 1850 advised everyone to discard every deciduous tree except the Copper Beech from their gardens and plant new Conifers must surely by this time have seen how rash his advice was.—W. G.

Sequoia sempervirens.—In THE GARDEN, March 17 (p. 252), E. Burrell asks where specimens of the above plant may be found in England. When living at Dropmore, Maidenhead, seven years ago, there was a very fine specimen growing in the pinetum which I should think was fully 70 feet high, and perfect in every way, with its branches sweeping the lawn. I often wonder why this tree is not oftener planted as an isolated specimen, for I know very few more pleasing in appearance, its habit being less formal and stiff than that of the *Wellingtonia gigantea*. The tree in question was growing near the celebrated *Abies Douglasi*, on a subsoil of clayey loam with a large admixture of flints, and in a sheltered position.—R. POTTER.

Japanese Snowball Bush (*Viburnum plicatum*).—There are several species of *Viburnum* in Japan, relatives of our native Guelder Rose, or Snowball Tree, but *V. plicatum* must be the Japanese Snowball Bush of English gardens, seeing that it is the best of all, thriving like a native, and requiring no coddling in the way of shelter. It flourishes in any soil and situation, and when in bloom in summer is a glorious shrub, a perfect mass of snow-white balls of bloom, which for several weeks (for they last a very long time) are a beautiful feature in a lawn shrubbery. It makes a low, spreading bush, not particularly dense, except when in bloom. The leaves are rather large, deeply ribbed, and their deep green enhances the purity of the

flower. It does best planted on a sloping bank, facing the south, and if the soil is not light, there is no fear of its becoming too dry in summer. It has, happily, become quite a stock plant in the large tree nurseries of late years.

MARKET GARDEN NOTES.

FEBRUARY proved a very trying month for garden crops, as the bitter wind frosts cut up vegetation of all kinds, and crops that had safely passed through the shortest days could not withstand the continued effects of frosts, gales of wind, and bright sunshine. The effect on late-planted breadths of Cabbages has been most disastrous, a very large percentage being quite killed, and the rest so crippled as to be useless. Most of the land under these crops will be ploughed up at once and planted with Potatoes.

EARLY CABBAGES will this season be in great request, and high prices will be realised by those who are fortunate enough to have sheltered positions in which to grow them. The reason of the scarcity of forward crops is that the drought of last summer delayed the getting up of a stock of plants, unless where exceptional means were taken to do it. Very large breadths were put out late during the mild weather that prevailed during the shortest days, and although the plants grew away freely for the time of year, they were unable to withstand the withering wind frosts of February, and consequently a good deal of ground planted is not worth retaining for a crop, and is already being ploughed up and planted with

EARLY POTATOES.—From the demand of seed of these and the extent of land in preparation, I should say that Potatoes will this year be extensively grown. In this locality early varieties are in the greatest favour, as during the last few dry summers they have proved far more satisfactory than late sorts, a good crop being secured, and in many cases cleared off before the drought affected them; the land is also cleared in time to get a crop of winter greens of some kind ready for the market.

LATE POTATOES.—Among these *Magnum Bonum* used to be largely grown, but it has now gone down greatly in favour, as last season the crops of this variety were very inferior, the tubers being uneven and of poor quality. The bulk of them in our markets now comes from the north of England or Scotland.

ONIONS are now realising very high prices, but few home-grown ones are to be had, from the fact of the crop of last year being very light. James's Long-keeping and Bedfordshire Champion are the kinds mostly grown for spring use, being good keepers. Autumn-sown seedlings are being transplanted in rich soil, and the beds of those that are required for drawing green are being cleared by hoeing and hand weeding. The early part of the winter having been mild, a heavy crop of weeds has become well established, and with crops of this kind it takes trouble to clean them, as nothing short of complete removal will avail.

EARLY RADISHES that have been covered up with litter during the late severe weather are now being fully exposed on every favourable occasion and successional sowings made. The first crops are usually of the long scarlet or the French breakfast white-tipped kind; but after March is out the sowings are generally of the round or Turnip-rooted kinds, and although Radishes of some kind or other are procurable all the year round, they are never so good or in such great demand as during the late spring and early summer.

UNDER GLASS many crops now claim attention, foremost amongst both old or new favourites being Tomatoes, which are more largely grown every year. Plants for early fruiting under glass are making rapid growth, as the increasing solar heat is greatly in favour of a crop that delights in sunshine. Plants for turning out against walls or fences or in the open ground are being pricked off into pots or boxes, and kept close to the glass in warm houses or frames. They will be gradually inured to plenty of air as the days get milder, but unless they are

large plants ready to fruit at once when planted out, there is little chance of good crops being ripened. Last year by adopting the above plan I cut ripe fruit from the walls in July, but the season was exceptionally favourable for Tomatoes.

CUCUMBERS have with many growers given place to Tomatoes, but those that still cultivate them largely are now pushing on crops in heated houses and a quantity of plants for hotbeds. The frames that are now in use for early Potatoes, Radishes, Carrots, Mint, &c., will as soon as cleared be got ready for Cucumbers, that usually sell readily during the hottest part of the summer. The Long Ridge kinds are being sown and will be grown on under glass until ridges of manure with hand-lights are ready for them. Vegetable Marrows are treated in the same way, only that they are planted on the level, merely taking out some of the soil and filling in with a little manure and rich soil to give the plants a good start; they are covered with hand-lights or cloches as soon as the Cauliflowers can do without protection. The long white and green-striped Marrow and the bush variety are the sorts that find most favour with growers in this locality.

Gosport.

J. GROOM.

DESTROYERS.

Weevils on Peach leaves.—Will you kindly inform me what the enclosed insects are? They are doing great harm to my Peach trees in the early house, only coming out during the night-time. I do not remember having seen them before. If you can give me any information concerning them I shall be glad.—GRAPPENHALL.

* * In reply to the above, the beetles you forwarded are the clay-coloured weevil (*Otiorhynchus picipes*). This and another very nearly allied species, the black Vine weevil, are most destructive insects to the leaves and young shoots of various plants, and the grubs injure the roots of many different plants. The best way of catching the beetles is to lay a white cloth under the plants, and in the evening, when quite dark, to throw a bright light suddenly on them. This alarms the weevils, and they fall, feigning death. Give the plants a good shake, which will probably bring down more weevils. The grubs feed on the roots of Ferns, Primulas, Cyclamens, Begonias, &c., and should be picked out from among the roots.—G. S. S.

Sulphide of potassium.—Having read in THE GARDEN, March 10, of the solution of sulphide of potassium being applied both to the roots and leaves of plants, I would be glad to know if the same could safely be used, in the case of Pansies growing in beds, to destroy those insects that feed on Pansy roots. I know not their names, parentage, or evolution; they are coiled up like the mainspring of a watch, and are also found in decayed wood. Whole beds have been destroyed by them, and soot and hot lime are futile to eradicate them.—X.

* * In reply to the above, you would do no harm by using the sulphide of potassium, but I do not think it would do any good. Snake millipedes (which, from what you say, I presume are the creatures injuring your Pansies) are very hard to kill. They may be trapped by burying small bundles of damp (not wet) Moss near the plants, or placing long, small pieces of slate, or tiles, or boards about for the creatures to crawl under.—G. S. S.

Insects destroying Rose shoots.—I enclose a bit of a Rose shoot, which I think has been damaged by the ravages of the fly, specimens of which I sent last June to THE GARDEN.—M. S., Villa Capponi, Arcetri, Florence.

* * In answer to the above, I replied to the letter which was forwarded to me on the 21st of last June. In this you merely said you wanted to know what the fly was which hovered over the Roses. I may now add: The fly which you forwarded last June saying it hovered about your Roses was, as I then stated in my answer, a sawfly, the grubs of several species of which destroy the leaves of Roses. This particular species was probably *Emphytrus cinctus*, whose grubs when full grown burrow into the pith of the young shoots and become chrysalides.

Destroy all you can; if there are many on the leaves, syringe them with soft soap and tobacco water. —G. S. S.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE.

MARCH 24.

SPRING flowers have had an exceptionally trying season, but there were plenty to be seen at the Crystal Palace on Saturday last, when an excellent show was made, Hyacinths, Tulips, Daffodils, and Cyclamens being the leading features. There is one good point about the exhibitions held here—they are tastefully arranged, a relief from the stiffness and formality usually present. The exhibits are placed on separate tables with foliage plants in the centre, and in this way the masses of colour are broken by fresh leafage that tones down the glaring unnatural effect so undesirable.

Hyacinths, Tulips, and Narcissi were finely shown, and made a great effect. Messrs. H. Williams and Sons, Fortis Green, Finchley, were first in the class for thirty-six Hyacinths, and the plants were excellent examples of skilful culture; the dark-coloured varieties, such as *The Sultan*, *King of the Blacks*, and *General Havelock*, are very rich, a contrast to the light varieties of the *Lord Derby* type; *La Grandesse* and *L'Innocence* are two good white sorts. An excellent second was Mr. H. R. Wright, Lee, Kent, whose white-flowered varieties were especially good. The Hyacinths in the amateurs' classes were poor, except the first prize lot of twelve put up by Mr. C. J. Salter, gardener to Mr. C. J. Southgate, Selborne, Streatham, who had well-grown plants of *Sir Henry Barkley*, a very deep purple, almost black; *Czar Peter*, blue; and *Leviathan*, white, with a trace of pink. Tulips are not often seen so good as they were on this occasion. It is a magnificent flower when seen in anything like perfection. Messrs. H. Williams and Sons were again first in the class for thirty-six plants, and the finest shown were the rich canary yellow self *Ophir d'Or*, *White Pottebakker*, the crimson *Joost Van Vondel*, *Proserpine*, pink, and *Nelly*, clear white; Mr. H. R. Wright was second, his flowers wanting freshness. It is a wonder more amateurs do not show Tulips, as on this occasion Mr. W. Penfold, gardener to Canon Bridges, Beddington, Surrey, was the only competitor. The class for twenty-four pots of Narcissi was well filled. Mr. H. R. Wright was the principal prize-taker, showing excellent specimens, well flowered, of such noble *Polyanthus* kinds as *gloriosa*, *Mont Cenis*, white segments, rich yellow cup; *Apollo*, yellow, with orange cup; *Her Majesty*, clear white and yellow; and *Bazelman* major.

Cyclamens, Amaryllids, and Cinerarias also call for notice, especially the Cyclamens, which were densely flowered and strongly grown. In the class for thirty-six Cyclamens, Mr. J. May, Gordon Nursery, Twickenham, was deservedly placed first, the group showing considerable variety in the colours of the flowers; the whites were especially pure and fresh. Mr. John Odell, Gould's Green, Hillingdon, was an excellent second, the plants full of bloom. Amateurs also exhibited these plants very creditably, the first prize going to Mr. D. Phillips, Langley Broom, Slough, the second award being made in favour of Mr. W. Hibburt, gardener to Mr. W. Clay, Elm Villa, Grove Road, Kingston. Amaryllids were poorly represented, but it is early yet for the Amaryllis. Messrs. Paul and Son were first in the class for twelve, showing amongst others the rich, crimson-flowered variety *Dr. Masters* and several promising seedlings. Mr. C. J. Salter was the only contributor to the amateurs' classes, and he showed fairly good specimens, but the flowers wanted colour. Cinerarias were well shown by Mr. H. Carter, gardener to Alderman Evans, Ewell, Surrey, the plants well foliaged and with dense heads of bloom; Mr. W. Kemp was a good second. There was another class for Cinerarias, and in this Mr. D. Phillips, Langley Broom, Slough, was the most successful; his plants were dwarf, compact, and well flowered. The Lilies of the Valley put up by Messrs.

H. Williams and Sons in the class for twelve pots were models of good culture; the plants were crowded with flowers. For six, Mr. W. Kemp was first.

Greenhouse Azaleas were fairly well shown by Mr. Robert Wells, Longton Nursery, Sydenham, in the class for twenty-four specimens. The majority were neat and profusely flowered.

There was not much competition in the class for a group of stove and greenhouse plants, but the arrangements were exceedingly tasteful, especially that of Messrs. J. Laing and Co., Forest Hill, whose group contained an excellent form of the laced-lip *Dendrobium Brymerianum* and a well-spotted variety of *Odontoglossum crispum*. Orchids also made a feature in the group of Mr. Henry James, Castle Nursery, Lower Norwood, the winner of the second prize.

The miscellaneous class was large and the groups varied and well arranged. In almost every case an extra prize of more or less value was given. Messrs. Paul and Son, of Cheshunt, had a group of Roses, including such gems as the pink *Polyantha Mignonne* and the white *Paquerette*. Other notable varieties were the splendidly-coloured *Avocat Duvivier*, W. A. Richardson, Mme. Victor Verdier, Mme. Treyve, and *The Puritan*. The last-mentioned is a large, full, handsome flower with compact, firm, well-formed petals that slightly curl back at the edges, showing a centre with just the faintest tinge of pink, the other portion of the flower being of the purest white; it has a sweet Tea fragrance. Several alpine were also shown. Wm. Paul and Son, Waltham Cross, had a representative collection of cut *Camellias* in boxes. Such varieties as *centifolia alba*, *Montironi*, white, fine petal; elegans, bright carmine; *Cup of Beauty*, imbricata, *Adelina Benvenuti*, pink, flaked with crimson; *Mathotiana*, deep crimson; and the old *alba plena* are well worth growing.

Mr. B. S. Williams, Upper Holloway, showed Amaryllids, Hyacinths, Tulips, and *Himantophyllums* in splendid condition. In the group was the best specimen we have seen of the lovely *Deutsche Perle Azalea*, and there were also plants of Mrs. Carmichael and *Princess Maude Azaleas*. These are the result of a cross between the Indian and *amœna* varieties, the flowers in the first variety being deep crimson, and in the other of a lighter shade. Mr. T. S. Ware, Tottenham, had an excellent display of the leading varieties of Daffodil, and Messrs. Barr and Son had a similar exhibit. Messrs. H. Cannell and Sons, Swanley, contributed winter-flowering Begonias, including such free-blooming kinds as *Carrière* and cut zonal *Pelargoniums* and *Cinerarias*. Cyclamens were shown by Mr. W. Hibburt, gardener to Mr. W. Clay, Grove Road, Kingston-on-Thames, and Mr. J. Odell, Hillingdon, Middlesex; in both cases the plants were densely flowered. Chinese Primulas came from Mr. W. Kemp, Winchmore Hill, and an exceedingly handsome group of *Spiræa japonica*, Hyacinths, Daffodils, Tulips, &c., was put up by Mr. H. R. Wright, Lee, Kent. A new *Cineraria*, named *Emperor*, was shown by Messrs. Carter and Co., Holborn; it is compact and free-blooming, the flowers being of distinct fluted form and bright crimson. A box of cut Roses, including several seedlings, was exhibited by Mr. Bennett, Shepperton.

First-class certificates were given to Messrs. Paul and Son, Cheshunt, for H. P. *Rose Lady Alice*; to Messrs. Barr and Son, Covent Garden, for *Narcissus Johnstoni*, a form of the *Ajax* section, and in the way of N. cyclamineus; it has a long tubular caliche and narrow star-like segments, the colour being wholly pale yellow; to Mr. J. Odell for *Cyclamen floribunda compacta*, a very dwarf, sturdy variety with numerous flowers of large size, white flushed with pink; a very useful acquisition; and to Messrs. H. Cannell and Sons, Swanley, for *Begonia semperflorens gigantea rosea*, a vigorous growing variety, with an abundance of large crimson flowers. A list of awards will be found in our advertising columns.

Ghent Exhibition.—I have been in communication with the manager of the L. C. & D. R. Company respecting the above, and have proposed to him the issu-

ing of cheap circular tickets to enable horticulturists who wish to visit the bulb grounds of Holland after the exhibition. He writes "that his company hope to issue through tickets at a good reduction; fuller particulars will be given later on."—HENRY J. PEARSON.

ROYAL HORTICULTURAL.

MARCH 27.

THE meeting of the Royal Horticultural Society on Tuesday last was looked forward to with more than ordinary interest, as it was the first held in the new quarters, the Drill Hall, Victoria. Everything possible seems to have been done to make this exhibition a success, and the result was a display of flowers that we were accustomed to see before the society began to decline. We hope that with the fresh start will come renewed vigour and vitality, so that the society may be placed upon a firm foundation. The Drill Hall has its advantages and disadvantages. It is certainly too much out of the main thoroughfare, and is not so well lighted as it might be, but it is spacious, and good effects by judicious grouping of plants can be obtained. Notwithstanding the treacherous weather, indoor flowers, as Orchids, were an important feature, and a most interesting contribution was the group of miscellaneous plants from the Royal Gardens, Kew.

First-class certificates were awarded to the following:—

PHALÆNOPSIS JOHN SEDEN.—This is a garden hybrid raised in the Chelsea nursery of Messrs. Veitch from a cross between *P. grandifolia* and *P. Luddemanniana*, and a likeness to both parents can be traced in the beautiful flowers of this new Butterfly Orchid. The plant shown had a few dark green, oblong leaves, which measure about 6 inches long, and the short spike carried one flower, which is exquisitely spotted and delicately tinted. It is about 3 inches across, and the ground colour is ivory-white, almost hidden by the thick dotting of crimson; while the lip is pale rose-purple, except at the apex, where there is a pinkish tinge; with age it becomes almost wholly white, but this was not seen in the flower exhibited, as it had only opened about a day. It is certainly a most interesting cross, but it is quite a matter of opinion whether the present system of naming Orchids, as is shown in the present instance, is the best that could be devised. From Baron Schroeder, The Dell, Egham.

ROSE GLOIRE DE POLYANTHA.—This is a new variety of Guillot fils, of Lyons, and a beautiful acquisition to this section of miniature Roses now finding the favour they richly deserve. It has the character of *Mignonne*, but is a vast improvement, as the flowers are larger, of a delightful rich rose-pink, the centre paler, and borne freely in a dense head, though, judging from the plant shown, the growth is not so diffuse; the foliage is robust, deep green, and finely serrated. It is a misfortune that these pretty Roses are practically scentless. If they only had the sweet fragrance of *Gloire de Dijon* they would be invaluable. From Messrs. Paul and Son, Cheshunt.

LILAC MARIE LEMOINE.—This shows an advantage over the common white Lilac, as the individual flowers are much larger, spotless white, and borne in dense, somewhat loose clusters. The plants were, of course, forced, but we should say that this is a good variety for the open ground, as it appears very free. For forcing for early bloom it certainly has its uses, and small plants laden with flowers are exceedingly handsome. From Messrs. Wm. Paul and Sons.

DENDROBIUM CRASSINODE SUPERBUM.—The type is a beautiful Orchid, but this variety is doubly so; it is seldom, indeed, we have such vivid colouring. A plant was shown crowded with flowers, the upper half of the sepals being bright rose, the lower portion white—a beautiful contrast; the lip has the rich yellow centre seen in the parent, and outside this there is a ring of white, with a margin of dull mauve pink. We cannot have too many of such Orchids as these. From Sir Trevor Lawrence, Bart., Dorking.

SPATHOGLOTTIS KIMBALLIANA.—This has a flower very much like that of a *Phalænopsis* in ex-

pression, but no Orchid exhibits such a pure yellow colour as this, the only other tint being a few crimson spots on the lateral lobes of the lip. The scape is some 2 feet or 3 feet long, reddish brown, and the flowers, which are about 2 inches across and of rounded form, are borne a few together at the apex. The foliage is like that of the *Curculigo*, arches gracefully, and is of a pleasing shade of green. From Sir Trevor Lawrence.

ORCHIDS made an excellent show, and the group put up by Sir Trevor Lawrence, Bt., M.P., contained many choice things. *Angræcum Leoni* was represented by a small plant, and is a neat, choice form; the shell-shaped lip white, the sepals and petals having more of a greenish tinge, this colour being intensified in the column. An interesting *Masdevallia* is *M. xanthocorys*, but more brilliant are *M. Harryana acanthæfolia*, the flowers of the richest crimson; and *M. Lindenii* superba, rich carmine-crimson. A well-flowered example of the pure white and beautiful *A. Ellisi* was shown, also the rich yellow *Dendrobium Cambridgeanum*, the chaste *Cymbidium eburneum*, and a variety of *Odontoglossum Cervantesi* named *roseum*, the flower having a suffusion of rose colour that rendered it very attractive. Besides the Orchids were a plant of *Anthurium Rothschildianum*, distinguished by the rich freckling of crimson on the wide handsome spathe, and cut spikes of *A. carneum*, which has an immense spathe of a dull crimson colour, the spadix delicate pink and white. Mr. G. W. Cummins, gardener to Mr. A. H. Smee, The Grange, Wallington, had a group of Orchids, in which were several varieties of *Cattleya Trianae*, including the variety *Emiliae*, noticeable for its compactness and bright crimson-purple colouring on the lip. There were also well-flowered specimens of the useful *Odontoglossum Rossi majus*, *Masdevallia Shuttleworthii*, *Phajus Wallichii*, one of the best of its genus; *Dendrobium macrophyllum giganteum*, a good form, the flowers rich rose, except the crimson blotch within the throat; and the brightly coloured *Oncidium sarcodes*, an Orchid everyone who grows this class of plants should have. Messrs. Sander and Co., St. Albans, had *Cypripedium plunum*, the lip rich brown, and the dorsal sepal veined with green, a useful variety; *B. linolare*, a poor hybrid which we can do without, as there are too many of this class already; and *Masdevallia Sanderiana*; the last mentioned is a good addition to the genus, and reminds one of *M. Reichenbachiana*; the sepals are deep crimson, of wax-like appearance, and in the centre there is a band of white which runs into the throat; they are lengthened out into greenish-yellow tails of considerable length. A form of *Cattleya Loddigesii* named *Le Doux*'s variety, was shown by Mr. Gustav le Doux, East Moulsey, Surrey, but it was simply the type, and from the same exhibitor came a spike of the white *Dendrobium speciosum*. A well-grown plant of the spotless white *Celogyne*, *C. cristata alba*, was contributed by Mr. H. M. Pollett, Fernside, Bickley; and an exceedingly fine specimen of *Lycaste Skinneri*, bearing many flowers, came from Mr. C. Pickersgill, Blendon Hall, Bexley. There are few Orchids to surpass this old favourite in usefulness. *Dendrobium crassinode album* was shown by Messrs. J. R. Pearson and Sons, Chilwell, Notts; and a form of *Dendrobium Ainsworthii*, viz., *splendidissimum grandiflorum*, was sent by Baron Schröder. The flowers were of large size and bright colouring, the sepals and petals being white tipped with rich pink, and the lip creamy-white except the margin, which is pink. The deep velvety-crimson blotch in the centre of the labellum is very striking in this flower.

One of the best features was the group from the Royal Gardens, Kew. It comprised many choice things, such as we do not often see outside a botanic garden, but which in many instances compel us to ask, why are they so restricted? There were several *Haworthias*, or Pearl Aloes; *Arisæma speciosa*, which has a beautiful crimson spathe veined with white; *Celogyne cristata Lemoniana*, *Sarcophilus usneoides*, an interesting Orchid with small yellow flowers spotted with brown, and a tiny white pouch-like lip; *Acacia cultriformis*, with silvery white leaves and bright yellow flowers, a beautiful and graceful *Acacia*; and *Azalea linearifolia*, which is

more curious than beautiful, and has pink flowers. Besides these, the most striking were the magnificent *Rhododendron argenteum*, with flowers of delicate and beautiful colour, and borne several together on a large head; *barbatum*, scarlet; *Thompsonii*, crimson, and widely bell-shaped; *nilagiricum*, white, tinged with vivid pink; *arboreum* and *Hookeri*, scarlet; *Strelitzia Nicolai*, a striking white and blue-flowered kind, much larger than *Regina*, and very interesting, and *Philodendron Simsii*. Berried branches of *Coffea arabica* and *Brownea grandiceps* also call for mention. *Hellebores* were also shown; an account of which is given in THE GARDEN for March 3, p. 201.

ROSES gave a desirable freshness to the exhibition. Messrs. H. Lane and Son, Berkhamstead, put up a choice group, and were awarded a silver medal. There were excellent specimens of such pronounced favourites as *Glory of Waltham*, *Princess Mary of Cambridge*, full rich pink; *Mme. Victor Verdier*, glowing crimson; and *Souvenir d'un Ami*. Messrs. Paul and Son, of Cheshunt, received a similar award, showing several varieties of the *Polyantha* section; *The Puritan*, *Lady Alice*, the sport from *Lady Mary Fitzwilliam*; *Celestine Borreaux*, bright carmine; *Mr. J. Laing*, a rich salmon-pink variety, full, fresh, and telling; and the lovely *Celine Forestier*. Mr. Henry Bennett, of Shepperton, had three or four boxes of his pedigree varieties. There were flowers of *Princess Beatrice*, the very embodiment of an exquisite Tea Rose, absolutely perfect in beauty when half-expanded, the colour of the most delicate yellow-buff imaginable, deepening in the centre, and with the firm, beautifully-arranged petals tinged at the edges with delicate salmon-pink; it also has a sweet fragrance. There were also blooms of *Lady Mary Fitzwilliam* and a variety of the *Polyantha* section named *Golden Fairy*, a little gem, the flower being about as large as a thimble, and apricot in colour, except the outer petals, which are white; and *William F. Bennett*, an apparently strong grower, the flower bright crimson, full, and excellent in a bud state, while the fragrance reminds one of that of the Damask Rose.

Mr. B. S. Williams, Holloway, had a miscellaneous group comprising *Himantophyllums*, *Amaryllids*, a fine flowering specimen of *Sarracenia purpurea* major, and the richly coloured *Cypripedium Boxalli*. A silver medal was given. Mr. Charles Turner, Slough, received a like award for his splendid collection of Persian *Cyclamens*, the plants full of strength and flower. The same exhibitor also showed several new promising Tree Carnations, but we scarcely want any of the burnt ash, grey colour of novelty. A silver-gilt medal was given to Messrs. J. Veitch and Sons, for a representative collection of *Hyacinths*, and the same firm also showed flowering specimens of *Rhododendron Early Gem*, *Lilium* or *Fritillaria Thomsoniana*, &c. Messrs. Wm. Paul and Son, Waltham Cross, were awarded a silver medal for a very fine collection of cut *Camellias* noted in the report of the Crystal Palace exhibition; and a similar award was given to Messrs. J. Laing and Sons, Forest Hill, for an arrangement of *Azaleas*, *Ericas*, *Dendrobes*, &c. Mr. T. S. Ware, of Tottenham, had a silver medal for cut *Daffodils* and other things of a hardy character, including *Anemone fulgens græca*, a very rich crimson, broad-petalled *Anemone*. Messrs. Barr and Son, Covent Garden, contributed *Daffodils*, including *Narcissus Johnstoni*, a notable addition, and one likely to become popular with those who appreciate the smaller forms of the *Ajax* section. Bunches of the Tenby *Daffodil* and *Narcissus pallidus præcox*, grown in the open, came from Messrs. Collins and Gabriel, Waterloo Road, in each case a bronze medal being given; and a similar award was made to Mr. S. Ford, The Gardens, Leonardslee, for his cut blooms of *Camellias*.

A few other exhibits were *Hæmanthus bicolor*, from Mr. W. Bull, the plant having a dense head of flowers, the conspicuous stamens crimson tipped with golden anthers; a small-flowered scarlet *Amaryllis* from Messrs. J. R. Pearson; forced white *Lilac* from Mr. K. Drost, Kew Nursery,

Richmond; the robust richly-coloured *Himantophyllum miniatum superbum* from Mr. Broughton, Preston; and cut blooms of *Camellia conspicua*, carmine, from Mr. H. Divers, Ketton Hall Gardens, Stamford.

Fruit was fairly plentiful, and good collections of Apples, considering the lateness of the season, were put up by Messrs. J. Veitch and Sons and J. Cheal, Sussex, containing good fruits of such kinds as *Cox's Orange Pippin*, *King Pippin*, and the *Blenheim*. *Harr Horvath*, Hungary, exhibited Hungarian Grapes with a delicious Muscat aroma, but they are of poor appearance; and two bunches of *Lady Downe's Grape*, excellent in finish, and covered with bloom, came from Mr. G. Norman, Hatfield Gardens, Hatfield. Mr. W. Roupell, Harvey Lodge, Roupell Park, had excellent fruits of *Lane's Prince Albert Apple*, gathered from bushes on Paradise stock; and *Newton Wonder Apple*, certificated in December last, was shown by Messrs. J. R. Pearson; it is evidently a good keeper. Apples also came from Mr. Dunn, Dalkeith, and fruits of a variety known as *The John* from the Society's garden at Chiswick; it is a small green fruit, but of good flavour.

The Dean of Rochester.—At a meeting of the committee of the old South Notts Horticultural Society, it was decided to present a congratulatory address from his horticultural friends to Dr. Hole upon leaving the neighbourhood in consequence of his elevation to the Deanery of Rochester. The address is to be handsomely illuminated and enclosed in a carved Oak casket, and in order to carry out the necessary arrangements a sub-committee was appointed, consisting of the chairman (Dr. Appleby), the Rev. J. M. Dolphin, Mr. Gascoyne, and Mr. Marsland. It was felt that the number of subscribers would be more appreciated than the amount subscribed; therefore the individual subscriptions are not to exceed 10s., and all old members of the society, exhibitors at its meetings, and fellow workers in horticulture in Newark and the neighbourhood are invited to contribute. Any of the above mentioned gentlemen will be glad to receive subscriptions, or they may be sent direct to the treasurer of the fund, Mr. E. M. Hutton-Riddell, Messrs. Samuel Smith and Company's, Newark.—*Nottingham Guardian*.

The entertainment to the employees of the Royal Horticultural Society.—The committee who have this matter in hand have arranged that the *employés* shall be invited to supper at the Bolton Hotel, Bolton Gardens, High Road, Chiswick, on Friday evening, April 6, at 7 p.m. Mr. Harry J. Veitch has kindly consented to take the chair. Visitors will be gladly welcomed. Supper tickets 5s. each. The hotel is five minutes' walk from Turnham Green Station. Those intending to be present should give their names to Mr. R. Dean, Ranelagh Road, Ealing, the day previous.

BOOKS RECEIVED.

"The Increase in the Produce of the Soil through the Rational Use of Nitrogenous Manure." By Professor Paul Wagner. Translated by George C. Henderson. London: Whittaker and Co.

"Garden" volumes.—A set of finely-bound GARDEN volumes from its commencement until the end of 1887, whole calf, 32 vols., price £32; also another set bound in half morocco, 32 vols., price £29.—Apply to the Publisher.

Guano water for Roses.—I should be much obliged if I could ascertain the proportionate amount of guano and water to mix for watering Roses now. Having no opportunity of obtaining liquid manure, I am driven to a substitute, and should be glad to know the strength of the dilution to use.—D.

Names of plants.—*F. Stroud*.—We do not name florists' flowers.—*J. Collier*.—A poor form of *Cattleya Trianae*.—*G. C.*—Field *Alchemil* (*Alchemilla arvensis*).—*G. Macdonald*.—Has the appearance of *Dendrobium Devonianum candidulum*.—*Vulcan*.—The Sweet Potato is *Batatas edulis*.—*J. H. McKenna*.—We do not name florists' flowers.

WOODS & FORESTS.

DURABILITY OF SILVER FIR TIMBER.

A NOTE on this subject from Mr. William M'Corquodale, of Scone, has lately gone the round of the press, from which it might be naturally inferred that an important market was likely to be opened for a class of timber that has hitherto been a drug on producers' hands, and that for the same reason the Silver Fir is one of the best trees to plant for profit. Mr. M'Corquodale in his note in *THE GARDEN*, February 11 (p. 134), indeed says as much. Of the experiment made by Mr. M'Corquodale on the Caledonian Railway I can say nothing, except that the results given are at variance with all experience as to the comparative durability of the Baltic Pine, Larch, and Silver Fir, and I would here advise owners of Silver Fir timber not to be too sanguine as regards the prospects of a market, and not to plant the tree in expectations of a profitable crop till more is learned on the subject. I have had inquiries addressed to myself, as I live in a district where much railway timber is disposed of, and I have also made inquiries elsewhere. One party writes from Scotland in answer to my questions:—

I have heard of the Silver Fir sleepers exhibited at Edinburgh in 1884 by Mr. M'Corquodale, but I am sorry to say the demand for Silver Fir sleepers or anything else of that timber gets worse instead of better, and I fear Mr. M'Corquodale's Fir sleepers are likely to be the first and the last of the kind used on the Caledonian or any other railway. If he could only persuade the railway engineers as well that Silver Fir is better than Memel or Baltic Pine, something might be done in the trade, but that is just what is wanted.

This settles the matter; but in order to make sure, I addressed a letter to the manager of one of our principal railway companies asking him to be so good as to procure me reliable information on the subject, and in due time received a reply to the effect that the sleepers used were generally of Baltic Pine; that the "average life of such a sleeper" was twelve years instead of six years, as implied by Mr. M'Corquodale; that the Silver Fir had never been tried, but his experience with white woods of that description had not been good; that English Larch made good sleepers, but when round on one side was troublesome to lay; and, lastly, that the above was "the experience of all railways." I fear, therefore, that the "Baltic Pine companions (of Mr. M'Corquodale's Silver Fir sleepers) that had been thrown out after being but six years in use" do not afford sufficient data to go by, unless the same applies to all the Baltic Pine sleepers on the Caledonian Railway, and, so far as I can learn, there was no obstacle to Mr. M'Corquodale getting his experiment endorsed by the Caledonian Railway Company, which would have been a great step, seeing that that company advertises its contracts every year, and there would have been a chance for owners of Silver Fir. In short, I have come to the conclusion that Mr. M'Corquodale is in error on this subject, and that he is equally far wrong in stating that "the Silver Fir is equal to the Larch in durability," for everyone who has had the least experience in such matters knows the contrary to be the fact.

J. SIMPSON.

Woods, Wootley.

Planting a covert.—I should be much obliged if some reader would give me his advice on the subject of planting a piece of ground, forming part of a Whin fox covert. It is about an acre in extent (I mean the part I wish to plant). It is within half a mile of the sea on the north-east coast, stands

high, and exposed to every wind that blows. In summer and autumn it abounds with rabbits. I shall want some sort of Fir that will stand exposed situations, will grow well with no great depth of soil, and will withstand the attacks of rabbits and hares. My chief reason for planting is for a game covert. In looking through nurserymen's lists I notice *Pinus Laricio* mentioned as not liable to be attacked by ground game. Is it to be recommended in my case, or would the Mountain Pine or the *Pinaster* be better? I should be very glad of any advice on the subject. I should also like to have some evergreen underwood for pheasants. What sort is proof against rabbits? Also what age should the young trees be when planted? What distance apart should the trees be planted? and when is the best time of year for planting? I believe March is good.—S. F.

RABBIT-PROOF SHRUBS AND TREES—THE SNOWBERRY.

(*SYMPHORICARPUS RACEMOSUS*.)

RABBITS do not, as a rule, attack either trees or shrubs to any serious extent while their natural or ordinary food is abundant; hence I call a "rabbit-proof" plant one that they will not touch when they are starving. This is my test, and it is the only one worth depending upon, because serious injury to trees and shrubs is only done by rabbits when snowstorms prevail and are severe and long-lasting. After a fortnight's snow a foot deep and severe frost, I begin to take notes. I have done this often, and some few years back I wrote in *THE GARDEN* that there were really no rabbit-proof shrubs—the *Rhododendron* being the nearest approach to it—but that they nibbled at that in hard times. The Yew is the next best, and after that the Privet, provided it is planted thickly enough at first. The rabbits will attack Privet, but after the first season it will hold its own. I think, however, I have found another good subject, which, although included among covert plants in catalogues, and from there transferred to lists by writers, has never been specially mentioned as a rabbit-proof subject. In November last, as I was driving along the highway near Lord Effingham's woods in this district, I noticed in the distance extensive tracts of a dense deciduous shrub that was new to me, and growing in very thick plantations of mixed deciduous timber trees, and I at once got out and clambered over the wall towards it. It was our old friend, the Snowberry, and there were acres of it within sight planted as a fox cover. Across the road opposite, I noticed that the rabbits had already attacked the colliers' gardens and eaten the Cabbage stumps down to the ground, but not a Snowberry—where the rabbits harboured—was touched. I had the curiosity to look this shrub up in the "standard authorities" after I got home, and found it stated that the Snowberry would thrive "even under the drip of trees," and was "very useful for filling shady parts"—exactly the conditions under which I found it growing and thoroughly established.

As I was about to plant a portion of wood with Privet and other covert plants, I procured several thousand Snowberries, from 3 feet to 4 feet high—nice clumps, supplied on a more liberal scale than usual, as if there had not been much demand for them. All were put in just before the snow came, and as the snow is now about knee-deep, and has been lying over a fortnight, I judged it time to make observations. Getting to the covert, which is in the middle of a rabbit preserve, I waded through every portion of the new plantation. Rabbit tracks were everywhere, and the Privet had its top nipped off and left lying on the snow; but of the thousands of Snowberry planted alternately not one could I find that had been so much as touched by a rabbit—an extremely gratifying discovery to me. The Snowberry, although deciduous, is one of the most dense-habited and twiggy shrubs grown, and forms naturally such a dense, warm thicket in winter as to be quite as good as an Evergreen, if not better than some Evergreens, as all sorts of game can run in amongst it. It grows over 4 feet or 5 feet high, with ever so many tall, twiggy shoots in the space of a foot, and as the falling leaves of the forest

trees are caught and held amongst the branches, quite a comfortable and warm cover is soon formed. Sportsmen will know what I mean when I say that it forms one of those coverts that you cannot see into either in summer or winter, and which the dogs only can penetrate. YORKSHIREMAN.

TIMBER CONVERSION ON ESTATES.

As a reader of your "Woods and Forests" pages, I should like to see a little more said occasionally upon the above subject. It is certainly a most important part of the practice of forestry, and one not sufficiently discussed. It is very clear that the end and aim of all timber cultivation is as much to turn the produce to the best account as is the case with any other crop. Existing practice, it is well known, varies very widely. Much of this may be due to circumstances other than a want of understanding the best methods of applying the timber felled upon the place to home wants; but much of it arises from a dislike to grapple with the initial difficulties of getting the wood into usable shape. Along with this a knowledge of the proper positions and work for which each kind of wood is suited is essential. One has been enabled to glean a good deal in this direction by what has appeared in these columns from time to time, yet there is room for more discussion. Some estate managers I know already make a study of this subject and use up to advantage a very fair proportion of the timber produced upon the estate. Even this class of managers could not fail to benefit by any fresh facts which would be brought to light; whilst others who have adopted the existing plan of selling in the rough state and buying in ready-worked wood as incapable of improvement would be led to look more closely into it. A gauge of the state of the local markets and the relative value of the various sorts of wood are of the first consideration. However much we may prefer in theory the employment of our own timber, mere sentiment will not long sustain its use if the conditions are such that the wood in the rough state can be sold at a price which, after taking all expenses into consideration, will allow of ready prepared material being bought at a saving. Take a single instance. With us it would be false economy to use Elm timber largely for estate work, for the reason that it almost always meets with a fair sale for use in manufacturing districts, and that it is not so fitted as many other sorts of wood for the general purposes of an estate. Where, therefore, work has to be carried out, provided the carriage by rail or water is not very heavy, as a general principle, it would be better to dispose of the Elm and buy in the prepared wood. Of many other kinds this is not true, notably of most of the Firs, which in the market fetch small prices. A class of wood like this is easily and cheaply handled, and for very many uses provides material of great utility for the scores of different requirements which are constantly cropping up on a place of any size. As occasion offers, I may be able to point out a few of these purposes more particularly. That practice on all estates will ever become uniform I know is impossible, for reasons already given, but a comparison of methods will result in a mutual gain of information, and must be of interest to those for whom the subject of forestry has any attraction.

D. J. YEO.

SHORT NOTES.—WOODS AND FORESTS.

Book wanted.—I would feel greatly obliged if you could tell me of any books relating to "forestry" in Australia or India—Australia particularly, as the climate resembles this very much.—R. N. CLARK, *Buenos Ayres*.

The live Oak.—The true live Oak (*Quercus virens*) is sparingly found on the coast of Virginia, but only reaches perfection in South Carolina and farther south along the coast line to Northern Mexico. The leaves are small in size, rarely over 3 inches in length, and on old trees inclined to be smaller, thick, smooth, and shining above, somewhat hoary beneath and with smooth margins. This delicate-looking foliage is produced in masses that become rounded with age and produce a majestic effect grouped together in one huge mass which often attains the dimensions of a grove.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

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I AM glad that the shaft which I lightly shot at a venture has at all events attracted some notice. It is better to overshoot the mark than not shoot at all. My grievance, if any, was, I thought, clearly stated, viz., that seedling fruits which are recognised as being worth planting for industrial purposes—that is, of increasing the wealth of the nation—ought in justice to have resulted in something more than the unsatisfactory return which I have received. An author has a right to his books, a musician has a right to the royalty of his music—these are creations of the brain, and so in a certain degree are seedling fruits. My case may be stated in a few words. From the arrangement of the parentage of a particular fruit, which is, if you like, a trade secret, to the arrival of the fruit, a period of seven to ten years may elapse; after this, if the fruit possesses merit, a further period of some four or five years is again consumed in grafting and testing. A seedling may be liable to canker; it may not be prolific, or it may have a feeble constitution, unfitting it for general cultivation. All these points must be determined before the publication, and by this time perhaps twelve years or more have passed. I then place the variety in my catalogue, giving an accurate account of it, and, to the best of my judgment, stating to what purpose I think the variety is most fitted; this statement is made with a view of establishing the ownership. Now, what follows? A few of the trade may purchase partly out of curiosity and partly because some think the sort may turn out to be something good, but the more astute members of the trade will wait for a year or two in the hope of buying it very cheaply from those who have bought in the first instance, and also because they have a shrewd idea that any new fruit will take years to establish, so that by that time the price will have sunk to the ordinary level. This is what actually happens. With regard to the great community of gardeners, it is hardly reasonable to suppose that a person whose tenure of office is not certain will advise his employer to purchase a tree at a high price which will take some years to produce results, and which may not in any way benefit him personally. I am, however, fortunate in possessing a numerous clientèle of amateurs and planters, people of taste and judgment, who have, I am happy to say, supported me very thoroughly, and from them I have obtained my reward. It is, however, hardly reasonable to expect that an amateur will purchase a high-priced fruit tree unless for some special purpose. The plants are young and will not fruit for some years; they are not on the same footing as *Pelargoniums*, *Chrysanthemums*, *Primulas*, or *Roses*. When these are purchased, if the flower does not come up to the anticipation of the buyer, it is at all events a flower, and of some merit. With new *Roses* the case is not very different; the new variety costs a shilling or two more than its predecessors of the year before, and probably is neither better nor worse, but it is a *Rose*, and sure to be a thing of beauty. Possibly, also, it may become the theme of the hysterical nonsense which seems to flow from the pens of some

writers on *Roses*. Now all these varieties of plants are usually ephemeral, and in a year or two are forgotten, like a shilling *startler* is in six months. A good fruit is in a different position; when once established, it will last for generations. I maintain, therefore, that a reasonable time should be allowed for the raiser to keep a right of property in his invention; the interests of the public would be benefited, as he would be able to offer the trees at a low price. Royalties are paid to patentees, and why not to the owners of a new fruit? As instances of the extent to which fruits of special qualities are distributed, I trust you will pardon me if I give the following: Two years since, a fruit grower from Marseilles travelled from London with the express purpose, as he assured me, of informing me how much he had benefited by planting the *Early Prolific* and *Czar Plums*, as he was a fortnight in advance of his neighbours. Another fruitgrower from Lyons introduced himself to me for the purpose of thanking me for the *Early Beatrice* and *Louise Peaches*, which gave him some ten days in advance of the growers at Marseilles. Another grower at Montreuil pointed out many trees which he had grafted with the *Early Beatrice*. Some few years since a fruit grower from Maryland landed at Southampton on Thursday, came to Sawbridge-worth on Friday, and departed to New York on Saturday, carrying with him the early *Peaches*. The *Czar Plum* is largely planted in New Zealand, and is one of the most popular sorts. At the Pear Conference at Chiswick the Fertility and Beacon were included in the list selected by the committee for popular planting, and the only British seedling exhibited was named the "Conference" Pear by the committee, and certificated as a market sort. Among the more luxurious fruit, I think few will deny that the Lord Napier Nectarine generally secures a prize at exhibitions. This is blowing my own trumpet with a vengeance, but I believe that I have a right to a grievance, and no jealousy need be excited, as all these fruits are now public property, unjustly, as I think. If patents are protected, why should not the protection be extended to seedling fruits?

I hope you will allow me to thank Mr. Coleman for the pleasant alacrity with which he has smoothed my ruffled plumes, and also "A. D." for his complimentary remarks. I beg to assure him my reason for not appearing in print is that "extreme modesty" which sometimes is the outcome of practical experience.

T. FRANCIS RIVERS.

ARRANGEMENT OF CUT FLOWERS.

I NOTICED the vase of Tree *Pæony* blooms figured in *THE GARDEN* (p. 167), and although I generally agree with what "Veronica" writes on such matters, I regret to say that in this instance I fail to do so. I have no fault to find with the arrangement of the *Pæony* blooms, but "Veronica" professes to admire what I should certainly regard as a blemish or a something savouring of affectation, which I think is quite as desirable to avoid as undue formality, which I dislike as much as even "Veronica" can do. I allude to the spray of *Clematis montana*, which is shown to have partially fallen out of the vase, and is resting, as it were, upon the table on which the vase is placed, conveying the idea that the unfortunate spray had somehow been knocked out of the vase or glass.

"Veronica" says "that no florist or ordinary gardener arranged that tazza." I can well believe this to have been the case. I have long been a member of a horticultural society, at the shows of which bouquets of various kinds as well as table decorations, consisting of flowers, are frequently shown, and these are generally admitted to be in

all respects arranged in accordance with good taste, being invariably arranged and exhibited by florists and ordinary gardeners.

Some years since this society invited ladies to take part in this competition, and this invitation was to some extent responded to. Ladies, too, on account of their acknowledged taste in floral matters, were asked to officiate as censors in this department. As competitors they were only moderately successful; while as judges I regret being compelled to admit that their decisions seldom gave satisfaction, competitors generally preferring to submit their productions to the florists and ordinary gardeners. It not unfrequently happens that in the arranging of cut flowers as well as in the laying out and arranging of flower gardens, &c., or in avoiding stiffness or undue formality, an unnatural affectation of simplicity is incurred which is possibly quite as deserving of condemnation.

P. G.

MODERN BOUQUETS.

"VERONICA'S" eloquent appeal to the ladies to accept his ideal posy in preference to an ordinary bouquet may help to bring the old style of bouquet into further disrepute, but I very much question if "Veronica's" idealism will ever be realised. That the large symmetrical bouquet is still used by some in preference to lighter and less formal arrangements is unquestionably a fact, and I venture to predict that there will ever remain among us those whose only idea of beauty is an excessive display of expensive material, but that ladies of taste and refinement still carry the monstrosities alluded to, or are wanting in appreciation of what is elegant without being cumbersome, is certainly an error. "Veronica" tells us that his ideas respecting modern bouquets are derived from what he has seen exhibited in the London florists' windows; therefore it is not surprising that he is somewhat in the dark as to the floral fashions of the present day. For although there may often be seen some very pretty bouquets of various forms and quite distinct from the old conventional style, yet the best and choicest productions are rarely exhibited. Ladies do not buy ready-made bouquets, but order them, and usually give some instructions as to what flowers are to be used, and, of course, in such cases the bouquets do not go into the shop window. Those exhibited are usually made of material which would be wasted if not made up to suit those of less cultivated tastes.

I have had some practical experience in the making up of bouquets and other floral arrangements, and I shall venture to say that the fan posy as suggested by "Veronica" could never become a reality. It might be made to look very pretty when first put together, but if carried by a lady at a ball, what would it be like before the evening was half through (especially as "Veronica's" posy must not have any wire in its composition)? I should say it would be simply a failure. For as soon as the flowers got a little withered they would drop out of position, and the affair would be a vexation instead of a delight to its bearer, and an object of ridicule rather than of envy.

With regard to the use of wire in bouquet making, when used skilfully it is of the greatest service. How long would a loosely-made bouquet without the aid of wire maintain a natural position when taken into a dry, warm atmosphere? I should say in the course of an hour or so what was in the first place a very pretty arrangement would soon become an unnatural muddle. If flowers are to be used as they are cut from the plants, fresh supplies would have to be at hand, so that the ladies could have a fresh posy say every hour. Here then would be a gain from a trade point of view. Where wire

is objectionable is when it is used by those who do not understand how to use it, in which case it is generally used too much.

A. HEMSLEY.

STANDARD PEARS FOR BRITAIN.

MR. BARRON considers three Pears fit to go in the list. They are put in. He thinks Jargonelle the Pear for Scotland. This is high praise. There are, however, so many complaints as to its drawbacks for marketing and keeping in the south, that we place it among early Pears, and put instead (at the suggestion of Mr. Coleman) Beurré Superfin. The aim is to have the standard Pears eventually good "all-round," as well as good in quality, and all marketable in case they are to spare for that purpose.

Late Pears of any quality are so few, that we add Olivier de Serres, having found it very good, even in the past poor Pear season. Our readers will note that we are not troubling about season at present, the aim being to get the really good Pears fixed in the mind. And then in our country and climate the season of Pears differs so much.

Easter Beurré in England is often a poor Pear, but we shall probably have to include it. The quality is so fine from various countries, that we think it might be grown well in the south of England if growers would study its wants and grow it on good sunny walls. Will any of our readers tell us where it gets to fine quality in our country?

No late Pear ever comes near it in quality of all those sent to the market. The only question is, Can we grow it as well as it is grown in Northern France?

The list now stands thus:—

1. BEURRE SUPERFIN.
2. MARIE LOUISE.
3. DOYENNE DU COMICE.
4. WINTER NELIS.
5. JOSEPHINE DE MALINES.
6. EMILE D'HEYST.
7. GLOU MORCEAU.
8. THOMPSON'S.
9. BERGAMOTTE D'ESPEREN.
10. ALEXANDRE LAMBRE.
11. NOUVELLE FULVIE.
12. OLIVIER DE SERRES.
- 13.

EARLY PEARS.

Citron des Carnes.
Doyenné d'Ete.
Williams' Bon Chrétien.
Beurré Giffard.
Jargonelle.
Seckel.

COOKING PEARS.

Catillac.
Uvedale's St. Germain.
Gilgil.
Bellissime d'Hiver.

— In selecting a dozen high-class Pears to represent the very best sorts in cultivation for the kingdom generally, is it understood that these are best for all kinds of culture, such as for orchards or gardens, on free or Quince stocks, or grown as pyramids, bushes, or as espalier and wall trees? It is very evident that nine-tenths of our wall Pears are of no use whatever grown on free stocks as ordinary orchard trees; and even on the Quince too many of them are sparse croppers, whilst quality is far from being what it is from walls. We must have Pears for the million as well as for the gourmet, and such Pears can only be got in paying quantities on free-growing trees. In this district the Jargonelle, once grown as a market Pear, has gone out of cultivation, and no other variety can be

found for early gathering at all equal to Williams' Bon Chrétien, which, by gathering the finest fruits early, will give the grower a month's season. Destroy Williams' Bon Chrétien, and the market and the masses will be robbed of one of their best, as well as cheapest Pears. Swan's Egg is doubtless a miserably poor Pear compared with the selected sorts; but what one can compare with it, or with the popular Hessel, for constant cropping, and therefore paying?—A. D.

— While thoroughly agreeing with those who are endeavouring to show that we are growing far too many Pears, I should like to point out that it is very easy to err on the side of growing too few. Those who have to supply Pears every day, and in considerable quantities, while the Pear season lasts, will readily understand that the varieties must not be too restricted, as some sorts each year are almost sure to fail to crop. [We are not going to have few, but like to "go slow."—ED.] What we want is a sufficient quantity to secure a succession as long as good Pears can be had, viz., from the middle of July to the end of February. Pears are very seldom good after that time. I will give a list of varieties that have proved to be good here, and from which a good succession can be had:—

Citron des Carnes (middle of July), wants eating off the tree.

Jargonelle (middle of August), wants eating off the tree.

Beurré Giffard (end of August).

Williams' Bon Chrétien (beginning of September).

Beurré d'Amanlis (middle of September).

Louise Bonne of Jersey (end of September).

Gratioli of Jersey (beginning of October).

Baronne de Mello (beginning of October).

Marie Louise (middle of October).

Beurré Bose (middle of October).

Beurré Superfin (end of October).

Comte de Lamy (end of October).

Pitmaston Duchess (October). [Not a good-flavoured Pear.—ED.]

Emile d'Heyst (beginning of November).

Duchesse d'Angoulême (middle of November).

[Not good for Britain generally.—ED.]

Winter Nelis (November).

Doyenné du Comice (beginning of December).

Passe Colmar (middle of December).

Huyshe's Prince of Wales (middle of December).

Ne Plus Meuris (end of December).

Beurré Sterckmans (beginning of January).

Bergamotte d'Esperen (middle of January).

Easter Beurré (February).

Olivier de Serres (February).

It will be seen that I have excluded Josephine de Malines, which is far from good with me. I may safely say it has proved the worst in point of flavour out of a collection of about sixty varieties. It is of better flavour on the Quince stock, mine being on the Pear and on a south wall. Mr. G. Bunyard says that Gratioli of Jersey is not good. This I was surprised to see. To show that it is good I always use it here for table, in its season, in preference to any other, and if the list of good Pears was restricted to six varieties, I should recommend Jersey Gratioli as one of them. It is well known that a Pear may be good in one garden and not so in another close by; hence it is necessary for growers to prove which do best in their particular district. Stocks, too, influence the flavour of the fruit to a very large extent. Great care should be taken by planters to find out which is the best stock for the particular soil and sorts before ordering their trees, and if this was attended to, fewer failures would result.—A. WATERMAN, *Preston Hall Gardens*.

— I am of the same opinion as Mr. Wildsmith, that Williams' Bon Chrétien should have a place in the list before the Jargonelle, this, in my opinion, being a long way behind Bon Chrétien in flavour and good looks. [We certainly did not think any one would say Bon Chrétien was as good as Jargonelle in flavour, but we settle the matter by putting both in the list of early Pears.—ED.] Bon Chrétien is a great favourite here with my employers, and comes in for a fair share of praise when put on the table. We grow it on south, east, and west walls, so are able to keep up a longer succession than if

growing it only in one position. This Pear is very much grown in orchards in this district for market. Pear-growing at Lockinge is anything but easy, the garden (close on the chalk) standing on a hill very much exposed. With root-lifting, however, adding clay and old soil from Vine borders, we manage to get fair crops every year. I note that Thompson's, which has proved a good Pear here, has a place on the list. Marie Louise, Doyenné du Comice, and Winter Nelis are in the front rank here also. What about Louise Bonne of Jersey? It is of good flavour here and first-rate in colour.—J. H. ROSE, *Lockinge Gardens*.

ROYAL HORTICULTURAL SOCIETY.

TO THE EDITOR OF THE GARDEN.

SIR,—Your being good enough to insert my note on guinea Fellows for the Royal Horticultural Society has had the effect of bringing in some first-class names of candidates for guinea fellowship. Allow me now to say that the council has decided to make the personal admission given to guinea Fellows transferable. This will meet two difficulties; one pointed out by an influential friend, an energetic believer in "the guineas," who gave me one day sixteen quite first-class names of candidates. He found that some of his leading City friends desired to become Fellows, but being too busy to attend the fortnightly shows, could not use the tickets, while they wished that their wives should be able to do so. The transferable ticket will admit of this. Again, friends of the society living in distant parts of the country and never coming to London feel that if they became Fellows they ought to be allowed to send the ticket to a friend who could attend the shows. This was strongly urged a long time ago by my old friend the late Mr. Isaac Anderson-Henry, of Edinburgh. They will now be able to do this, and the result will be that we shall have exactly the right sort of visitors to the fortnightly shows. It was often a grief to many of us at South Kensington to see really beautiful and most interesting little fortnightly shows, where by far the greater number of those present to benefit by them consisted of gardeners, nurserymen, and amateurs, who had served upon the committees, looking at each other's exhibits, and at the same time to know that there were numbers of ladies and gentlemen within easy reach of the shows with a real love of flowers and plants and who would delight in seeing shows which, though small, contained the pick of the plants of the most celebrated growers of each class, and new, little-known, and interesting plants, fruit, and vegetables sent up for judgment to the committees from all parts of the country. Now that the society will consist of Fellows who join the society to advance gardening, not to have the use of a London garden for their children to exercise in, it may be expected that these fortnightly shows will be popular to an extent they have never been, at least since I have known the society (more than twenty years). Judging from the first most beautiful and interesting show in the new quarters, the London Scottish Drill Hall, on March 28, the London leaders of the trade and some of the greatest amateurs mean to make the fortnightly exhibitions most attractive ones. The natural effect will be that before long they will be attended by numerous visitors. This will prompt still greater exertions on the part of the exhibitors, followed by a greater number of visitors, and so onwards.

Several friends whom I have asked to join as guinea Fellows have answered by applying to be made £2 2s. Fellows. I should hope that the much larger privileges given to the £4 4s. and £2 2s. Fellows will have the effect of caus-

ing many ladies and gentlemen able to be pretty constant visitors to the fortnightly shows to subscribe at the higher rates, and that some will become £4 4s. Fellows mainly to give a helping hand to the society in its new and purely horticultural start of life. I feel sure that the great bulk of the society will, like the Royal Agricultural Society and the National Rifle Society, consist of guinea subscribers, and I believe that a society mainly supported by a very large number of guinea subscribers will be stronger and more lasting than one dependent on a smaller number of subscribers at higher rates.

GEORGE F. WILSON.

Heatherbank, Weybridge.

ORCHIDS.

W. H. GOWER.

ZYGOPETALUMS.

THIS genus includes a large number of rather strong-growing, but handsome flowering plants. They bloom, for the most part, in winter and spring, and as their flowers are chiefly of some shade of blue, or violet, or violet-purple, it may very readily be inferred that they are showy and extremely welcome. They are not cool house plants, but require the temperature of an intermediate house to ensure satisfactory growth, without which they will not blossom. In winter, however, after the flowers have developed, they may be used for indoor decoration without injury, and less water will be necessary for their maintenance. But they should not be allowed to get dry; indeed, I am of the opinion that Orchids will withstand a low temperature better when they are moist than when they are dry. Zygopetalums are of free growth, and may be placed with other exotics in a stove. Use as soil a mixture of fibrous peat, turfy loam, and a little leaf mould. Drain the pots well, and supply the plants liberally with water, as under this treatment they will be sure to produce an abundance of their showy flowers in due season. The following kinds are all worthy of a place in any garden, and all may be said to be distinct.

Z. MACKAYI.—This fine old plant is one of the oldest of the genus, having been introduced about the year 1830. It makes a handsome specimen, having large ovate pseudo-bulbs and arching leaves; the scape grows to about 18 inches, or more, in height, bearing at the apex a raceme of large and effective blooms, the sepals and petals being flat and spreading, greenish yellow, blotched with blackish purple; the lip is large, the ground colour white, but closely covered with lines of bluish-purple, the disc being ornamented with a peculiar frill of the same colour. This frill on the lip is common to all the species. It comes from Brazil, and its flowers appear during the winter months.

Z. BRACHYPETALUM also flowers in the winter. It has narrow foliage and a tall, many-flowered scape; the sepals and petals are brown, streaked with green; the lip is white, streaked with a soft violet-blue. It comes from Brazil.

Z. CRINITUM produces large flowers, in which the lip, as in all the kinds, forms the chief attraction, the sepals and petals being green, blotched and barred with brown; lip creamy white, closely streaked with lines of blue, and in some varieties pink. It flowers in winter and lasts a long time in perfection either on the plant or in a cut state. Brazil.

Z. GAUTIERI is a smaller kind, and is a most profuse bloomer. The scape comes up with the young growth, and bears a drooping raceme of about six flowers, which are developed for the most part in spring and summer; sepals and petals large, green, blotched with brown, the petals standing erect with the upper sepal; lip rich purplish blue, bearing a very deep purple frill on the disc. Brazil.

Z. BOSTRATUM.—This species usually blooms in late spring and early summer, but if kept in the East India house it continues to grow more or less all the year round, and every growth produces flowers. These are very different in colour to those of the majority of the species. It is a dwarf plant with a creeping stem, and thrives admirably upon a piece of Tree Fern. The flowers are about 6 inches across; sepals and petals white at the base, becoming green upwards, and streaked with brown; lip large, pure white, and bearing a pale lilac frill on the disc, from which emanate a few radiating lines of the same colour. It comes from Demerara.

Z. BURKEI also comes from the same country. It is a slender, erect plant, with a scape considerably longer than the leaves; the flowers are about 2 inches across; sepals and petals bright green, curiously streaked and blotched with dark brown; lip white, with a crimson frill; they appear in the winter.

So far I have been treating upon imported kinds. The following, however, are the result of hybridising at home, and are exceedingly beautiful:—

Z. CLAYI is a form obtained by Col. Clay, of Birkenhead, and should find a place in every stove. The scape bears from three to six flowers during winter and spring; the sepals and petals are large, purplish brown, bordered and transversely streaked with bright green; lip large, wholly rich violet-purple, with a deeper coloured frill on the disc.

Z. SEDENI is another hybrid of great beauty. It is the result of a cross between *Z. maxillare* and *Z. Mackayi*. The scape is erect and bears about eight flowers, sepals and petals very dark and shining, lip white covered with lines of violet-blue, the frill rich deep violet.

Aerides Houletianum.—This is a by no means common plant, but is extremely handsome. The spike is pendulous and dense and the flowers are large, the ground colour being buff, the sepals and petals, in addition, tipped with magenta; lip creamy buff, broadly marked in front with rich magenta. It belongs to the falcatum section, and usually blooms during May and June; but it was recently in full flower in Messrs. Veitch's nursery at Chelsea. It comes from Cochin China.

Sarcanthus usneoides.—This is the name of a pretty little species which was recently flowering in Messrs. Veitch's nursery. It does not appear to make any leaves—at least, it has not done so since it has been at Chelsea, but is now bearing two spikes of bloom, each with three flowers. These are creamy yellow, boldly spotted with brown, the segments all being obtuse. Although it cannot be considered a showy species, it is exceedingly interesting, and the flowers are comparatively large.

Cattleya Skinneri.—Numbers of this superb Cattleya are now flowering with Mr. Bull in the cool end of an intermediate house, and it is not too much to say that it is equally as beautiful as any species yet introduced. It grows about a foot or rather more high, the bulbs being club-shaped, and bearing upon their summit a pair of spreading, fleshy deep green leaves. The flowers are borne in clusters of from six to twelve, and are wholly bright rosy purple, the front of the lip being somewhat deeper coloured. It is a native of Guatemala, where it obtains the name of Flor de San Sebastian, and was first found by Mr. Skinner, whose name it worthily commemorates.

Vanda gigantea.—This is perhaps the most massive and stately Orchid yet known, and it is to be regretted that the flowers are so comparatively insignificant. The leaves are two-ranked, broadly strap-shaped, and recurved, 1 foot to 18 inches long, blunt at the ends, very thick and fleshy in texture, and pale green. The raceme is pendulous, and sometimes carries as many as a dozen flowers, each being about 3 inches in diameter; these are of great substance and of a rich yellow colour, curiously blotched with brown; lip small and white. Owing to the flowers being very thick in texture, they last a long time if kept dry. It is in bloom with Mr. Bull.

Cymbidium eburneum.—Two fine examples of this beautiful species have recently been noted by me in my rambles, one in Mr. Williams' nursery, at Holloway, bearing twenty-six flowers, and another superb plant in the collection of Mr. Measures, at Streatham, bearing thirty flowers. Both these plants have been grown in moderate heat and are pictures of health,

their vivid green foliage contrasting beautifully with the ivory-white flowers. In both establishments there are smaller plants of this species flowering, and amongst those at Holloway I noted some forms beautifully marked with rosy-crimson round the lip.—W. H. G.

A DECADE OF HOME-RAISED DENDROBIUMS.

NEXT to that of Cypripediums, the genus Dendrobium is among Orchids the one that has received the greatest attention by most raisers of seedlings. The genus Cattleya, of which some beautiful hybrids have been produced under cultivation, is apparently, and with but very few exceptions, the monopoly of Messrs. Dominy and Seden, having first seen the light in the houses of the Royal Exotic Nursery, Chelsea.

As regards Dendrobiums, we are, on the contrary, indebted to several hybridisers, and although the lead is well kept up by the Messrs. Veitch, there is a certain amount of competition in their production which has brought into prominence the names of at least half a dozen raisers. If all anticipations are fulfilled, the list is most likely to lengthen every year as the products of already fertilised flowers make their appearance. Out of the ten most distinct hybrid Dendrobiums already raised, no less than six have come from the Chelsea establishment. There is the lovely *D. Dominii*, whose flowers adorn our houses in very early spring, or rather during the winter, as they generally open in January and February. It is the result of a cross effected by Mr. J. Dominy between the popular *D. nobile* and the rarer and less robust *D. moniliforme*, and it is intermediate in growth between the two parents. Then there is the exceedingly pretty *D. micans*, which owes its origin to the intercrossing of *D. lituiflorum* and *D. Wardianum*. Its flowers, which are over 3 inches across, have the glossy, wax-like texture of *D. Wardianum*, the sepals and petals being mauve-purple, paler towards the base. The lip is nearly the same as that of *D. lituiflorum*, white, with a large maroon-purple disc and a rose-purple blotch at the apex. As an illustration of the influence of parentage on these artificial productions, Mr. H. Veitch, on submitting to the scientific committee, on March 13, two flowers of this variety, observes that:—

The two flowers of *D. micans* were each raised from a different cross—one from *D. lituiflorum* and the Assam form of *D. Wardianum*, and the other from *D. lituiflorum* and the Burmese form of *D. Wardianum*. The Assam form of *D. Wardianum*, as is well known among cultivators of Orchids, has shorter and more slender stems, but more highly coloured flowers than the Burmese form, and it will be noticed that the last-named peculiarity is perpetuated in the hybrid. We may also add that the seedling from the Assam form has more slender stems than that from the Burmese form, which, like its parent, has the more robust stems and paler coloured flowers.

With the exception of the two above-named varieties, all other known garden hybrids have *D. aureum* for one of their parents. Why that particular species should have been selected as a parent by all raisers alike, it is difficult to say, unless these have all been prompted by the same desire, viz., the raising of sweet-scented varieties, as it is for its delicate, yet exquisite perfume that *D. aureum*, or, as it is more commonly called, *D. heterocarpum*, is most particularly appreciated. In *D. endocharis* we have a plant of very easy culture, derived from *D. japonicum* fertilised by the pollen of *D. aureum*. Its flowers, which have a delightful Violet fragrance, are produced in pairs, and are nearly as large as those of *D. aureum*, but with broader

milk-white petals; the lip is nearly like that of *D. japonicum*, having a hairy surface to the disc, which is marked with purplish crimson lines. In general appearance the hybrid is intermediate between its two parents; like those, it is of erect habit, but its stems are much stouter than those of *D. japonicum*, and the joints or nodes being less than 1 inch apart, the plant when in bloom presents quite a mass of delicate white blossoms relieved by the purplish crimson spots on the lips. Like *D. japonicum*, this hybrid possesses the advantage of being very free-flowering, and of producing its sweet blossoms while quite in a young state, bulbs less than 4 inches in height being already furnished with them. This most interesting mule has already been the means of producing other varieties, as we find it used as a parent plant in connection with *D. nobile* in the raising of *D. euosmum* and *euosmum leucopterum*, both varieties which are by that means related indirectly to *D. aureum*. The first named of these two comparatively new hybrids, whose bulbs resemble those of *D. nobile*, has creamy white flowers marked with light purple. The apex of the upper sepal and of the petals is of the same colour, as is also the disc situated in the middle of the lip. Some parallel veins of the same colour are also disposed on each side of the upper edge. The whole flower is larger than that of *D. endocharis*, and the rhomboid shape of its lip is sufficiently indicative of its origin to show that it has been derived from *D. aureum*, from which species it has also borrowed a most exquisite perfume. In the second named hybrid we have a purer white flower, but the blotch of dark purple which ornaments the lip is of smaller dimensions. Then we have the superb *D. splendidissimum* and *D. s. grandiflorum*, both of which have been obtained from *aureo-nobile* crosses at the Chelsea establishment. The flowers of the former are, to use Professor Reichenbach's own words, of a firm waxy texture, as large as those of *D. albosanguineum*, and shining as if covered with varnish. The petals are cream-coloured, with some light purplish crimson round the tips. The lip has a tint more of yellow than the sepals and petals, while the disc is dark Indian purple with many radiating lines running out from the blotch on the disc.

D. s. grandiflorum is a great beauty, and by far the most magnificent form of that section yet obtained through artificial fertilisation. Its flowers are larger, with all the segments broader than in the original *D. splendidissimum*, or in any of its congeners. The sepals and petals are rose-purple at the tips, becoming paler towards the base, where they are white; the blotch on the lip is unusually large, and is of the richest Indian purple. It is surrounded with a zone of pale yellow, and the apex of the lip, like the sepals and petals, is rose-purple. Both varieties are good growers and very free bloomers.

From other raisers we note the beautiful *D. Ainsworthi*, raised by Mr. Mitchell, gardener to Dr. Ainsworth, and the equally handsome *D. Leechianum*, raised by Mr. Swan while gardener to the late Mr. W. Leech, of Fallowfield, both places near Manchester. These two splendid varieties, which are somewhat in the way of *D. splendidissimum*, though sufficiently distinct to have been thought worthy of special names by no less an authority than Professor Reichenbach, are also the products of crosses effected between *D. aureum* and *D. nobile*. In both cases the lip, which is lobed, reminds one of that of *D. aureum*, but the anterior disc is ornamented with a large blotch of dark purple, while on each side veins of the same colour extend to its very base. The ground colour is of a purer white than is generally seen in any form of *D. nobile*,

and the extremities of the petals and sepals, and also of the lip, are in each case of a very rich rosy-purple. The delicate perfume peculiar to *D. aureum* has also been to a great extent perpetuated in these hybrids, both of which are good growers and very free-flowering. Bulbs measuring barely 5 inches in height are frequently found with several flowers. The *D. chrysodiscus*, exhibited by Sir Trevor Lawrence at the meeting of the Royal Horticultural Society on Feb. 14 last, is a hybrid of great interest and undoubted merit. It is related, though indirectly, to the much-valued *D. aureum*, for it is the result of a cross effected between two very striking subjects, *D. Ainsworthi* and *D. Findleyanum*, and shows the beauty of both parents, the former of which is an hybrid of *aureo-nobile* origin, while the latter is quite a distinct species. The *Ainsworthi* parentage evidently predominates in the characters of the flowers; these are of the same dimensions, but mostly of white, with a dense bronzy-red and yellowish blotch at the base of the lip and brown bars on the throat; the rather narrow sepals and petals are of a delightful colour and tipped with rose. The flower when fully open measures about 2½ inches and is very showy, and the plant appears to be, like all other hybrids, a free grower and bloomer.

The most striking of all home-raised hybrid *Dendrobiums* is undoubtedly the one called *D. Schneiderianum*, which we lately had the good fortune to see when on a visit to Messrs. Veitch, to whom several flowers had been sent by its fortunate raiser, Mr. W. Holmes, gardener at Grangethorpe, Rusholme, Manchester, who some five or six years ago had charge at Cromwell Grange, Fallowfield, of the excellent collection of Orchids of Mr. Oscar Schneider, after whom the new hybrid is named. It is the result of a cross between a very good form of *D. Findleyanum*, fertilised by the pollen of *D. aureum*, and the offspring partakes in a marked degree of the characters of both parents. It is now about six years since several seedlings were raised, and when some three or four years ago Mr. O. Schneider parted with his valuable collection these were given to Mr. Holmes, who was then engaged to take charge of his new place at Grangethorpe. In their new home these tiny seedlings, which then needed much care and attention, grew freely, and in time produced good bulbs, some of which are now about 12 inches high and bear no less than eighteen beautiful flowers, the largest of which measures nearly 3 inches across. The petals have a pure white ground, and are suffused with rosy pink at the tips; the lip, flat and rhomboid in shape, is orange colour, with a broad band of white all round; its apex is, like the other divisions of the flower, of a bright rosy pink. To show how free-flowering this lovely addition is, I may here state that the flowers are produced in pairs, and sometimes even three, at a node, and that small bulbs but barely 6 inches long are furnished with from six to eight blooms. Some of the seedlings, as is usually the case under such circumstances, vary a little, some of them being a shade darker than others. One form of smaller size shows a fine patch of purple on the lip immediately under the column; while another with flowers of same dimensions and similar colour shows on the lip more of the purple centre of *D. aureum*. Like all other hybrids derived from *D. aureum*, these seedlings are deliciously fragrant, and their flowers are of a more substantial texture than those of the female parent, which appears to have given them the colour that renders them so attractive. R. W.

Broughtonia sanguinea.—This is an elegant and charming species, and appears to be peculiar

to the islands of Jamaica and Cuba. It is not often seen now, and, therefore, it may be interesting to mention that a large specimen is blooming in Messrs. Veitch's nursery at Chelsea in the East India house. The bulbs are ovate and clustered together, and usually bear a pair of oblong obtuse leaves, the colour somewhat pale green. The spike is erect, and bears a raceme of rich crimson flowers, which are round and full. There would appear to be several other species of this genus, which should be introduced as well as more of this beautiful variety.

Cymbidium Lowianum.—A very fine example of this grand species is now blooming in the Cattleya house at Veitch's; it is bearing twelve spikes, each having some thirty or thirty-two flowers, which are nearly 4 inches across. The sepals and petals are bright yellowish green, more or less streaked with brown; lip creamy yellow, broadly blotched in front, and margined just within the edge with velvety maroon. These flowers make a magnificent display, and remain in full perfection for a considerable time. Care must, however, be taken, as, although the growth of this species is very strong and robust, the immense number of large blooms, if allowed to remain upon the plants too long, will cause the bulbs to shrivel, and thus materially affect the following season's display. The plant appears to be plentiful in Burmah.

Hybrid Odontoglossums at Mr. Bull's.—The *Odontoglossums* are just now strongly represented, and amongst them are numerous new natural hybrids which continually appear in every importation. Here are the names and brief descriptions of a few of the best: *O. crispum signatum*, a very pretty bold flower, the sepals being pure white, heavily spotted with chocolate, whilst the petals are of the purest white, without spot or tinge of colour; lip white, with yellow crest, and blotched in front with chocolate. *O. crispum amabile*—the ground colour of this form is yellow, profusely spotted with very bright chestnut. *O. imperator* appears to have much of the *Andersoni* type in it; the ground colour is soft creamy white, spotted with fawn colour; whilst *O. insigne* appears to have had *O. hystrix* for one of its parents; the spike is dense and the flowers large; sepals and petals deeply and coarsely toothed; the ground colour yellow, marked with large spots of bright chestnut; a very handsome form. *O. Victoria* produces a dense spike, the individual blooms resembling those of *O. sceptum* in shape, the whole of the sepals and petals being spotted with rich bright chestnut, rendering it very attractive.

SHORT NOTES.—ORCHIDS.

Two brilliant Orchids are *Ada aurantiaca* and *Sophronitis grandiflora*, both grown largely and now blooming profusely in Mr. Bull's establishment at Chelsea under quite cool treatment. Those who want showy flowers should grow these plants, as they are easily managed.

Vanda Goweræ.—I noticed that a plant of this species is about to flower in Mr. Bull's collection, but its spike appears to have become abortive, as all the buds but the apical one have gone blind. I am under the impression that this plant would thrive better if it were grown with the *Masdevallias*.—W. H. G.

Cattleya Trianae.—Herewith I send you a flower of a fine form of *Cattleya Trianae*. The bloom sent was one of four on a single spike.—C. J. ROWE, *Manfield Gardens, Dumfries*.

* * * An excellent variety of *C. Trianae*; the sepals narrow, sharp-pointed, and the petals massive and broad, the colour of a delicate rose; the lip is vividly coloured with the richest purple-crimson, and suffused with yellow at the entrance to the throat.

Odontoglossum Harryanum.—A good variety of this Orchid is now flowering in Mr. Bull's nursery at Chelsea, and, judging by this plant, *Odontoglossum Harryanum* will prove a much finer thing than was expected. In addition to all the colours being bright and well defined, the sepals and petals were spreading, and consequently the flower did not present the half-closed appearance as in the case of those hitherto seen. The plant appears to thrive well with the other species of the genus.

ROSE GARDEN.

T. W. GIRDLESTONE.

NEW ROSES AT CHESHUNT.

A CONSIDERABLE number of the new Roses of the current season of 1887-88 are, or have been, in bloom at Messrs. Paul's nurseries at Cheshunt. Of course, it is impossible to find all the varieties at their best on any given day, but on the occasion of a recent visit not a few of the novelties were to be seen to advantage, including additions of more than average promise and interest in nearly all sections.

To begin with the Teas, Guillot's new seedling, Mme. Hoste, seems likely to uphold its raiser's repu-

variety is Mme. Joseph Godier (Ducher), of erect habit and with flowers of mingled rose and yellow tints, recalling somewhat the variable hues of Mme. Lambard.

One of the most promising of the Continental Roses is Germaine Caillot (Ducher), which was well figured in the *Journal des Roses* last year, and which is sent out as a Hybrid Tea, although it is one which there will be no doubt or difficulty in classing among the Hybrid Perpetuals. The flowers, well carried on the erect shoots, are admirably formed and of a soft flesh colour slightly shaded with yellow at the base.

Several additions are made to the Polyantha Roses, including Georges Pernet (Ducher), with

difficulty in picking the plants out at once from all the rest, the wood covered with spines and the foliage being almost like that of rugosa itself.

The reports of Margottin's Hybrid Perpetual, Gloire de Margottin, from France and elsewhere are fully borne out by the flowers themselves, which are of the most brilliant velvety crimson colour and are most freely produced. Whether or not the flowers may lack fullness out of doors, there can be little question that this Rose is assured of a future, at any rate, as the most brilliant and beautiful crimson Rose to force for market.

Of English-raised Roses, The Puritan (Bennett), which created such a sensation when exhibited at South Kensington from America, is also a valuable forcing Rose, apparently able to stand any amount of heat, the white flowers, with lemon-tinted base, being of great substance and lasting a long while in perfection. Mr. William Paul's Silver Queen is a smooth-wooded Hybrid Perpetual, with large flowers of a pure silvery rose colour and of great beauty and perfection of form; a most promising addition.

Last, but not least, either in beauty or interest, come the new Cheshunt Roses, Red Pet, the new Fairy China Rose lately shown at South Kensington, making quite a display with its numerous crimson flowers, which are said to come quite a deep maroon colour in autumn; and Lady Alice, the exquisite, almost white sport from Lady Mary Fitzwilliam, that has already proved itself the easiest and most reliable pot Rose for forcing imaginable.

Among the Roses of the previous year which were in flower and maintaining their good quality were Château des Bergeries (Ledechaux), a beautiful pale yellow Tea; Orgueil de Lyon (Besson), a very well-formed Hybrid Perpetual of fair size and rich velvety crimson colour; and Mme. Treyve-Marie, a good-looking red Rose of the Marie Baumann type.

The large-flowered form of *Rosa multiflora*, raised by Bernaix and distributed in 1886-87 under the name of grandiflora, is a very lovely single Rose. It seems just as vigorous and free-blooming as the species, and the flowers are each as large as half-a-crown, of the purest white, and with bright golden stamens.

One of the 1885-86 Hybrid Perpetuals that was in flower, the immensely vigorous Princesse Amédée de Broglie, attracted attention to its cheerful red flowers by its great fragrance.

In other houses were finely-flowered examples of better-known varieties, including Ulrich Brunner, which has now proved its universal merit by establishing its value as a pot Rose; Comtesse de Camondo, a rich crimson of good form, not as often seen as might be; and Celestine Borreaux, only useful as a pot Rose; while among the Teas, Innocente Pirola was maintaining its supremacy as the best of all white Teas for pots.

The celebrated and patriarchal trees of Maréchal Niel are bearing this year finer flowers than ever, and are evidently endowed with eternal youth, affording a standing protest against the frequent allegation that the Maréchal's life is a short and merry one.

One of the houses was filled with a fine and well-flowered collection of Hyacinths; while another was rendered immensely attractive by a striking group of Amaryllis, including several magnificent seedlings.

Many of the single Roses in pots were coming into bloom, one of the most conspicuous being the pretty *Rosa berberidifolia* Hardyi. Most of these single Roses are now established and make a characteristic feature on the rockery at Broxbourne, where, in spite of the recent inclement weather, there are already a good many alpine and bulbous plants of interest in flower, and their number now, of course, increases daily.

SHORT NOTES.—ROSES.

Single Roses for exhibition.—In the class for a collection of garden Roses at the Crystal Palace next July, single Roses are certainly admissible, and some of the best and easiest to show in good condition are: *Rosa macrantha*, Hebe's Lip, *Rosa multiflora*, *Rosa*



Rose Edith Gifford, showing full sized bloom. See description (p. 316) and coloured plate. Engraved for THE GARDEN from a photograph by Messrs. Byrne, of Richmond.

tation, the flowers being large, pale yellow in colour in the deep outer petals, with a rich yolk-of-egg-yellow centre. There is ample room for some additional good yellow Roses, and Mme. Hoste promises to be generally as handsome as distinct. One of the most novel and distinct Teas yet seen is Princesse de Sagan (Dubreuil), which has flowers of a really brilliant crimson colour, far brighter than those of Souvenir de Thérèse Levet, or even than any of the red Hybrid Teas, but which nevertheless appears, as far as can be seen from forced plants, to be a pure Tea. The flowers are well formed and of good depth, though perhaps somewhat lacking in fullness, but there is no doubt about the distinctness and brilliancy of their colour. Another attractive

large trusses of miniature flowers of a bright rose colour with a decided yellow base, and Gloire des Polyanthas (Guillot), which received a first-class certificate from the Royal Horticultural Society on the 27th ult., and which is a seedling from and an improvement upon Mignonette, having flowers of a brighter rose colour and produced in even greater trusses than those of the parent. Guillot contributes a third seedling in Laurette Messimy, a very pretty and free-blooming China, bright rose in colour with a yellow base, not unlike the charming Camoens.

Madame Georges Bruant (Bruant), the outcome of the cross between *Rosa rugosa* and the Tea Som-breuil, was not yet in flower, but there was no

Intea and *Rosa punicea* (the yellow and copper Austrian Briers), *Rosa pulverulenta alba*, and the bewitching *Rosa berberidifolia Hardyi*, which is always an unfailing source of attraction to visitors.

In his quaint treatise published in 1822, Thomas Hogg, florist, of Paddington Green, mentions a single Moss Rose. Is it known whether this Rose still exists? Reference is also made to a variety called the Mossy Sweet Brier.

Rosa berberidifolia Hardyi has again proved itself capable of resisting cold, and looks well both on the rockery and in the open. Growers who find it tender as a cut-back should bud it on the seedling Brier, as it flowers abundantly as a maiden.

Suzanne Marie Rodocanachi.—Rose growers who are planting this spring should not fail to include this beautiful, but little-known Hybrid Perpetual, which grows well, has flowers of a clear rose colour much wanted, and is a thorough autumnal.

Gloire de Margottin.—This new Rose appears, from accounts received from independent growers both in France and England, likely to prove a valuable market variety, the plant being forced readily, and producing an abundance of really brilliant and well-formed flowers.

Roses after the winter.—As far as can be seen at present, hardly any Roses have suffered at all from the prolonged winter. The thermometer, 4 feet from the ground, has not on any night registered more than 20° of frost, and any degree of cold less than this is rarely harmful.

A fairy Rose.—A diminutive Rose is the Golden Fairy, one of Mr. Bennett's pedigree seedling *Polyantha* varieties. The flowers are too small for any purpose when used individually, and should be bunched several together. Golden is scarcely descriptive of the colour; it is more of a deep apricot, with the outer petals white. It is exquisite in form.

FLOWER GARDEN.

SINGLE HOLLYHOCKS.

It is gratifying to find "X." so hearty in his praise of these in *THE GARDEN*, March 17 (p. 269). For brilliancy and strength the single-flowered forms may be said to excel the double, especially when looked at from a distance; and surely all artists will agree that distance lends enchantment to the view of Hollyhocks—single or double, for that matter. The very stature and stateliness of Hollyhock plants, the size of their flowers and spikes, and their want of fragrance all suggest a distant standpoint for satisfying enjoyment and full admiration. Nor can it be denied that the excessive doubleness of not a few Hollyhocks lessens their beauty. Few plants are, in fact, more disfigured by the excessive crowding of blooms on the spikes and the overcrowding and crushing of the petals in the flowers. The glare of definite colour is also far more pronounced from single flowers than from the twisted or incurved convolutions of a mass of petals struggling in vain to unfold their beauty and form. One might go even further than this, and affirm that double Hollyhocks, like double Snowdrops, as things of sentimental enjoyment or picturesque beauty, are greatly lowered in value, if not half spoilt.

But what will the florists say? Well, they might justly say that the Hollyhock at best is hardly a florist's flower, and they might relegate it to its proper places—decorative embellishment and luminous landscape gardening.

It is hoped Mr. Goldring will forgive the phrase, and also inform the readers of *THE GARDEN* what he thinks of Hollyhocks, double and single, but especially the latter, providing glowing colours in landscapes at lines of altitude where colour is mostly scarce, inappropriate, or altogether wanting. The form of Hollyhocks might almost be called statuesque. It is assuredly unique among plants. Hence, perhaps, the admiration they never fail to excite when grouped in sufficient masses to fill and

satisfy the eye. For this bold grouping for distant effects on a massive scale, there can be no question that single Hollyhocks are the most suitable.

They not only seed more freely, but grow more vigorously, and are also more fruitful, as a rule, of stem and sucker cuttings. My experience, however, does not confirm that of "J. C." and others, that the single varieties are more of a match for the insidious fungus. Being undoubtedly more vigorous, they ought to be. But they are not so always, nor here. We grew hundreds of Hollyhocks, single and double alike, for years. But no sooner did the *Mallo* fungus come upon them, than they fell before it in the most wholesale way, until the whole were cleared off. We have tried and tried again many times since, but to no purpose. The spores of the spawn seem to lie in wait for the Hollyhocks, and seize them at once as a hungry wolf might a tender lamb.

But never till stately rows of them against terrace walls, and huge masses that linked together herbaceous borders, shrubberies, and plantations, were destroyed, did we realise to the full how much of stately grandeur, brilliancy, and breadth of colouring we had lost just at the most telling and effective heights in our landscapes.—CELESTE.

—These plants and the Hollyhock fungus are treated upon in *THE GARDEN*, March 17 (p. 269), and I read these remarks, "Many think there are certain mysteries connected with the growing of the Hollyhock, but there are few plants easier to cultivate, although, unfortunately, it has for many years been the prey of an insidious disease, the outcome of the faults of the florists in weakening the constitution of the plant through giving it unnatural treatment." As a grower and lover of the Hollyhock for thirty-five years, I have no hesitation in saying that the above quotation is mere assumption on the part of the writer. I cannot conceive how anyone could fancy there was any mystery in cultivating Hollyhocks, especially single ones; and in all my experience cannot remember an instance of an amateur or gardener suggesting such a thing. Further, what are "the faults of the florists"? What have they done to weaken the constitution of the plant? It is easy to make an assertion, but proof is wanted. I have propagated the Hollyhock in cold frames, in hot-beds, and in forcing houses times and ways without number since the year 1853, and the plants have ever been alike and as vigorous as possible, far more so than plants left outside. Will "X." be good enough to furnish proof that this is not so. The disease came suddenly, and in some cases spared the named varieties and attacked the seedlings. The wild Mallows were desiccated by the pest at the same time. The sturdiest plants, single and double-flowered, were all attacked alike. There are some persons who prefer single-flowered Hollyhocks to the noble double-flowering varieties now in cultivation; there cannot be many, but every taste may be gratified. I confess that I like to see a single Hollyhock; it reminds me of my school days, when single varieties were in almost every cottage garden in the Scotch village.

The second year of my apprenticeship in the nursery was a great year for new Hollyhocks. It was in 1853, I think, that a fine batch of new varieties was sent out by Messrs. A. Paul and Sons, of Cheshunt. Mr. William Paul, who was then in the firm, must remember them. The best were *Glory of Cheshunt*, yellow; *Beauty of Cheshunt*, rosy crimson. *Agricola* was another, there being ten or a dozen varieties. It was the popular flower then, and for some years after. Other raisers soon came to the front. Amongst others Mr. John Laing, then at Rosslyn House, Dysart, now at Stanstead Park, Forest Hill. The English varieties were much smaller than the Scotch forms, with high centres and scarcely any guard petals. The raiser of some of these was a Mr. Charles Baron, a shoemaker at

Walden, who raised many good varieties, which became the basis for other people to work from. It occurred to Mr. Laing to cross the small, high-centred varieties with the large, flat Scotch forms, and the result was most satisfactory. Varieties of an intermediate character and superior as garden plants to either of the parents were obtained, and those who have sufficient knowledge of Mr. Laing's seedlings will bear me out when I assert that they are the undoubted progenitors of many of the best-named varieties now in cultivation. Besides Messrs. Paul, of Cheshunt, there was Mr. Chater, of Saffron Walden, who did noble work, and made quite a specialty of the Hollyhock, enriching our collections with new and improved varieties year by year. The late Lord Hawke, too, was fascinated with the Hollyhock, and raised many good and distinct varieties. More recently good varieties have been raised in the north of England. There are many growers in the north, and within recent years flowers of superb quality have been exhibited at Newcastle as single blooms. This mode of placing the flowers before the public at exhibitions is not to be commended. One cannot tell how many went to make up a spike. The best way to exhibit them is the old plan of showing the spikes just as they were cut from the plants. They make a much better display, and there can be no deception. The spikes exhibited in London some fifteen to twenty years ago by Mr. Chater and Lord Hawke were worthy of great admiration. The disease certainly checked the cultivation of the Hollyhock everywhere, and although we have been comparatively free from it, probably by seasonable influences, a return of seasons favourable to the development of the fungus would soon destroy the fairest hopes, the brightest anticipations of a gorgeous display of beautiful flowers that the mind could anticipate, and the leaf beauty be transformed into dried-up skeletons rustling in the wind.—J. DOUGLAS.

NOTES ON HARDY PLANTS.

Hepaticas.—These raised from seed taken promiscuously from the different kinds of *H. triloba* afford delightful shades of blue and red, and even in the white forms you may get variety, especially in the colour of the numerous anthers. We may treat the Hepatica in a similar way to what is being done with the Hellebores, and there is this advantage in favour of the smaller *Ranunculac.*, that the cardinal colours are more pronounced. I have been prompted to pen this note by some seedlings just coming into flower. As a matter of fact I do not sow the seed, but merely transplant the self-sown seedlings. I grow the clumps in threes, red, white and blue, and I imagine that that may account for the different shades among the young stock.

Saxifraga Boydi and *S. B. alba* are, I believe, two new varieties raised by Mr. Boyd. Although fully exposed to the present trying weather, they stand well and are truly beautiful to those who love small things. From the names one would infer that they resembled each other in all but colour, but it is not so. The flowers of both are white and in other respects they differ very much indeed. The former very closely resembles *S. Burseriana*, but the spiny leaves are thinner and less glaucous, and the flowers, otherwise like those of *Burser's Saxifraga*, are three or four weeks later. The so-called *alba* is a much more robust grower, more glaucous, and larger in all its parts excepting the flower-stalks, which are so short as at first to cause the large, wax-like, pure white flower to appear to rest on the apices of the foliage rosettes. The flower and short leafy stalks of this variety strongly suggest *coriophylla* as one of the parents, and I should say that *Burseriana* is the other. These two *Saxifragas* may, however, safely be classed with the choicest of the small winter-flowering kinds.

Agave utahensis.—This is said to be perfectly hardy, but my experience of it last winter was the reverse, and all my plants but one were killed, though they had been well established during the summer. I have now, however, to report that one

specimen standing out fully exposed has withstood the present winter so far, and the weather of late has been trying enough. A different plan of planting has been tried, and it may or may not have been the means of keeping the present specimen sound. The plant was set so that the lower parts of the outer fleshy leaves were quite clear of the soil. This was suggested by the fact that it was these portions that showed the first signs of injury by frost. I have proved that other succulent plants are better able to withstand our wet winters when they had become in a small degree "leggy," such, for instance, as *Sedum spatulatum*, *S. sempervivoides*, and several Houseleeks, all known to be hardy enough when the lower leaves do not rest on the damp surface.

Hellebores.—As regards *H. niger* and its varieties, I lift, severely divide and replant every other year. I have done this at all times from September to March, according to the weather. I cannot say that even the small pieces either failed to grow or grew badly. My plants always flower freely the first season after planting, excepting such as have been divided just before the flowering time. My two-year-old plants have had between 100 and 200 flowers each, and many of the one-year-old examples have had scapes of three flowers. The variety is the so-called Miss Hope's. I have yet to divide my two-year-old roots, the present weather hindering the work. I believe there are three important points worth noting, viz., local conditions, the condition of the plants, and careful division and planting. My garden is on sandstone, but as regards soil, every yard is "made land." For Christmas Roses I have the soil deep and rich, but not by any means stiff. The position is between young fruit trees, but otherwise fairly open. The rainfall here is about the average, and I am 270 feet above the sea. As regards the condition of the plants, I venture to say that if you once get them well established, you may not only divide them with impunity, but with the greatest ease and advantage. There is a great difference between roots of this character and those of old stools of a hard and woody nature, which too often show, by their hollow and decayed root-stocks, that they are declining in vigour. These are the roots which when divided are likely to remain dormant, or make but very slow progress. With regard to the planting, I consider that when one is dealing with material grown on the spot, such roots have a great advantage over those imported. There is a great difference between young uninjured roots and those chopped short, limp and almost skinned by rough treatment and exposure, as is often the case with imported material. I have had experience, but no success, with such roots. When I divide the young washed roots each division has its ample roots coated whilst wet with a fine silky loam prepared for the purpose. When ready all are at once planted in the rich deep soil, and finished off with a heavy mulching of half rotten stuff. With liberal and careful treatment I believe plants of *H. niger* are better for biennial or triennial transplanting if other conditions are suitable; but as the latter are often wanting, as in very dry soil or stiff clayey land, the progress of the plant will doubtless be slower. In private gardens, however, half-a-dozen square yards or so might be specially prepared for the Christmas Roses, and if so arranged a frame could be readily placed over them in the flowering season.

Woodville, Kirkstall.

J. Wood.

SHORT NOTES.—FLOWER.

The Tenby Daffodil is one of the best of all the Trumpet section; its compact, rich yellow and neatly shaped flowers find many admirers. It is the first of its class in the market. Such Daffodils as these we cannot dispense with.

Narcissus Johnstoni.—We send you flowers of *N. Johnstoni*, a new Portuguese natural hybrid, very rare.—BARR AND SON.

* * A beautiful and graceful Daffodil, the colour a delicate pale yellow.

The White Squill, or *Scilla bifolia alba*, is a little gem, and was recently in bloom with Messrs.

Barr. It is very free, pure white, and just the right thing to go with the blue-flowered type, but it is not so vigorous, and is said not to thrive near London.

AMERICAN FLOWER NOTES.

Parkman's Oriental Poppy is the finest form of the Oriental Poppy that I have seen, large, deep, and brilliant, while the base of all the petals is splashed with black. It is a robust hardy perennial that will thrive even in poor sandy land. Francis Parkman, the historian, and ex-president of the Mass. Hort. Society, lives at Jamaica Plain, near Boston, and is a most interested worker among flowers. He has raised many hybrid Phloxes; the finest lot of *Aquilegia cærulea* I ever saw was in his garden; the famous *Lilium Parkmanni*—a true hybrid between *L. auratum* and *L. speciosum*—was the result of his labour, and the "flowering" Apple bearing his name and now being pushed by our nurserymen, emanated from his garden.

Delphinium Zalil is a hardy perennial, and will bloom the first year from seed. The flowers are large, sulphur-yellow, showy, and produced on numerous spikes 8 inches to 16 inches long. Discovered and introduced to Europe by Dr. Aitchison, of the Afghan Boundary Commission. First raised by M. Max Leichtlin, of Baden-Baden. Every lover of hardy plants should get it. Dr. Aitchison wrote of it:—

This plant forms a great portion of the herbage of rolling downs of the Badghis; in the vicinity of Gulran it was in great abundance, and when in blossom gave a wondrous golden hue to these pastures; in many localities in Khorassan—about 3000 feet altitude—it is equally common. . . . The specific name adopted is that by which it is known in Afghanistan, but is probably Persian.

Aquilegia flabellata.—A Japanese species of a stocky, free-blooming nature. Flowers creamy white. By the way, why is it that our seedsmen and florists will persist in giving us the host of double and single mongrels instead of the glorious species? No yellow variety has ever been so pure and lovely as *A. chrysantha*; no blue variety better than *A. cærulea*, *A. glandulosa* (Grigor's), or *A. olympica*; white better than *A. cærulea alba*, or red better than *A. formosa* (true).

Salvia coccinea var. lactea.—A white variety of a common old plant. As a variety it may be all right, but I should think that a white variety would be nearly as desirable as the old coccinea form.

Statice superba.—An annual from Turkistan, forming tufts of sinuately cut and lobed foliage, and from the centre of which arise several plumose spikes 18 inches to 24 inches high of white to rose-coloured flowers. Hardy Statice, both annual and perennial, are a most undeservedly neglected race. Than *S. latifolia* we have few more desirable hardy perennials, and I have had *S. Suwarowi*, an annual, finer than I ever saw it illustrated.

Salvia prunelloides.—From Jorullo, Mexico. An old plant re-introduced. Perennial, tuberous-rooted, but blooms freely the first year from seed; hence may be treated as an annual. Grows some 2 feet high and produces flower-spikes 10 inches to 12 inches long, the blooms being of a blue-purple shade.—W. FALCONER, in *American Florist*.

Abnormal lateness of Snowdrops.—Through the whole of March Snowdrops have been struggling against a succession of snowstorms, thaws, and frosts to unfold their beauty, and hardly yet (March 23) can be said to be in full bloom. The Crimean Snowdrop, mostly later than the common forms, whether single or double, is only just breaking

ground, so that April will probably be the best month for Snowdrops in not a few gardens this year. It seems singular that the common yellow Crocus has flowered even in the teeth of the nasty weather with more regularity than the Snowdrop. The Crocuses almost side by side with the semi-baffled Snowdrops have been in full flower for the past fortnight on warm soils and in sunny places, the abnormal cold of March having retarded the Snowdrops more than their golden companions—for they cannot properly be called rivals. Not for many years has everything been so late towards the end of March as now. We have often had frosts of far more exceptional severity, but very seldom a whole March so low in temperature as this March, 1888. Violets in the open have been severely hurt, and Strawberries have lost their leaves in not a few gardens; while as for edible greens, since the last Sprouts vanished with the latest Cauliflowers, not a few have been fain to feast on the leaves of Scotch Kale cooked in a variety of forms.—D. T. F.

HARDY FLORISTS' FLOWERS IN APRIL.

WE do not care to trust our choice varieties of Carnations and Picotees out of doors during the present severe weather. Keen frosty winds cannot but be injurious to plants placed where they are exposed to them. As soon as it is seen that the weather is changed for the better, the plants may be arranged in a favourable position out of doors. At present they have made scarcely any growth, but, as a rule, they have spindled for bloom by the end of April, and at that time it is necessary to place sticks to them to prevent their receiving any injury. In our district the common house sparrow is a most troublesome pest in April. They eat the tender growths as fast as they are developed. Fortunately, the birds are timid, and will not touch them if white threads are strained over the plants at a height of 1 foot or 18 inches from the ground. Slugs would be troublesome, but we place a layer of soot under the loose ashes on which the pots are placed, and they are no further trouble. We have done nothing to the plants out of doors as yet, except to clear the space around them of weeds, and to press into the ground any that may have become loose. Neither slugs nor leather-coated grubs have been troublesome. We were more bothered with rabbits in our last place than anything else, and could only preserve our choice plants by putting wire netting 3 feet high around the beds.

GLADIOLUS.—It has been a very bad season for planting these out. I like to begin not later than the first day in March, and finish about the 1st of May, planting a few once in two weeks. The ground was in capital condition when the frost went early in March, and an opportunity had to be snatched to get in all crops that were in arrears. It is a good plan when the ground is rather wet to draw drills and to plant the bulbs in them, with a little white sand under and over; fill up the drills with dry sandy loam (siftings from the potting shed will do very well) and level the ground in with a rake. There ought to be about 3 inches of soil over the crowns of the bulbs. I have sometimes potted choice varieties and kept them in cold frames until the end of May, when they were planted out in the open ground. The one-year-old seedlings, the corms or bulbs of which are of the average size of a Marrow Pea, ought to be in the ground some time in March. I consider the first week in April the best time to sow seeds, and the best way for those who do not grow very large quantities is to sow them in pots, and to plunge them to the rim in a gentle hotbed, the mild, moist heat of which will cause the seeds to vegetate speedily. Plants an inch or more high will be formed in three weeks.

HOLLYHOCKS which have been wintered in pots may be planted out as soon as the weather is favourable. The ground should have been prepared for them the previous autumn, and as this plant is, like the Dahlia, a gross feeder, the soil should be well enriched with manure. A mistake is sometimes made of allowing the plants to remain so long in small-sized pots that the roots have become matted, and it becomes necessary to disentangle them at

planting time to their permanent injury. It is much better to shift the plants on into larger pots if necessary than to plant them out in bad weather when they may receive a check from which they do not soon recover. The plants propagated from cuttings during February may be repotted as soon as they are well rooted, but as propagation has taken place in a warm house, it is necessary to be careful that they are gradually inured to the chilly atmosphere of a cold frame.

PANSIES AND PINKS as hardy border plants require much the same treatment during the early spring months as in the case of the border Carnations; the ground must be kept clear of weeds, and the plants should be pressed in firmly when they become loose. Those planted late in the autumn are sometimes thrown out of the ground altogether by the action of alternate frosts and thaws.

PENTSTEMONS AND PHLOXES may be planted out whenever the weather is favourable. Young plants always do best, and none of our hardy favourites delight more than these in rich, deep loam. The Pentstemons do well grown, like Calceolarias, in cold frames, either in boxes or planted out, and should be removed with a ball of earth attached to the roots. There is no need to winter Phloxes in pots, as they are perfectly hardy anywhere; but they should now be planted out if they have been grown in pots during the winter. Cuttings may be made now, and if taken off with a heel attached and placed in separate pots on a hotbed will soon form roots. These plants, when potted on into 5-inch or 6-inch pots, will each produce a handsome spike of flowers in the autumn. They make an excellent display arranged amongst dark-leaved plants in the greenhouse or conservatory, and the flowers give out a delicate perfume. The plants out of doors must have sticks placed to them when the stems have grown to the height of 5 inches or 6 inches, as they so readily snap off in a gale of wind.

PYRETHRUMS are very pretty in the spring months. It is interesting to watch the development of the leaves of these plants. They are of a rich deep green and feathery, like the fronds of some ferns. Soon the flower-stems will appear, but they do not suffer from frost. Any young plants that have been purchased and sent home in pots should be planted out at once, as they suffer by the confinement of the roots. It is as well to see that they are inured to the cold before they are planted out, as plants, though hardy enough in themselves, may be made tender by confinement under glass.

TULIPS have pushed through the ground very strongly, and so far they do not seem to be injured in the least by cold winds. Our plants are not protected in any way; they are simply grown as any other border plant, and we always get a gorgeous display of bloom. If the flowers have to be sheltered to preserve them for exhibition, an arrangement of glass-lights is better than the old-fashioned canvas covering, which may shelter from wet and high winds, but prevents the sun's rays from reaching the flowers. The canvas tents are high enough for a person to walk under, and the scrim or canvas is pulled up or let down at pleasure by pulleys.

JAS. DOUGLAS.

DIANTHUSES.

ALTHOUGH this term includes a large and beautiful family, yet somehow we rarely give the appellation to the Carnation, Pink, or Sweet William sections, these having been so well supplied with popular English names. Even the pretty annual forms which are most commonly termed Dianthus are once well known as Indian Pinks, but of late there have been introduced various single and double Chinese and Japanese varieties which somehow now seem to be more easily classed under the designation of Dianthus than under any other appellation. Properly, Dianthus of this order are not annuals, but biennials, but we treat them as annuals, and as they are not sufficiently hardy to withstand our winters unprotected, and, further, seed freely, and come from seed as freely also, they give far less trouble when treated as annuals. It is only needful to sow seed thinly now in a cold

frame or house, in shallow pans or boxes, to have it germinating readily enough in a couple of weeks, and when the pans have been stood outdoors in a sheltered place for a week or so that the plants might harden, the latter may be dibbled into their summer quarters, and the trouble is over. If it is thought too much trouble to raise the seed under glass, it can be sown about the middle of April out in the open ground either broadcast or thinly in shallow drills. Sowing under glass and transplanting enables a little seed to be made the most of, as the seedling plants may be dibbled out at regular intervals of from 9 inches to 10 inches, and the plants will, during the summer in good soil, develop into a perfect mass of flowers.

The single forms furnish, perhaps, the most beautiful flowers, for few can excel in elegance the singularly laciniated ones found on the best strains, the blooms whilst fringed being also large and of fine form. Snowflake, pure white; Brilliant, rich blood-crimson; Eastern Queen, white mottled with red, and Crimson Belle, maroon-crimson, are very beautiful selections. Possibly none are absolutely perfect even now, as there is always a tendency in the best saved strains to change a little, but some ninety per cent. come true to character; hence they can be relied upon to make self masses of colour, and whilst the singles are so beautiful in masses, they do not lend themselves so readily for cutting as do the fine double varieties of which there are mixed and self strains. These are better known as the diadematus section, though really differing from the ordinary Heddewigi forms only in the flowers being double. Very few of these have been selected as selfs, the best so far being Snowdrift, a pure white-flowered variety, but the flowers vary somewhat, some resembling those of the pink Mrs. Sinkins, whilst others have petals beautifully frimbriated. Somewhat oddly last year from a big batch of this double white I obtained two coloured doubles only, one a deep crimson, the other magenta. Seed of these have been sown, and so readily does it germinate, that even in a cool house into which the frost enters growth is rapidly being made, as because the plants will be few they are being raised early. Brilliant was a selection from Eastern Queen, and gives more life or glow than does Crimson Belle. A good batch of the mixed doubles may well be raised annually, as these furnish cut flowers in abundance. Altogether the Dianthus annuals rank amongst the most beautiful of summer garden flowers.

A. D.

FLOWER GARDEN NOTES.

SPRING FLOWERS.—These are later than ever this year, as shown by the fact that on this 28th day of March Snowdrops and winter Aconites are still in full blossom—a most unusual occurrence, the end of February being generally considered late for these to be in flower. The general run of spring flowers may therefore be expected to be late. So much the better in some respects, as it may be hoped that the time of severe frost will have ended before protection of the flowers from frost is needed. Hyacinths and Tulips must be protected from frost when the flowers begin to open, as if left to take their chance the flowers do not last more than half the time as in the case of those protected from frost and bleak north-east winds. The best way to apply protection is to form a framework of hooped sticks over the beds on which to secure mats or canvas. I have seen such hooped framework made with iron-spiked feet that were easily pushed into the soil or turf, so that when not required for protection they could be quickly removed and as quickly replaced when wanted. Violas, Pansies, Daisies, Forget-me-nots, Silenes—in fact, all autumn and winter-planted spring flowers have as yet made very little growth owing to the changeable weather. They are now on the move, and having been loosened by the action of frost, the plants should be pressed firmly in the ground. If a slight mulching of fine leaf-soil or cocoa fibre be spread over the beds, such slight frosts as are now likely to occur will not have sufficient power to again upheave the plants, and their growth will continue uninterrupted. The late period at which spring flowers are likely to be

at their best will somewhat interfere with summer bedding arrangements, and it is not at all likely that we shall care to disturb the beds whilst they are so gay. It will therefore be wise to take a prospective view of the matter, and not sow too early any plants of rapid growth intended for summer bedding, and which, if they get pot-bound, rarely recover from the check. The following are some of the plants most likely to get permanently crippled if starved in small pots previous to planting out: Castor-oils, Maize, Hemp, Sunflowers, Dahlias, Marguerites, Verbenas, and Calceolarias. If already sown, grow them on slowly in cold frames. The two last-named may now with safety be transferred from the frames to the borders at the foot of fruit walls, and if protection for fruit trees cannot be extended to these, a few evergreen branches will be ample protection.

LEUCOPHYTON BROWNI.—There is no white foliated plant so beautiful as this, and, as often happens, plants of the greatest value or such as are most prized are generally difficult to propagate or grow, and this is certainly no exception. This season our cuttings of Leucophyton Browni have rooted well, and the plants being bushy and vigorous are now being transplanted from the cold frame in which they have been struck to another of the same description, with only sufficient soil—about 4 inches depth—to keep the plants growing slowly until they are finally planted in the beds. The roots are very brittle and the growth strictly perpendicular; hence the necessity of the hard bed of ashes on which the 4 inches of light vegetable soil is placed, and from which the plants may be lifted with a good mass of roots. The plant is comparatively hardy—I might almost add quite so—for there are a few examples still alive of those that were left in the beds when they were planted for the winter. The most effective way to use this Leucophyton is either as a groundwork for small panels or circles in beds where the framework plant of design is either dark green *Herniaria*, brown-bronze-coloured *Shamrock*, or the bright-coloured *Alternanthera amœna*. It is also very effective as an outer edging in beds that are raised above the level of the turf, and that have the upright part clothed with *Herniaria*. I ought to add that it bears clipping, but as it does not grow fast, very little of this is required.

CHRYSANTHEMUMS IN OPEN BORDERS.—I have previously alluded to the early or summer-flowering varieties, and from practical knowledge of their value advised that they should be grown largely. Young plants are, of course, the best, but old examples are not to be despised, for if they do not give quality of blossom, they give quantity at a time when good open-air flowers, Dahlias excepted, are becoming scarce. It is on this account that we have lately lifted, divided, and replanted all the best varieties we possess, and have a good stock of young plants growing on for planting out later in the season. All that is requisite after planting is simply to pinch out the points of leading shoots when about a foot long, which ensures a branching habit of growth, the only further labour they cause being to securely tie each plant to a stout stake, lest wind or heavy rainfall should snap off any of the principal branches. Some of the old stools of the earliest pompon and Japanese sections have also been planted out, the latter against spare bits of walls, to which they will be nailed, and pompons in the mixed flower borders.

MUSK FOR BEDDING.—The common small-flowered and Harrison's large-flowered Musks are good for bedding. Partial shade from bright sunshine is essential to have them in best form. They will grow and flower freely enough in the sunshine, but plants so grown are far less vigorous than those in the shade. Harrison's variety grows taller, has wider and greener foliage and flowers to match. We use Musk as an undergrowth, and most kinds of seedling sub-tropicals require such aids, or it is near the end of summer before the beds fill up. For beds of single Dahlias, tall Fuchsias, and indeed slender-growing plants of any kind, no better groundwork plants can be had, not the least of their good qualities being the delicious perfume of their leaves.

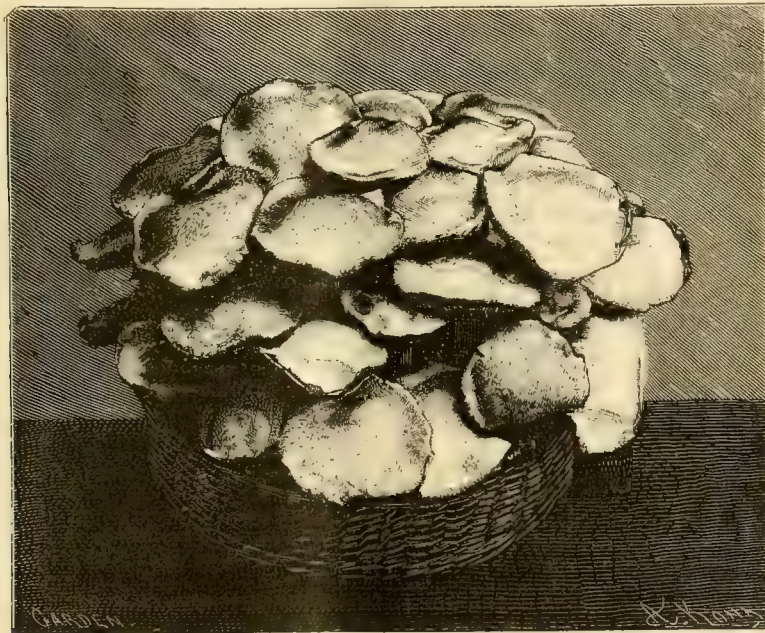
SEEDS TO SOW.—Golden Feather Pyrethrum has come to be despised, simply through its being so common, but for all that we cannot well do without it in our summer bedding arrangements. There is no plant that possesses all the good qualities that this does when kept closely pinched back, and unless this can be done it is better not to grow it at all. We have used it as an edging plant in large beds, and it stands the winter fairly well. Before now we have made good use of it as a groundwork for the panels in a small geometrically designed bed, but other less common plants, as, for instance, variegated Mesembryanthemums, have very nearly thrust Pyrethrums from the summer garden. Seed sown at once on a sunny aspect, with frame or hand-lights placed over it, will quickly make good plants—certainly by the middle of May, at which time transplanting from the seed bed to permanent positions may be done. Those who have not a dry soil and a clear climate should sow the seed in boxes under glass, prick out into frames as soon as the plants can be handled, and plant out as soon as ready. The following are also to be sown forthwith in hand-lights 18 inches square, which space is sufficient for the production of several scores of seedlings, so that one light for each kind is ample: Aquilegias, Carnations, Pinks, Pentstemons, Wall-flowers, Sweet Williams, Pansies, and Foxgloves.

W. WILDSMITH.

KITCHEN GARDEN.

MUSHROOMS.

THE accompanying engraving is from a photograph of a fine cluster of Mushrooms which I



Mushrooms. Engraved for THE GARDEN from a photograph sent by Lady Fitzhardinge.

gathered in the Mushroom house a short time ago. The cluster grew from one centre. Unfortunately, they were not photographed for nearly a week after they were gathered; consequently they are too much expanded, and do not represent that state of perfection which they had when gathered. The bunch contained thirty-five perfect Mushrooms, the whole forming a complete half sphere, not the least space or crevice between any one—a solid mass of Mushrooms. When I gathered them they weighed $3\frac{1}{4}$ lbs., and measured 3

feet 2 inches in circumference. There were many other very fine clusters on the same bed, but none so perfect in every respect.

RICHARD SHORE.

Berkeley Castle Gardens.

TOMATOES IN THE OPEN AIR.

LOVERS of Tomatoes had a good time of it last year, as in all probability fully double the quantity was grown than during any previous favourable season. Not only was the fruit plentiful and cheap, but the quality also was exceptionally good. Given a hot and fairly dry season, it is very evident that Tomatoes will do as well in the open air in this country as in America, and this fact ought to encourage all who own a garden to annually attempt their culture. Failures will occur with this as well as any other open-air fruits, much depending upon the weather, but, as a rule, intelligent culture will usually result in the formation and ripening of fairly remunerative crops. Many are apt to consider hot, sunny walls indispensable for Tomatoes, but this is far from being the case, as they may be and are frequently grown under a variety of circumstances. No two gardens being alike, it follows that the sites suitable for Tomato culture vary considerably; in fact, in very many instances the cultivator has to exercise a little ingenuity in creating them. No time should be lost in deciding what shall be attempted, it being of the greatest importance that the requisite number

and there are numerous sunny front walls of fruit and plant houses that might be similarly turned to a good account. They may be of any height, or, say from 2 feet to 4 feet high, as should a wall be too low to admit of the plants being trained uprightly, they will fruit equally well laid in obliquely. All that is necessary is to remove about 9 inches of any poor or clayey soil found at the foot of the wall, replacing this with the best loamy compost procurable. A width of 18 inches is ample, and if there is a good height of wall to train the plants to, they will thrive better in a raised border temporarily enclosed by either boards, loose brick walls, or turves. It is advisable to put out the plants 12 inches apart, and train them as single-stemmed cordons. In many instances there is nothing to prevent training the plants a foot or more from the top of the wall up the glazed roof, and last season we had numerous extraordinary clusters of fruit lying on the front of the houses previously alluded to. Even during an unfavourable season these warm front walls are really better positions for Tomatoes than many garden walls. In the first place, the plants start growing more quickly; they are always under the eye, being consequently less likely to be neglected at any time, and, what is of the greatest importance, may be readily protected in bad weather. Garden lights are often available in the autumn, and it is a simple matter to temporarily fix these over the wall of Tomatoes. The plants being well together, they may also be covered with mats when first put out, early planting being therefore a safe proceeding.

Of late years numerous outside Vine borders have been superseded by inside borders, and the former are capital sites for Tomato culture. No preparation is needed as far as the soil is concerned, a disused Vine border being rich enough for any fresh crop, and in after years a little fresh solid manure or a sprinkling of some kind of artificial manure is all that is needed for restoring fertility. The plants may be put out 2 feet apart each way and angled, a stout stake being placed to each, and during a favourable season will perfect very heavy crops of fruit. A better plan, however, is to fix a row or rows of shutters, old doors, boards, or strips of corrugated iron in a sloping direction, facing these, if need be, with galvanised wire netting of any mesh. These backgrounds will reflect a considerable amount of warmth, while the netting is suitable for training the plants to. They must be placed nearly or quite as far apart as they are high, or those in front will unduly shade those behind. The plants put out 12 inches apart and grown in the manner just indicated frequently produce and ripen exceptionally heavy crops of fruit. On no account should Tomatoes be planted in a border still occupied by the roots of the Grape Vine, but there is nothing to prevent its sunny front being covered by the trailing haulm.

A temporary bed for the roots may be formed in front of the Vine border, and the plants trailed thinly over either slates or boards. If kept cleared of all superfluous side shoots, fine clusters of fruit will form, and, if well exposed to the full sunshine, the earliest will ripen satisfactorily, while the rest may be cut and either ripened in a warm house or room, or be made into pickles. Much the same plan may be adopted by those who have a sunny wall, border, or well-sheltered spot, and there is no reason why Tomatoes should be confined to the kitchen garden.

As a rule, the earliest crops of Tomatoes are obtained from pot plants under glass, these per-

of plants be prepared for planting out. Where there are blank spaces between Peach, Apricot, and other trees on south or south-west walls, these may well be utilised for Tomatoes, but such spaces are not many in number, especially where the fruit trees are well grown. A few dozen plants at the most are all that can usually be grown in such positions; whereas 100 or more might well be grown where Tomatoes are appreciated, there being many methods of preserving, pickling, or otherwise utilising both the ripe and green fruit. One of the best positions for Tomato culture I have yet tried is the low brick front wall of a range of forcing houses,

haps being already furnished with fruit. After maturing a good crop of fruit they are usually thrown away, but this is not always the wisest course to pursue. During the early part of May these should be allowed to push out a number of side shoots from the old haulm, and not being neglected at all will, by the time the last fruits are gathered, be well furnished with a quantity of small clusters of fruit. Being slightly hardened off, they may be either set against a blank, sunny wall or along the path in front of a Vine border. In the former case the best of the fruiting branches may be nailed or otherwise fastened thinly over the wall; those in front of the Vine border to be laid on boards or slates. It is difficult to plant Tomatoes out from large pots, this being too much of a check. Instead of this, the pots should be well mounded over with loam and manure, and if kept well supplied with water the plants experience little or no check, the roots soon taking possession of the rich food surrounding them. Plants thus treated will produce, weather permitting, both early and heavy crops of fruit, their tendency being to fruit freely rather than form too luxuriant growth. If there are a few spaces on sunny walls where a tall plant may be trained, these should be specially prepared in order to obtain a long succession of fruit. Supposing there are a few plants not required for fruiting under glass, these may be shifted from small pots into 8-inch or rather larger pots, and kept steadily growing in a warm house. If duly staked clear of side shoots and set in a good light position, they will soon commence fruiting. Do not stop these plants, but rather encourage the development of several trusses of bloom. Towards the middle of May they ought to be hardened off and eventually planted in good soil. The first-formed fruits will ripen late in June or early in July, plenty more following in close succession. This method of preparation entails a little extra labour, but those who practise it are enabled to gather ripe fruits in abundance long before they are ready on plants not so prepared. It is an old plan and a good one. W. IGGULDEN.

Field Spinach.—Whatever may have been the experience of private gardeners in relation to their winter Spinach crops, that of the market growers has since the recent cold weather been bad enough. During the autumn and early winter Spinach breadths were wonderfully good, as a rule, where sown early, whilst late-sown ones were useless. The gatherings had been fairly remunerative, and one excellent product of a good breadth of Spinach is that pickings go on during open weather all the winter, and thus some small return weekly is certain. The bitter north-easterly winds chiefly and the frost also, however, have committed terrible havoc with the Spinach, and hundreds of acres of what before represented prospectively then a return of £5 per acre have been scorched and withered up so that not a green leaf could be seen. This is but one more example of the troubles which beset market gardening in this country. Some leafage will break up again if the breadths be left, but it would be small and worthless. The ground will therefore be ploughed and utilised for crops of Peas and Potatoes as soon as possible. Winter green stuffs generally are rather thin, and a good breadth of Spinach was all the more profitable; the loss is therefore all the greater. Summer Spinach would not pay to grow as a market crop; it is too fugitive; and winter Spinach, excellent as it may look in the autumn, is, as we have seen in this case, only too liable to wholesale destruction through adverse weather.—A. D.

Two good Potatoes.—If any grower were called upon to select two varieties of Potato to carry him through the season, he might safely rely on Beauty of Hebron and Sutton's Satisfaction. I

have more than once called attention to the special merits of the first named, and have been thoroughly substantiated by the market prices quoted for Potatoes. From the summer of 1886 until very recently it commanded a considerably higher figure than any other variety. It is emphatically the Potato both for the large and small garden, as although it is a strong grower, it is wonderfully productive. It has, therefore, in many cases quite taken the place of the Ashleaf, Early Handsworth, &c., for all purposes, except frame cultivation, as, in addition to the good qualities already enumerated, it is quite as early as any of the above-named varieties. For the benefit of those who have not yet given it a trial, it may be as well to mention that, like all strong growers, it is apt to be coarse if the ground is too stiff or rich, and the quarter where it is to be planted should therefore be deeply dug as soon in the autumn as possible. If the ground is inclined to be stiff, a dressing of leaf-soil some 2 inches or 3 inches in thickness well turned in will be found preferable to manure. The other variety to succeed Beauty of Hebron and last out until that Potato is again ready is Sutton's Satisfaction, one of the best late varieties in cultivation. This may seem rather a decided opinion in these days when good varieties are plentiful, but such is my experience. It crops well, is good in flavour, and disease-resisting, while it does well in all soils. This is a great point in its favour, as many of the older varieties, although good for a light, open soil, are very indifferent when grown in stiff land. I had a few of this Potato and Dean's Chancellor cooked the other day, in company with Magnum Bonum, and the wonderful strides made within the last few years in the improvement of the Potato were very clearly exemplified. The old variety was quite surpassed.—E. BURRELL.

KITCHEN GARDEN NOTES.

CAULIFLOWERS.—Autumn-raised plants are rather scarce, and those that have survived the long winter in hand-lights do not grow satisfactorily. Slugs are very troublesome, the shelter afforded the plants also attracting them. Occasional surface stirrings and a free use of ashes or soot and lime are destructive to slugs and beneficial to the plants, and the former may also be trapped with Broccoli leaves. Where there are more than five plants in a hand-light, the surplus ought to be transplanted with a trowel either to other hand-lights or the open ground. As those reserved advance in growth, the hand-lights must be raised or set on bricks. When the plants begin to crowd each other, more air must be given and the hand-lights eventually removed. Next take out a spit of soil outside of each corner plant, and after these have been eased outwardly with a spade this should be returned to the inside of the plants. In this manner all will have been given more room without experiencing any severe check. About this time the plants also need occasional supplies of liquid manure, this materially improving the size and quality of the hearts. Those raised in heat, duly potted off, and kept growing near the glass ought now to be strong, sturdy plants. These must not be kept long in small pots, or otherwise the check given will cause "buttoning" or premature hearting in. Those destined for hand-lights need very little hardening off, but any to be planted in the open ought to be set in a cold frame and given plenty of air at least a week before planting. They come on very rapidly at the foot of warm walls or on sunny borders between widely-sown rows of Peas. In each and every case the intended site ought to be heavily manured, as Cauliflowers do little good on poor ground. In order to be sure of a close succession it is advisable, where autumn-raised plants are scarce, to pot up a quantity of spring-raised plants of later varieties. Place one plant in a 3-inch pot or two against the sides of a 4-inch pot, keep them near the glass in house or frame and plant out early. The pairs must be split apart, and all move better from pots than from the soil of loose borders.

EARLY AND SECOND EARLY POTATOES.—Frequent heavy rains and snow showers have much delayed Potato planting, even on light and naturally free-working soils. In our case, the soil being of a

retentive character, the planting will not be far advanced before the middle of April. Where only a portion of the supply required by the establishment is grown, it is advisable to rely principally or exclusively on early and second early varieties, these being planted as early in April as the state of the ground permits. They require less room than the later varieties, most of which are of coarse habit, and seeing that they also mature much earlier, there is a better opportunity afforded for double cropping. Old Ashleaf, Early Eclipse, Ringleader, Mona's Pride, and Veitch's Improved Ashleaf are all very early, forming but little haulm, and are therefore suitable for sunny borders. They may be planted in shallow drills drawn 18 inches apart, a distance of 8 inches dividing the sets. The latter should be uncut beyond a snip off of the smallest end to ensure decay, and each should have one strong sprout attached. If this is carefully moulded over a strong start will be made, and an earlier and heavier crop of tubers ultimately result than is the case when two or three weakly shoots only are produced by a set. A succession will be obtained by planting a few of the extra early varieties in the open and Myatt's Ashleaf largely. These comparatively short-topped varieties are the best where it is the object to plant Brussels Sprouts, Broccoli, Cauliflowers, and Borecole between the rows; the drills should be drawn not less than 30 inches apart. They may also be planted in rows 2 feet apart and cleared off in time for a successional crop of either Savoys, late Broccoli, Borecole, Chou de Burghley, salading for winter, Spinach, and Strawberries. Good second earlies, such as Early Regent, Idaho, Sutton's Seedling, Snowdrop, Satisfaction, Reading Russet, Covent Garden Perfection, and Victor, all of which are of moderately strong growth, may be planted 3 feet apart and 9 inches from set to set, between these being eventually planted late Cauliflowers, early Broccoli, and Borecole. If preferred, the rows may be 30 inches apart, the crops being cleared off early enough for Turnips to be sown and salading, Coleworts and Cabbage planted. A sprinkling of either superphosphate of lime, guano, wood ashes, Potato manure, or soot stirred into the drills will be of good service to this crop and also to any planted among or in succession to it.

CARROTS.—On light, warm soils Carrots are less liable to become very coarse, and the seed may therefore be sown now; but where the soil is of a clayey nature or heavy and rich, early sowing leads to the growth of large and comparatively worthless roots. We find the second or third week in April quite early enough to sow seed for the main crop and late supplies, but invariably sow on a warm border late in March or early in April. The favourite variety for the latter position is the Nantes Horn, and as we sow a good length of border, the same bed furnishes a supply of tender young roots throughout the summer. The drills are drawn 9 inches apart and the seed sown thinly, no thinning out being resorted to until the roots are large enough for use. Nantes Horn and Veitch's Model are also very profitable in the open, these keeping quite as well as James's Intermediate, and often surpassing it as far as quality is concerned. Large roots are not profitable, but if they must be had, the New Intermediate should be sown, this variety being much superior to the old form. The drills for this may be 12 inches apart and shallow. Long Surrey and Altrincham are good keepers, but in our case are not needed. These require rather more room, or another extra 3 inches between the drills. Unless sand is well mixed with the seed of the larger varieties, it is impossible to sow it thinly and evenly. If the ground is not in good working order or finely divided, cover the seed with sifted sandy soil from the frame ground. Where the maggot is troublesome, fresh, well-pulverised ground should be chosen, and plenty of wood ashes sown with the seed.

RAISING TOMATO PLANTS.—When the seed is sown much before the first week in April the plants not unfrequently fare badly, and by the time it is safe to plant them out are in a miserably stunted condition. Last season the worst plants that could be put out eventually did well; but, as a

rule, unless a good start is made, very few fruits ripen on the plants. The aim should be to prepare healthy sturdy plants, which by the end of May are furnished with one partially developed bunch of bloom with more showing, and these under ordinarily good treatment will set and ripen several fruits long before the too-early-raised and much-starved plants usually put out. If the seed is sown at once thinly in 6-inch, or larger, pots or pans, plunged in a brisk bottom-heat, and kept duly watered and shaded from bright sunshine, it soon germinates. In about a week the seedlings will be strong enough to be set on a shelf near the glass and still in gentle heat, and should be thinned out if at all crowded. A week later they will be ready to pot off. Use light loamy soil, previously warmed through, and well-drained 6-inch pots. Fill these with the soil and dibble two plants in each up to the seed leaves and against the sides. Give a gentle watering. If kept in heat and shaded from bright sunshine they soon commence to grow strongly, and if placed in a light position will be about a foot in height and ready for hardening off by the middle of May. With another week in a cold frame or freely-ventilated pit they will be fit for planting out. They divide readily at planting time if single plants only are needed, and all may be depended upon to make an early start. Plants pricked off and kept in small pots for some time are the most apt to become leggy. There is no necessity to place them in small pots at all, but those who adhere to the practice ought to shift the plants into 6-inch pots before they are badly root-bound. Drawn-up plants ought to be given a stake; those raised as I have just advised do not need any. Very few, if any, varieties fail to do well in the open air during a favourable season, but Earliest of All and Laxton's Open Air are the first to ripen, and ought, therefore, to be generally grown. Mikado, Acme, Golden Queen, Perfection, Large Red, Hathaway's Excelsior, Trophy, Chiswick Red, Sensation, Hackwood Park and Dedham Favourite all succeeded equally well last season, and two or three at least of these may well be grown in every garden.

SPINACH.—Fortnightly sowings of the Round or Summer Spinach are necessary if a good supply is to be maintained. Being a quick-growing crop, one or two rows are generally sown between the rows of and at the same time as Peas. The seed should be sown thinly and no thinning is necessary until the young plants are fit to use. From this date the Victoria will be found the most suitable for sowing, this being a fine form of the Round-seeded, and not so liable to run to seed prematurely. Even this, unless sown on a cool, freely-manured north border, will be of little service during very hot weather, and the New Zealand Spinach is the only available substitute. The seed of this may be sown singly in 3-inch pots and set in heat to germinate. A dozen plants in most instances will be enough. Planted out towards the end of May on a sunny border, and about a yard apart each way, they will soon cover the whole of the ground and afford an almost unlimited supply of tops.

VARIOUS.—If the Celery yet remaining is carefully lifted and closely bedded in behind a north wall, this will check bolting, and leave the ground at liberty for other crops. Leeks and Salsafy may be similarly treated. Broccoli has been much crippled by frosts and cold winds, and many plants that had commenced hearting in are completely spoilt. These ought to be cleared off on the first favourable opportunity. A few warm days will cause whole breadths of March and April varieties to heart in together. This may be prevented by transplanting a number of them to a cool border. The earliest Brussels Sprouts will now yield little beside greens, and will continue to do this if lifted and bedded in closely. Newly-formed Strawberry beds ought not to be wholly given up to Strawberries this season. Two rows of Tripoli Onions may be planted in each space between the rows of Strawberries, or drills may be drawn and Onion seed be sown, the white Spanish types being the most suitable. Lettuces, Spinach, and Kidney Beans may also be grown in these positions. It is not yet

too late to lift, divide, and replant Rhubarb in heavily manured and deeply-dug ground. Sorrel may yet be divided and replanted on a cool border, or drills may be drawn 9 inches apart and seed sown. Seedlings produce fine leaves the second season after the plants are raised from seed.

W. I. M.

Early planting of Potatoes.—On the whole catching up time has only led to a fall, for Potatoes have on the whole proved to be better out of the soil than in it. It is all very well to plant tubers when the conditions favour growth, but it is worse than useless to plant a month or even more before the temperature will promote activity. If the sets would remain dormant in the store they would be far more likely to remain dormant in the cold soil, and in the meantime earth vermin may do the sets harm. But the worst feature connected with early planting is found in the tendency of the soil to settle down firmly, and as the growth may not get through for some six weeks the soil will not only in that time under the effects of heavy rains become firm, but even hard, and then it is in bad tilth for Potatoes to make growth. The very best crops are always obtained when the soil is light and loose and the growth from planting quick. To ensure these essentials, planting should, except on warm borders where special protection can be given, not commence until the first week in April. Those who have placed their sets of early Potatoes in shallow boxes and in a slightly active temperature will be enabled to plant them in April with an inch of stout growth on each, and then in light, open soil will find them to make very rapid growth and soon produce a first-rate crop. Sets so prepared and planted will always excel in crop and earliness others planted a month or five weeks earlier, because from the first there has been no check.—A. D.

CHRYSANTHEMUMS.

E. MOLYNEUX.

STANDARDS.

CHRYSANTHEMUMS are not commonly grown as standards, owing to the time and attention they require, while some do not approve of the close training of the shoots, as is sometimes practised. When they are properly grown they are useful for the decoration of the conservatory. Pompon and Anemone pompon varieties are well adapted for this purpose, being free-flowering, while the growth is generally stocky and not liable to become straggling. Where close training of the branches is practised, the incurved varieties are to be recommended, and some few of the Japanese kinds. In all cases where standards are required the strongest plants should be selected from the earliest struck batch of plants intended for the production of large blooms. Those selected for standards should not be topped, but secured to the upright growth of the single stem by fastening it to a small stake as a preventive against accident. Treat the plants in the same way as for other purposes as regards potting, position, and other details. The height of the stem will depend upon circumstances. Some sorts naturally branch into new growth much earlier than others; the tallest need not be more than 3 feet high before the formation of the head is commenced. This is a suitable height for the incurved section, while the pompons are best when the head is formed on a shorter stem, say at 2 feet or 2 feet 6 inches, according to the variety. If the plants grow to this height before making their first natural break so much the better, but if a break occurs earlier, the shoots so formed must be reduced to one, which is allowed to grow until the necessary height is reached. The topping induces other shoots to form, which are the foundation of the future head. Reduce

these to four, and when they have grown 6 inches long again top them, continuing this process until the requisite number of branches is obtained to cover the trellis. Topping should not take place later than the middle of June in the case of incurved varieties, but pompons may be topped a month later. Some of the dwarf varieties of the last-mentioned section may be allowed to grow without topping after the first break occurs. The result is a mass of shoots and a profusion of blossoms the whole length of each stem.

When all fear of frost is past, which in the south of England is usually about the second week in May, and in the north towards the end of the same month, place the plants in such a position out of doors that a light covering can be thrown over them should frost occur, which would otherwise seriously cripple the points of the shoots. The position finally selected for their summer quarters should be thoroughly exposed to the sun and air, but should be sheltered from east and south-westerly winds. About the 1st of June the plants will require their last shift into the pots in which they are to bloom. Those 11 inches in diameter should be used for the incurved and Japanese sorts, while 9-inch pots will suffice for the pompons. Plunge the pots to about half their depth in ashes, which keeps the roots cool during a hot summer. The roots are easily damaged by the continual rocking about of the plants by the wind; therefore great care should be exercised to prevent this. Three stakes driven firmly into the ground in triangular fashion and connected to the stake in the pot is a good way to prevent rocking backwards and forwards. It is a mistake to attempt to produce too many blooms on one plant. It is far better to limit the number and have them of better quality. On plants of the small-flowered varieties of such incurved kinds as Mrs. G. Rundle, if the heads are grown, say, about 2 feet in diameter and about 1 foot 4 inches in depth, fifty blooms will be enough; but in the case of White Venus, a larger growing kind, thirty flowers on heads the same size would be enough. Directly the foundation of the head is laid, the shape the plants are to assume must be determined, and the sizes I have given answer very well if the form is to be convex. Pieces of strong galvanised wire of the length named should be bent over, each fastened to a circular ring as the foundation, and all secured to the top of a stout stake fixed in the centre of the pot. Fix the framework from the bottom wire to the centre stake, with the aid of two pieces of stout wire stretched across from one side to the other, as this prevents the head swaying about. Commence training the branches as soon as they are long enough, as the foundation is more easily formed at this stage than when the shoots are longer and harder. Early in September the bloom-buds will form; disbud to one on each branch in the case of incurved and Japanese sorts, and when they are swelling give the plants their final tying, as the shoots which are bent have plenty of time to right themselves. In this way severe training is not so easily detected as if the final tying of the shoots is left until a few days before the plants are in bloom. Supply the plants freely with water and occasional stimulants, in which soot is included, as by this means the foliage will be improved.

Mildew should be carefully guarded against, using the usual remedies at once upon its first appearance. The short, stout-growing kinds of pompons will not need any support beyond a stout stake in the centre of each pot, and an occasional support from one main stem to the

other with bast. No disbudding of the flowers will be required in this case. The best varieties are :—

Incurved.—Mrs. G. Rundle, George Glenny, Mrs. Dixon, Aureum multiflorum, Venus, White Venus, Prince of Wales, Lady Hardinge, Mrs. Haliburton.

Reflexed.—Dr. Sharpe, Julia Lagravère.

Pompon.—La Purété, White, Golden and Lilac Cedo Nulli, Golden and Mme. Martha, St. Michael, Rosinante, Nelly Rainford, President.

Pompon Anemone.—Dick Turpin, Mr. Astie, Sidonie, Zobeide.

GROWING PLANTS THE SECOND YEAR.

INQUIRIES are sometimes made as to the best method of treating plants for the second year's growth in pots. I always depend upon newly-struck plants, as they give finer flowers and require less room both during the summer and in the earlier stages of growth. I thought a few notes on this subject might prove useful to those who have retained the old stock plants with a view to their cultivation for supplying flowers next November and December, and it is now too late to strike cuttings. Such plants at this time of the year are often furnished with several shoots 1 foot or more in length, some of these at the present time having flower-buds formed in the points. Such growths as these named should be cut entirely away, retaining those only which are dwarf and stout in appearance, and not more than 4 inches or 6 inches long. Thin these out to six in number on each plant, removing all others. If these are 6 inches high at the present time, top them. Thus it will be seen it is intended to make bush plants of them, as I consider that this is the best way to treat such plants.

If the young growth has not yet reached the height named, turn the plants out of the pots, removing nearly all the old soil from the roots, and cutting away the greater part of the roots also until the plants can be potted into pots two sizes smaller than those in which they flowered last season—that is, presuming they were 9 inches in diameter. The object of so reducing the ball of soil and roots is to make space for new roots and fresh soil. Should the new growths need topping, potting should be deferred until ten days after this has been done. The best compost in which to pot the plants at this time is two parts loam, and one of leaf-soil and rotten manure or partly decayed Mushroom bed materials and some sand. The best position for them is in a cold frame, keeping the plants rather close for a few days after potting, then giving an abundance of air on all favourable occasions. Early in June the plants will be ready for transferring into the pots in which they are to flower. These should be 9 inches wide, and use the same compost as recommended in THE GARDEN for the last potting. In determining the number of shoots to retain the cultivator must be guided by circumstances. For ordinary purposes three retained from each topping will be sufficient, making in all eighteen growths. If good-sized flowers are required, the number of branches may be kept to that named, removing all side growths as they are made and reducing the flower-buds to the central one on each stem, thereby throwing the whole energy of the plant into a limited number of blooms. If larger or smaller flowers are required and more or less in number, reduce or add to the number of stems as the case may be, remembering that the more flowers are produced the smaller they will be. Supplying the plants with water, stimulants and other routine duties are the same as those advised for other methods of cultivation; therefore it is not necessary to name them here.

Top-dressing lawns.—Trimnings from roadsides are not to be confounded with ordinary road-scrappings or sand. That is, as a rule, poor hungry stuff, and usually employed in building work, or is utilised, when thoroughly dry, in mixing with the solid matter of sewage to render it firm and useful. Roadside trimmings are usually furnished in the winter when the sides of paths or grassy margins and the watercourses are trimmed and cleaned up. In chalky districts, or when limestone is largely employed

for road-making the scrapings have less grit, but the remarks applied chiefly to roads repaired by ordinary gravel. The side trimmings, whilst invariably containing Grass seed, also contain some road manure.—A. D.

FERNS.

W. H. GOWER.

DENNSTÆDIAS.

THIS is a family of beautiful plants, which are often to be seen in Fern collections under the name of Dicksonia, from which they differ, however, in having slender, creeping rhizomes instead of stout and erect tree-like stems. Although the character of the fructification is similar to that of Dicksonia, these plants never assume an erect habit; consequently they form a very distinct group. They were arranged under the present name by Bernhardt, who was Professor of Botany at Erfurt, some time in the early part of the present century, since which time other authors have suggested various names for them, such as Sitolobium, Patania, &c.; but I cannot see any reason to disturb Bernhardt's name. As before remarked, they form a very natural group, and are found widely distributed over both hemispheres. Under cultivation they are exceedingly ornamental, forming handsome specimens, and especially is this the case when planted out, their rich green fronds becoming very large under such conditions. These Ferns are by no means to be despised as pot plants. There are several kinds described, many of which, however, have not been introduced to this country in a living state, but the following is a brief description of the principal kinds under cultivation at the present time, all of which are deserving the care and attention of Fern lovers and growers. The soil for producing large specimens of these plants should consist of loam and peat in equal parts, with a little sand added, but if smaller specimens are more suitable the soil should be nearly all loam. They enjoy a large amount of water, and therefore the pots should be well drained.

D. ADIANTOIDES when grown in pots produces fronds about 4 feet high, but when planted out they will grow as high again or more. The lower pinnae are from a foot to 2 feet broad at the base, the segments being somewhat oblong and bluntly lobed. It is found generally throughout South America and the West Indies.

D. ANTHRISCIFOLIA is also a bold-growing species, with fronds from 4 feet to 6 feet in height, bearing numerous pinnae, which are upwards of a foot long. The colour is pale green, the numerous large reddish brown sori being very conspicuous. It is Brazilian.

D. CUCUTARIA.—This is a remarkably handsome form, with fronds some 3 feet to 6 feet in height, the pinnae 2 feet long and 9 inches broad. It varies considerably in general outline. It increases freely and may be used for indoor decoration. A native of Brazil, Mexico, and Peru.

D. DAVALLIOIDES is one of the most elegant members of the family, its fronds attaining a height of some 3 feet and a breadth of from a foot to 18 inches at the base. It appears to be widely spread in Australia.

D. LINDENI.—This is a handsome plant, bearing large and bold tripinnate fronds with numerous pairs of pinnae upwards of a foot long; colour bright light green. It comes from New Grenada.

D. MOLUCCANA.—This, though a smaller-growing species, is very elegant; the fronds triangular in outline, growing from about 2 feet to a yard in length, the segments finely cut, sub-coriaceous in texture and brilliant green in colour. Native of the Indian Islands.

D. PAVONI is a very broad-fronded kind from South America. Its fronds attain a height of

about 4 feet, the pinnae being closely set and very broad.

D. PUNCTILOBULA.—This is an elegant species from North America, with finely cut, bright green fronds; it is quite hardy and deciduous, and when not fertile has much the appearance of our native Lady Fern.

D. RUBIGINOSA.—A large-growing species with ample tripinnate fronds which when the plant is well-established attain a height of nearly 6 feet; they are triangular in outline, the segments finely lobed, deep green on the upper side, slightly hairy beneath. Widely distributed in South America.

D. TENERA is a form of bold habit, producing large fronds with very prominent sori. The fronds attain several feet in height, and are deep green above, paler beneath. It comes from South America.

Gymnogramma Pearcei.—This is one of the most elegant species of the genus; it somewhat resembles *G. flexuosa*, but the segments are much finer and the rachis is not zig-zag. The fronds are deltoid in outline, about four times divided, the segments being very narrow and forked and of a bright green, destitute of the farinose powder so common in members of this family, saving a slight white powder which is usually confined to the crown of the plant. It is a gem, but unfortunately very few can induce it to grow. I, however, noted recently in the Messrs. Veitch's nursery at Chelsea a seedling form which appears to have overcome the delicate constitution of the type, and to be more robust. This form appears to be a stronger grower, that is to say, it makes larger and longer fronds without being coarser, so that this will be a great feature gained. It is a native of Peru, having been discovered by Pearce years ago when travelling in that country for the Messrs. Veitch, and therefore does not require so much heat as some of the species.—W. H. G.

GARDEN FLORA.

PLATE 643.

ROSE HON. EDITH GIFFORD.*

HON. EDITH GIFFORD (J. B. Guillot fils, 1882), doubly figured in to-day's issue of THE GARDEN, is well deserving of the honour as the best of all the white Teas, not so absolutely colourless as Niphetos, but in habit, freedom, form and constancy presenting an irresistible claim to the position, and requiring only to be known in order to become one of the most universally popular of all the Tea-scented Roses. That is to say, of the non-climbing section, for Edith, as, with excusable familiarity, rosarians habitually call their favourite, though "most divinely fair," rather than "divinely tall," is somewhat short of stature, yet no way lacking grace, pale almost to whiteness but for the soft flesh tints deepening sometimes into a rosy blush, neither coy nor captious, but gracious always and constant, the full round form a model from every point of view.

This charming Rose is said to have been raised from Perle des Jardins and Madame Falcot, and in habit, wood, and foliage bears considerable family likeness to Levet's beautiful seedling; for the growth is erect and sturdy, the stems deep red, and the foliage dark coloured and very handsome, forming an admirable contrast to the brilliant purity of the boldly-displayed white flowers. These

* Drawn for THE GARDEN at Gravetye Manor by H. G. Moon, August 18, 1887, and printed by G. Severeys.



ROSE EDITH GIFFORD

are produced in such abundance from early summer until late autumn, that it might be expected that many would be ill-shaped; but, as a matter of fact, hardly a flower is ever lacking in form, whether in bud, half-open, or fully developed, and the Hon. Edith Gifford is as constant among the Teas as is A. K. Williams among Hybrid Perpetuals.

Even after so late a spring as that of 1887, the Hon. Edith Gifford was in bloom by the third week in June, and by Midsummer Day was in the greatest beauty. On the 26th of June some selected flowers were photographed, exactly life-size, by Messrs. Byrne, of Richmond, and one of these photographs has been reproduced in the excellent engraving (p. 309), which may consequently be accepted as an exact representation of a typical example of a summer blossom of the variety. The coloured plate, on the other hand, represents with equal fidelity a truss of bloom such as is thrown up from the base of the plant later on in the season and throughout the autumn. In this second or later blooming, the colour at the base is often rather deeper than in June when the flowers are frequently pure white.

A variety to which the Rose under notice has often been compared is *Devoniensis*, and it is not improbable that this in many places will be superseded by the Hon. Edith Gifford, which is more vigorous, less tender, infinitely more free-flowering, and whose flowers, even when full blown, never assume a flat, pancake shape. Another point in which the Hon. Edith Gifford is superior to other white Teas, such as *Innocente Pirola*, &c., is in the great substance of its petals, which are not easily stuck together by wet, so that the flowers open fair even in cool and damp weather.

That a Rose which was flowered for the first time out of doors in this country in the summer of 1844 should at the end of the season of 1886 be found to be included among the eighteen Teas and Noisettes most frequently exhibited that year, is a striking proof of the merit and beauty of the individual blooms of the variety; and when in addition it can be confidently recommended as the best white Tea for making an effective group in the garden, owing to its erect habit of growth, its extreme freedom of bloom, and its exceptional constancy, it must be admitted that such a Rose has every claim to rank among the very best of even the most exquisite of all, namely, the Tea-scented Roses.

It is difficult to dissociate the name of their raiser from the names of some of the finest (including *Comtesse de Nadaillac* and *Catherine Mermet*, certainly two out of the three most perfect) of all the Teas; but it may fairly be said that Guillot would occupy a higher position than a good many other raisers not unknown to fame, even if he had raised nothing else and his reputation depended solely upon the Hon. Edith Gifford.

T. W. GIRDLESTONE.

Bamboos.—I was glad to notice that you are well on the road towards becoming a Bamboo worshipper. Nothing is more graceful in habit than the

Bamboo. Nothing admits the sunshine with more cheerful and delicate effect. No shades of green are more beautiful than those of the stem, and then it is an Evergreen, besides being of practical use.—S.

FRUIT GARDEN.

W. COLEMAN.

THE CRANBERRY.

IF, as many imagine, fruit farming in the future is to supplant corn growing in this country, the question naturally arises, What are we to grow to supply the people's wants and yield the most profit? If all soils and situations throughout Britain were equally good, why then the Apple, the Plum, the Pear, and the Cherry would be selected, probably in the order in which I have just placed them. Bush fruits and Strawberries would occupy thousands of acres, and the much-neglected Filbert, a nut of which we import immense quantities, would be planted on many a warm loamy bank miles away from the monopolising county of Kent. So far good, but before we can carry this revolution we must find men capable of selecting the most suitable soils and aspects, the most profitable varieties to grow for certain markets and seasons, and then the average corn-farmer will have to undergo a course of training. Assuming that a minister of horticulture, with geological map before him, succeeds in plotting out the country and in finding suitable soils for each of these fruits, there will still remain many broad acres too thin, too poor, too boggy for the hardiest of our stone or kernel species. When passing the other day by South-Western Railway from London to Reading it occurred to me that the vast tract of boggy or peaty land, in many places studded with pools of water, would not be considered up to the mark, and yet within a few miles the "one-Apple" man survives. But what about Cranberries? If my memory does not fail me, I have seen beds of peat 18 inches or 2 feet in thickness, resting upon marl, with water trickling along the bottoms of the grips or trenches cut through them for draining the *Rhododendrons*, and as this is just the land for these lowly and withal ornamental shrubs, why not plant Cranberries in enormous quantities? Grand cooks do not, I believe, care much for them, and yet the fruit is very wholesome; it can be kept in the barrel and used from all the winter; and last, but not least, this pretty pheasant-feeding trailer will be content with the crumbs which all other fruit trees despise.

Of American Cranberries (*Oxycoccus macrocarpus*) considerable quantities are imported, absorbed and consumed, I suppose, by dwellers in large towns, but the plant being perfectly hardy I see no reason why we should not relieve our relations of much trouble and anxiety by growing for ourselves and keeping the cash in our own country. Another species, *O. palustris*, is a native of Britain, but the fruit is smaller and very acid; consequently it is considered inferior to the American, which requires less sugar. Large quantities of fruit from plants growing wild, nevertheless, are used by residents in the districts to which it is indigenous. Both being equally hardy and one better than the other, our attention naturally should be directed to the best. *O. macrocarpus* already is grown in several domains in Sussex and adjoining counties, not only for its fruit, but also for its beauty as a dense evergreen covering, where, the *Gaultherias* excepted, hardly any other plant will increase and remain healthy. In the grounds at Petworth in a large sunken bed I once saw an enormous mass growing in the rudest health. A thin layer of peat and a few

stones formed its bed, and an occasional flooding in summer, I ascertained from Mr. Breeze, formed the sum and substance of his attention. At other places, notably in Lord Brassey's grounds, Normanhurst, near Battle, the plant ran riot amongst Conifers and shrubs, and, judging from the position of many of the clumps, I venture to think bog or peat alone kept them in robust health, as I do not recollect noticing arrangements for flooding. Water, however, as well as bog earth being the most important, if not the only, essentials, the beds should be formed where the two elements are at command. In America, we are told, the Cranberry is found in boggy ground, swamps, and on the borders of lakes, and experienced writers in this country say the plant is best grown in beds formed by digging out the ground at the side of a pond or running water, so that the bottom of the excavation may be a foot or so below the surface of the water, and then filling in a layer of loose stones and peat to the depth of 9 inches. In these the roots should be planted 2 feet apart early in autumn or in spring, when all danger of frost is over. The plants soon spread in all directions and cover the beds, and in no case should they be allowed to suffer for want of water. If fruit were the only consideration, Cranberry culture should be encouraged; but when, as I have just stated, the plant is highly ornamental, the owners of all large estates and game preserves containing wet, boggy land, whilst consulting their own interests and pleasure, might set a good example by introducing it in quantity.

TREATMENT OF FRUIT TREES ON WALLS.

OWING to the exceptionally hot and dry weather which we experienced last summer and autumn, fruit trees of every description made a somewhat spare, and consequently short-jointed and well-ripened growth. Apricot, Peach, Nectarine, Plum, Cherry, Apple, and Pear trees are, therefore, studded with fruit buds, which, with a favourable change in the weather, will burst into full bloom. The best means at hand for protecting the blossom should be employed during the time the trees are in flower, as a very slight protection would prevent a few degrees of frost from destroying such a promising prospect. Canvas raised and lowered by means of ropes and pulleys secured to strips of boards screwed to the tops of upright poles let in a few inches into the ground, and secured to iron brackets driven into the wall just below the cornice or projecting course of bricks, at 6 feet apart, is the next best protection to glass. The canvas should be fastened to the strips of board with half-inch tin-tacks, and be furnished with a series of rings at about 10 feet apart. Through these the individual ropes (sash-line), after being secured to the bottom ring, should be passed and then over the pulleys. They should be about 9 feet wide, and long enough to cover one length of wall, and when let down over the trees in the evening they should be secured by the rings attached to the bottom of the canvas, being slipped over hooks driven into the poles for the purpose. When drawn up in the morning, they should be looped up to hooks screwed on to the strip of board, one between each pulley. A wide board, resting upon the coping and secured to the tops of the several poles, should be put on each length of wall so protected. In the absence of the protection indicated, lengths of garden netting doubled or trebled if hung over the trees will afford more protection to the blossoms than may at first sight appear, and a few small branches of Yew, Spruce, or Portugal Laurel stuck here and there between the branches of the trees when in flower will also tend to secure the object in view, namely, sufficient fruit for a crop. The trees should receive a good watering at the roots and the shoots should be gradually and judiciously disbudded, commencing the operation as soon as the buds have pushed into growth, ultimately leaving only the lowest placed and terminal buds to grow on each

shoot. Pinch a few of the intervening young growths back to one joint, and rub all the other buds off in the first instance. As the young leaves of Peach, Cherry, and Plum trees are very subject to the attacks of aphids (indicated by the curling of the affected leaves), prompt and effectual measures should be taken to eradicate this very troublesome and destructive pest as soon as it appears on the trees. For this purpose a solution, consisting of one quart of tobacco juice to four gallons of soft water, applied to the affected trees with the syringe on a dull day or after the sun has gone off the trees in the afternoon will have the desired effect. Moreover, in addition to the application of this solution killing the insects on the trees, it also renders the foliage of the trees so syringed distasteful during the remainder of the season to the attacks of other pests. The black fly, which is so partial to the young shoots of the Cherry, is the most difficult to dislodge, and if not attacked in time, two or three applications of the tobacco water may be necessary to rid the trees of it. All the Peach, Cherry, and Plum trees should be examined two or three times every week during the growing season, and as soon as blight is detected the remedy should be applied forthwith. In order to save the foliage of Peach and Nectarine trees from the ravages of red spider, they should—in addition to receiving copious supplies of water (all the better if it be liquid manure) at the roots during the growing season and in the absence of heavy rains—be syringed overhead every afternoon during the summer months when the sun has gone off the trees. Should any of the leaves become blistered—the result of a chill—they should be picked off; and should mildew appear, a dusting of the affected leaves while damp with sulphur will arrest its progress. If a few inches thick of half-rotten manure be placed over the roots of choice wall or other fruit trees during the summer months it will be an advantage, especially if the summer should happen to be hot. The young growths intended to bear fruit next year will have to be “laid in” every week during the growing period, and any unduly strong-growing shoots should be pinched, so as to direct the flow of sap into those of weaker growth.

Longford Castle.

H. W. WARD.

SHORT NOTES.—FRUIT.

BONNE DE MALINES is the French name for the excellent *Winter Nelis*.

Flanders Pippin.—We are still using Flanders Pippin, an old variety which grows its own sugar.—W. C.

The season of Pears.—Will any reader tell me the difference in time of ripening between *Marie Louise* in Sussex and the same Pear in Yorkshire?—J. H.

Beurre d'Amanlis Pear.—This Pear does not appear to have met with much approval for your selected list, and for that reason I beg to name this Pear as a first-rate bearer; fruit large and of good flavour. What do your correspondents think of it?—J. ALLSOP, *The Gardens, Dalton Hall, Hull*.

* * * What of the quality?—ED.

Pear Comte de Paris.—I do not remember seeing this Pear mentioned in *THE GARDEN* by any correspondent, and if I remember rightly only one dish of it was shown at the Pear Congress. It is not a vigorous growing sort, but a fairly good bearer. The fruit is about the size of that of *Winter Nelis* and of much the same shape, but hardly so handsome. The colour of the fruit is greenish yellow, the flesh white, buttery and delicious in flavour, and it ripens at the same time as *Marie Louise*.—J. C.

Beurre Diel Pear.—“D. T. F.” (p. 246) very faithfully describes this beautiful Pear, and very justly says it ought to take a prominent place in any selected dozen. From my own experience I fully agree with all that “D. T. F.” has said in its favour. With me it ripens beautifully mottled, fair sized, and good shaped fruit on espaliers, and is one of our best looking Pears for table. I think it certainly ought to have a place in a selection of twelve.—J. ALLSOP, *The Gardens, Dalton Hall, Hull*.

* * * No; not good enough to go in the twelve! It is not good looks we are seeking, but good Pears.—ED.

Strawberry Coddington Pine.—Do any of your readers grow this kind? It came into my hands a few years ago, and I formed a very favourable opinion

of it, but have unfortunately lost it. It has a true Pine flavour, is very prolific and hardy. I believe that this Strawberry is of all others the one for preserving, for the fruit is very firm and of a fine red throughout. The old Elton Pine and Héricart de Thury are great favourites for this purpose, but the above-named variety is far superior.—J. CORNHILL.

A novel Grape arbour.—At Carcassonne, in France, the owner of a three-storey house with a flat roof planted a Grape Vine in the street, protected it by a guard till it got up out of danger, and then trained it as an arbour all over the roof. Here he can sit with his family in grateful shade under his own Vine, and eat the fruit thereof, though he has not a single foot of garden ground to call his own.

BARREN VINES.

ON the very day that “W. C.’s” remarks on this subject appeared in *THE GARDEN* I was called upon to inspect Vines that are in the same condition as those described by “F. H.” The plants in question are Muscats, have been planted about twelve years, and have been forced so that ripe fruit may be had in July. In this case for the last two years every bunch before it could come into bloom has dropped. On about a dozen Vines there will not be a berry this season. It did not require much experience to discover the cause of the failure. The Vines are inside with the usual arrangement of an arched wall to allow the roots finding an easy exit. This, however, has availed them but little, for attached to the house is a row of frames through which a hot-water pipe passes and beyond this a gravel path. A worse arrangement for a vinery could not possibly be conceived; but the individual who planned it wished to grow a general collection of plants, and therefore persuaded his employer to add the frames to the original design, representing that the cost for heating them under such circumstances would be but trifling. For the convenience thus obtained a heavy penalty has to be paid, for there being no outside border, the customary measures for feeding the Vines and keeping up their vigour could not be taken. There is, it is true, a small inside border on which stands a collection of fine-leaved plants, and the constant watering has so soured the soil that many of the roots seem to have become rotten. In this instance the only course left is to move the frames, make a good border, and either lift the old Vines or plant young ones. It is not likely that many will commit such an error, but if there should be any reader of *THE GARDEN* who may be tempted to attach frames to a vinery, let him take warning in time. A vinery must be a vinery, and although other plants may be grown in it, their needs must always be subordinated to those of the Vines, otherwise, and especially where the latter are forced, they will eventually decline in vigour. In the absence of top-dressing, Vine roots will go down as deep as they can. They have a natural tendency to do so, otherwise how could they exist on the steep slopes under a broiling sun in many Continental vineyards. I am strongly of opinion that top-dressing should be done from the first year of planting, and that for the first few years soot is the manure that will best answer the purpose. The newly-formed border being rich in nitrogenous matter, there is no need to add to it, but soot, as is well known, has no great forcing power, but possesses more than any stimulant I know an attractive force for roots. Top-dress a pot plant with it constantly and the upper portion of the compost will in time become filled with fibrous roots. If only for the power it exercises of increasing fibrous roots, soot has much value. I have often wondered whether soot would keep off the Phylloxera. Applied as a top-dressing, the strong ammoniacal fumes drive away red spider, and we know that all kinds of ground vermin give them a wide berth. J. C. B.

Bullaces.—“Hortus,” in *THE GARDEN*, March 10 (p. 210), would lead people to suppose that Bullaces are little better than Sloes, and therefore not worthy of garden or orchard culture. If “Hortus” were to take a trip to Boughton, near Maidstone, in October, and look round the splendid fruit orchards of Messrs. Skinner and Sons, he would come to the conclusion that even such a despised fruit as the Bullace

can be greatly improved by good cultivation, for there he would see hundreds of splendid specimens of Shepherd’s Bullace pruned to nice-shaped heads, and bearing enormous crops of their large greenish white fruits that realise a high price in market. I have often seen them being carefully packed, and realising double the price of good Plums, simply because they came in at a time when Plums were not to be got. It is all very well for gardeners in private places to grow the best of everything; but market cultivators have to consider what will sell, and although Bullaces are reckoned amongst common fruits they are by no means unprofitable, which is more than can be said of some of the really good Plums, that ripen all at one time and therefore glut the markets. We must also remember that the jam factories take large quantities of fruit, and these large kinds of Bullaces are used in enormous quantities for the manufacture of what is passed off for Green Gage jam, from their great similarity to Gages. That they are nearly all stone is quite a mistake, for in well-grown samples, such as I refer to, they were on an average as large as Green Gages grown on standards in this country.—J. G. H.

FRUITS UNDER GLASS.

VINES.

THE rough, cold weather which has prevailed since the middle of February having thrown back the sap and turned the tables upon an early spring, fire-heat in late houses will not only be advantageous, but absolutely necessary. Frost and snow and biting east winds have produced a wholesome effect upon hardy fruit trees, but late Grapes must have a long summer and a good summer to ripen them properly, and for this reason I repeat my advice to all who wish to colour and finish and keep them for several months after they are cut, to push them forward with all reasonable speed, as one ton of fuel now is worth two in the autumn. Lady Downe’s and kindred varieties now breaking may be well syringed with warm water at least twice a day, and if a moderate covering of fresh stable litter is placed upon the internal borders it will absorb and radiate ammonia and moisture when the temperature is rising. If the borders have been properly moistened by repeated waterings at short intervals since the old Grapes were cut, the roots will take no harm until the young growths begin to draw out, but at that stage a further supply of warm diluted liquid will be of immense advantage to old-established Vines, especially where heavy cropping has left traces of weakness. Young ones may not be improved by the use of stimulants, but all should have a sufficient quantity of water to carry them safely over the setting period. Long and strong canes must be closely watched, and if any of the back buds show signs of lagging, the points must be bent down to the border to produce a check upon the sap in its upward movement. A horizontal position from the outset generally produces the desired effect, but once the point buds are started nothing short of throwing the dormant part into the crown of an arch will check the one and help the other. Regulate fire-heat to ensure a temperature of 50° to 55° through the night, ventilate at 65°, run up to 70° or 75° with sun heat, and at that figure close with plenty of atmospheric moisture. As Vines after this period push along very fast they should be disbudded as soon as the best shows can be detected, and pinched at the second or third joint beyond the bunch, when with finger and thumb the tiny points can be manipulated. By adopting this plan every ounce of sap is utilised, the size and compact form of the bunch are improved, there is no bleeding, and the unsightly stump, the result of neglect, is avoided.

Midseason houses.—Tying down, pinching, and the regulating of laterals, also the removal of superfluous bunches must receive daily attention. With all the houses at work and the Vines growing very fast, it is difficult to prevent some operations from falling into arrear, but on no account should timely stopping, which prevents waste, be one of them. Pinching at the second or even the third joint is not absolutely necessary, as leaves, no doubt, make roots, but whatever system is adopted, the point

should be taken out when no larger than a grain of Mustard seed, and point laterals, which push quickly, can then be laid in until every inch of trellis is covered with foliage. The most trying operation, no doubt, is thinning, but before Grapes can be thinned they must be properly set, and as some of the occupants of this house, including the Muscat section, Sweetwater and Black Morocco, require assistance, they should be carefully fertilised. If Hamburgs do not require this attention, they are not injured by it, but I maintain that all fruits grown under glass derive benefit from a touch with the brush, and on this account I never miss them; indeed, I go further, for after collecting sufficient pollen for fertilising their shy neighbours, I preserve a quantity, which keeps for some time in a dry, warm place, for future use upon Muscats, should Hamburgs, when most wanted, be out of flower. It is hardly possible to lay down definite rules for thinning Grapes, as some varieties of Hamburg produce much finer berries than the best of treatment will secure from others. The clusters upon some, notably the thin-skinned, oval-shaped, and best flavoured, are loose; whilst the thicker-skinned, flatter, and larger-berried variety produces compact, short-shouldered bunches. The first sometimes require very little thinning; the last a great deal, and then they are apt to become bound. I need not say more, as anyone acquainted with Grapes will bear me out in the assertion that a man must know each Vine's capabilities before he can thin his Grapes properly. For the benefit of the young beginner, I may say water should never touch the Grapes after they are set; they should never be rubbed by the flesh or the hair. The berries should be of uniform size; they should not press each other out of shape, and yet the bunches should retain their compact form when cut and laid upon the dish for use.

Early Vines.—Allow a free growth of lateral upon Vines undergoing the trying strain of stoning, and give them all the help possible by the maintenance of a steady and not too high night temperature, with a chink of fresh air on the front ventilators from banking time until daylight the following morning. When this process is complete, it may be well to pass the scissors over the bunches for the last time, as it not infrequently happens that imperfectly fertilised berries, until this stage is passed, do not declare themselves. When fairly on the move, an additional supply of short, fresh, but well-turned Mushroom manure placed upon the internal borders, especially near the front pipes, will be found a great help to the roots and foliage. Warm diluted liquid, soot, and guano water may also be used in a weak clarified state, and in quantity sufficient to penetrate through the compost to the drainage. As Vines, like all other gross feeders, like a change of diet, these preparations should be used alternately, not only for watering, but also for damping purposes. Let the temperature range from 60° to 65° through the night, 70° to 75° by day from fire-heat, and 80° to 85° when the weather is mild and the sun is shining. Give air when the mercury approaches 72°, and gradually increase it with a rising glass until the maximum is reached, then as carefully reduce, and finally close with a short run upward to 90°. When the Grapes begin to colour, they must have a steady supply of fresh air, as perfect bloom and finish cannot be secured without it; but great caution at this early season is necessary, and on no account must ventilation lower the temperature. Spider revels in drought and cutting draughts; rust, mildew, shanking, and scalding are often produced by rash air giving, the mischief in many instances being plainly traceable to the sudden outlet of heated air, when a chink only at the top and more in front would keep the house full and prevent the possibility of an inrush to fill up the vacuum.

Pot Vines now swelling off crops of fruit will take good top-dressing, consisting of bone-dust and other highly concentrated stimulants thoroughly incorporated with rich loam, little and often. As many pot Vines are killed by mistaken kindness, it is always well to err on the safe side in the use of rich solids and liquids; indeed, it is better to use pure loam and water with weak liquid than kill the active roots with uncertain compounds.

Cut-backs intended for fruiting next year, having become thoroughly established in 8-inch or 9-inch pots, should be shifted into others two sizes larger before they become root-bound. The best compost for these is sound turfy loam, bone-dust, old lime rubble, and a handful of soot. Animal manure is objectionable, as it encourages worms and becomes sour and pasty long before the Vines are taken in for forcing; it may, however, be used as a mulch when the canes are in full growth, but the best of all stimulants is clear liquid and sound solids which do not soon become inert and offensive to the roots. Replunge in bottom-heat, shade for a few hours on bright days, if necessary, water sparingly until the roots have taken to the compost, then expose to the full benefit of light by training the young rods over trellises 12 inches to 16 inches from the glass. Pinch all laterals at the first leaf, stop the leaders when they have made 6 feet of growth, and ensure short-jointed wood by liberal ventilation followed by early closing.

Pot Vines from eyes must be shifted on as soon as they have recovered from the check which invariably follows the exhaustion of the stored-up sap in the formation of roots, and the tiny canes have commenced to make crisp succulent leaves. This apparent stand is the most critical period in the young Vine's existence, and many are lost through a sudden decline in the heat of the bed; but once past this stage they will grow as freely as Fuchsias, when the pots may be gradually raised out of the plunging material. If any of these Vines are wanted for spring planting, say in April or May, the main point in their management will be the prevention of root-coiling or interlacing, otherwise the check which follows disentanglement will mar their future progress. The best Vines for this work, however, are struck on cubes of turf placed upon a hotbed, as the roots from the first radiate in every direction, and so recuperative are these roots that they may be cut round with a sharp long-bladed knife, not only with impunity, but with advantage, as each root severed at the edge of the turf will at once throw out several. The result of this treatment is a wig or mop of roots of uniform strength supporting stout short-jointed canes which may be transferred to their permanent quarters whenever the new border is ready for them. Vines of this class, it must be borne in mind, are unsuitable for planting in external borders, a system fortunately now almost obsolete.

FIGS.

If all has gone well, a few of the most forward fruit in the early house will now be on the move—a sure sign that fructification is complete and others will speedily follow. It is of no use trying to hasten the flowering process, but once it is over the temperature by night and day may be raised, especially in mild weather. Spider being the most troublesome insect, the trees up to this point should be kept perfectly clean by copious syringing and liberal feeding—no mean insecticide—otherwise a drier atmosphere being essential to flavour, the foliage will suffer during the period of ripening. Exposure to sun and air being the main factor in laying on colour, without which fine flavour cannot be expected, it will be necessary to stop or remove all weak and superfluous shoots to keep others closely tied down, and to pinch out the points of a few of the strongest. Many growers pinch all the points to swell up the first crop and ensure a good break for the second, but this practice produces a check as well as a break in the supply, which may be avoided by growing fewer trees and training on the extension principle. When Brown Turkey and other prolific varieties are planted out in borders of limited area and well fed, they should become perpetual bearers, but they must have plenty of room, and a portion of the branches which have reached the extremity of the trellis must be cut out annually. As Figs will stand quite as much, if not more, heat than would be good for Vines, the temperature may now range 70° at night and 65° the following morning, with a little air; 70° to 80° by day, and 5° to 10° more after closing with sun-heat and moisture.

Pot trees in a corresponding stage will still stand any amount of good feeding with warm diluted

liquid and frequent relays of fresh top-dressing. If, as formerly advised, the roots have been encouraged to creep over the rims of the pots by a plentiful addition of light, turfy sods, these must not be disturbed by repeated renovation or turning of the bed, as such feeders form the best of all safeguards against dropping. And why? simply because the steady and continuous supply of food which they draw from the moist bed never varies. Upon this principle I grew pot Figs until they became 9 feet in height and too large for removal from the pit, and they never cast a fruit, as so often happens when the roots are dependent upon the water-pot for their daily supply of moisture. The balls, although the most active roots have got into the decaying surface of the bed, it is hardly necessary to say, should never feel the want of tepid water, and the continuous pinching of all strong shoots throughout the early growing season is absolutely necessary.

Trees in succession houses will now require stopping for spur wood for another year, and tying down where there is room for extension. Encourage surface roots by mulching with short stable manure or the remains of old Mushroom beds, and keep the surface constantly moist as a check upon red spider. Syringe copiously twice on fine days, but withhold the syringe when dull and there is danger of the foliage becoming moderately dry before nightfall. Where the latest trees have the benefit of warmth from a flow and return pipe in cases of emergency, they may now be encouraged by early closing with plenty of atmospheric moisture. As these trees cannot be expected to produce more than one rather continuous crop of fruit, they should be brought on with plenty of air through the early part of the day; they should not be pinched unless there is a dearth of spur wood, and one syringing when the temperature begins to rise will suffice for the present.

STRAWBERRIES.

Where pot Strawberries tided over the long spell of dark, cold wintry weather, forcing will now be comparatively easy. Good syringing and liberal watering will form the main factors, not only in aiding advancing crops of fruit, but also in checking the spread of spider to the more valuable occupants of vineries and Peach houses. A continuous supply of good forced Strawberries is a great acquisition at this slack time, and none more than myself know their value; but it is just possible to pay too dear for the luxury, and for this reason I always protest that no one who cannot afford separate and suitable houses should expect their gardeners to perform miracles. As the finest crops of early fruit may be rendered flavourless by being kept too long in the moist stove, the plants should be removed to a shelf in a light, warm, airy house when the fruit is well coloured. The market grower picks his fruit as soon as it is pleasing to the eye, and so, unfortunately, do many gardeners. But red Strawberries, no more than black Grapes, are not sweet and good until they have been exposed a few days to the action of the previously warmed external atmosphere. Once the first set of plants are moved the rotation is simple, as each batch can be advanced from the store in the open air to the ripening pit or house, which should be fragrant with the aroma of fruit worth eating. The main crop of plants now in the early stages will do quite as well, if not better, in light airy pits with gentle fire-heat than upon lofty shelves, but where this convenience does not exist, those occupying the largest pots, after being well rammed to prevent the possible escape of water, should be selected. It is not unusual for late plants to be placed in saucers, but all is not gold that glitters. For whilst admitting that these vessels economise labour in watering, I must assert that stagnant or putrid liquid never benefits the roots, neither does it improve the flavour. Much as the Strawberry revels in a moist heavy soil, it resents aquatic treatment, and for this reason the saucers should not be surcharged until previous supplies are exhausted. As fly may now become troublesome, let each batch be well fumigated before the flowers open. Thin the latter to ensure fine fruit and support the

stalks with small sticks to keep them well above the foliage. Choice varieties, including the fine old British Queen, plunged to the rims of the pots in old tan or leaves will now be throwing up their flowers, and as these are expected to shake hands with early fruit from the open air, the lights may be drawn off for a few hours on fine mild days, not only to retard, but to strengthen them. The flowers on these, like the preceding, should be thinned before they open, and if not already done the present will be a favourable time for top-dressing with loam and bone-dust or old cow manure. To do these plants full justice they should have plenty of room for the full development of their foliage,

seem a simple one, but trifles are important when future success is dependent upon their being regarded.—A. D.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Arbutus (Strawberry Tree).—The beautiful evergreen shrub (*A. Unedo*), here illustrated, must be in every well-planted garden, for no other is so cheerful throughout the autumn and early winter, when its dense mass of greenery is mingled with a profusion of flower clusters and ruddy round fruit like undersized Strawberries, the result of last year's flower crop. There is no need to describe such a common shrub which is met with everywhere almost, especially in warm and coast districts, where it grows tree-like 20 feet or even 30 feet high, making huge globular

it is not fastidious in that respect. There are numerous varieties of this beautiful shrub, and some are superior to the original. One of the



Flowering branch of the Strawberry Tree (*Arbutus Unedo*).



but on no account should the pots be moved, as the crock roots now creeping into the bed will be their mainstay when the fruit is swelling and ripening. To prevent the spread of mildew, which may have lain dormant from the past dry autumn, a plentiful supply of water to the roots and an occasional syringing with sulphur water will be found the most effectual treatment. W. C.

Mulching newly-planted trees.—There is one reason why newly-planted trees are benefited by a mulch of long manure. This too often gets overlooked, and is quite irrespective of the question of root-protection from frost. When trees are newly planted, and the soil is of course somewhat trodden, as is needful to ensure firmness for the trees, it is then, under heavy rain and snowfalls, likely to become sodden and get hard in the spring when baked by east winds. Of course I refer chiefly to stiff soils. In all such cases a mulch of long manure over the roots checks the heating force of the rain, and further provokes activity on the part of the worms, so that the soil is kept more porous than would otherwise be the case. The matter may

The red-barked Strawberry Tree (*Arbutus Croomei*).

masses of green. In inland districts it is liable to be cut down during very severe winters, but this so seldom occurs, that no one need be deterred from planting it. If large bushes are killed down by cold, they almost invariably send up strong shoots again. When young it requires, in order to get it established, a slight protection during winter. It grows quickly in sheltered places, but dislikes shade, and seems to be most at home in a deep light soil, though

best is *A. Croomei* (an illustration of which we give), which has longer and broader leaves than the common kind. The bark of the young shoots is brownish red, and the flower clusters larger and deeply stained with reddish pink. The variety *rubra* has the flowers almost a bright scarlet, produced abundantly in late autumn. One variety (*flore-pleno*) has double flowers, while others differ from the original in the size and form of leaves. Thus there is the Oak-leaved (*quercifolia*), Myrtle-leaved (*myrtifolia* or *microphylla*), Willow or narrow-leaved (*salicifolia*), and the crimped-leaved form (*crispa*), all of which are interesting, but not so beautiful as the common sort, or *Croomei* and *rubra*. The Strawberry Tree is a native of South Europe, and grows wild in the south of Ireland, and the peculiar charm it gives to Killarney is well known.

The other species of *Arbutus* are not so important as flowering trees, though they are invaluable Evergreens. They are more tree-like than *A. Unedo*, making large, spreading masses of bold foliage. *A. Andrachne*, with smooth, ruddy-tinged bark, is the commonest, and is hardy everywhere in the south and coast districts. It reaches, about London, a height of over 15 feet. It grows wild in the Levant, and is a very old tree in gardens. *A. hybrida*, said to be a hybrid between *A. Unedo* and *A. Andrachne*, is hardy, and in growth resembles both its parents; its flower-clusters are larger than those of *A. Unedo* and smaller than those of *A. Andrachne*. *A. Milleri* is handsome, because its flowers are pink and its leaves large. *A. procera* (also called *A. Menziesi*), from North-west America, not a common kind, is somewhat similar to *A. Andrachne*, but less hardy, and, like it, has large leaves and grows tall. For a coast garden it is most desirable. Other kinds of *Arbutus* named in catalogues—*photinifolia*, *magnifica*, *Rollisoni*, *serratifolia*, *laurifolia* or *andrachnoides*—are either identical with the foregoing or varieties of them.

Asimina (Virginian Papaw).—A North American shrub cultivated in some of the large nurseries, but generally found in botanic gardens.

It is not important, though interesting to those who like uncommon plants. *A. triloba* (see cut), with leaves like those of the *Chimonanthus*, forms a small tree, and has flowers about 2 inches across of a pale purple. It produces fruits eaten by the natives of the Southern States; hence the name. Usually grown against a wall in this country, but hardy as a standard. Anonaceæ, Custard Apple family.

Azaleas (Swamp Honeysuckles).—These delightful shrubs are, or should be, among the charms of every English garden in early summer, when they send out their profusion of blossoms, with spicy fragrance and coloured with tints most brilliant and most varied. We do not make enough use of the hardy Azalea in our gardens, many of which are over-planted with *Rhododendrons*, while not an Azalea is to be seen. If only as a relief from the heaviness of *Rhododendrons*, the graceful growth of Azaleas is precious; but we would in some cases prefer them to *Rhododendrons*, beautiful Evergreens as these are the whole year through. There is nothing in the open garden so charm-

Swamp Honeysuckles, as they are called, that grow in the American woods and swamps, the species most concerned in their production being *A. nudiflora*, *A. calendulacea*, and *A. viscosa*. These have so hybridised among themselves, and also with the wild Azalea of South Europe (*A. pontica*), that we have now a race in which the colours of the primitive species are blended and diversified in a great variety of tints, and they all intercross so freely that it is difficult to single out a variety identical with any of the wild species. Fifty years ago, when this race had its beginning, it was customary to give Latin names to every fine variety, but they soon could be numbered by the hundred from Belgian gardens alone, so that now but very few sorts are named, and you simply ask at nurseries for a collection, or pick out your own selection of colours, although in the chief nurseries long lists of old sorts are still retained. Every variation of tint, from the most fiery scarlets to delicate pinks, whites, dark and pale yellows, are to be had in Ghent Azaleas, and one may form splendid colour masses by arranging the

hardy in mild localities, but its colour is no pleasing. The Chinese *A. indica*, the ordinary Evergreen Azalea of greenhouses, is likewise hardy in many places, and particularly the white variety, which, even in mid-Sussex, thrives in the open air with a luxuriance excelling that of greenhouse pot plants. The natural habit of growth of *A. indica* is beautiful, and needs not the stiff training to which it is commonly subjected by gardeners. The *Ledum*-leaved Azalea (*A. ledifolia*)—see illustration—is a hardy evergreen shrub, also from China. It has white flowers, large and open, like those of *A. indica*. It grows from 5 feet to 6 feet high, and Loudon



The *Ledum*-leaved Azalea (*Azalea ledifolia*).



Flowers of the Virginian Papaw (*Asimina triloba*); natural size.

ing as old Azaleas in flower, when their branches arrange themselves in table-like tiers, especially if seen in the subdued light of a shady wood, where the brilliant tints always seem most effective, and happily few shrubs grow or flower better in partial shade than Azaleas. In any case, they should be so placed in a garden that they have, when in flower, a background of greenery, preferably Evergreens, which at the same time modify their naked look in winter. They like also shelter, even from southerly winds; they delight in quiet shaded nooks surrounded by high grounds, so that they are benefited by the descending moisture, as they are all lovers of damp places. A peaty soil suits them best, though they grow well in light loam, especially if copiously enriched with decayed leaf-mould. As they are all of slow growth, it is better to buy from nurseries a few large plants than many small ones; bushes 5 ft. in height and upwards, if well rooted, can be transplanted with perfect success if necessary.

These hardy deciduous Azaleas called Ghent Azaleas, because many were raised in Belgium, have originated chiefly from the wild Azaleas or

tints in chromatic sequence. Of late years quite a new race with double or Hose-in-hose flowers has sprung up, and are collectively called the *Narcissiflora* group, the chief sorts in which number about a score—Graf von Meran, one of the first, being still among the best yellows. A Californian species named *A. occidentalis* stands out distinct from all the rest of the deciduous Azaleas, because it flowers long after the others are past; hence its value. It has bunches of white and very fragrant flowers and broad foliage of an unusually bright green. *A. mollis* (see cut, p. 324), a dwarf-growing deciduous shrub from Japan and China, has also become popular, and the original flame-coloured flower has, through hybridisation and selection, been changed into a variety of tints, yellow, salmon-red, and orange-scarlet being the prevailing colours. But as yet this beautiful little species has not been intercrossed with the taller-growing species of America and Europe. It is perfectly hardy, and, being compact and dwarf, may be grouped as a foreground to a mass of the tall kinds. The Chinese *A. amena*, with small magenta flowers, common enough in greenhouses, is quite

states that in Cornwall, on Sir Charles Lemon's estate at Carclew, it was planted so as to form hedges, which flowered magnificently without the slightest protection. It was introduced seventy years ago, but is not a common shrub now.

THE JAPANESE QUINCE AND ITS VARIETIES.

OF the many deciduous flowering shrubs suitable for walls few are better than *Cydonia*, or *Pyrus japonica*, which is an old and well-known favourite; but its varieties are not so generally known, although, as far as my experience of them is concerned, they are a decided improvement on the type. They are of free growth, and set their fruit well. I have found the white and flesh-coloured varieties the best, and it would be advisable for purchasers to inquire for them under these names, as the scientific nomenclature is rather puzzling, and varies in almost every tree catalogue. The flowers of each are produced in great profusion, and the fruit changes from a dull green to a bright golden-yellow. It is also highly scented, and a very attractive feature after the fall of the leaf. A special characteristic not generally recognised is the rapidity of growth of both these varieties, and the ignorance of this fact is doubtless the reason why they have not been more planted; indeed, I have often heard the remark when an intending planter was admiring a plant of the white variety in full bloom, "It is a most striking climber, but unfortunately it will not answer my purpose, as I require something that will furnish a wall quickly." Now this is just what both the white and flesh varieties will do. They are not, of course, so quick growing as the *Wistaria*, but they are not long in covering in a large space of wall if the conditions suit them. As an instance of this, I may notice that two small plants, about 18 inches high, and with three or four heads, planted here four years ago, are now covering spaces of wall 12 ft. by 10 ft. The white is the more striking variety of the two, the only colour in the former being the green tinge of the stamens. It is not often that *japonica* or any of its varieties are employed except as climbers, but there is no reason why they should not be utilised for the shrubbery both in bush and standard form, as they are highly ornamental and distinct. They are not very parti-

cular as regards soil, but if rapid growth is a consideration, the ground should be trenched, and if inclined to be light, a portion of the existing soil may be removed and the top spit from a pasture substituted. All the varieties may be propagated from cuttings or layers, and the latter are preferable, as they make plants much more quickly. They should remain attached to the parent stem for twelve months after layering, when they may be carefully severed and removed to a nursery-bed for a season. I may add that as all these varieties of the *Cydonia* have during winter a rather naked look, they should not be spread over too wide an area of wall, and may be flanked on either side by such flowering climbers as the *Ceanothus* and *Lonicera*, or those more exclusively grown for their evergreen character, as the *Escallonia*s and the *Buckthorn*s.

Claremont.

E. BURRELL.

PLANTING WATER MEADOWS FOR PROFIT.

PERHAPS some reader who has experience in timber growing and dealing in Sussex and Hampshire, or in the Thames Valley would kindly give his opinion as to the best tree to grow for profit in some meadow land some 50 acres in extent, and bordering a river which in flood time swells so much as to cover the fields, thereby rendering the pasture coarse and not profitable for grazing land. It is now decided to plant it with trees with two objects, the primary one being the embellishment of the landscape, the other being a profitable return for whatever money may be expended in preparation, planting, and maintenance. There are, of course, but few trees that really thrive in land that is perpetually damp and frequently under water, and we all know that there is no tree that thrives better in such places than the Alder, but, unfortunately, this tree is not profitable; in fact, for the past few years Alder wood has been a drug in the market from the neighbourhood where the planting is proposed to be done, though some of the best wood that can be grown is cut every year. For two years past a huge stack of Alder wood has been lying at the nearest railway station, and the owners are beginning to despair of its being sold. Poplar timber does not fetch much in the locality, though perhaps if good timber could be cut and sent direct to the consuming centres it would pay. Ash is the tree I think I shall plant most of, as it seems to do well and grow rapidly in the neighbourhood under similar circumstances, and so does Elm, but I am afraid that a profit from the latter would come only to future generations. If *Osiers* lent themselves more favourably than they do to landscape effect, there would, of course, be few more profitable things to grow, but I must plant tall-growing trees or the main object would be lost. I know what purely ornamental subjects to plant here and there in order to break the monotonous effect of a large plantation of profitable trees. The soil, I might add, is a rich alluvial deposit, and the periodical overflow of the river enriches it, though at present it encourages the growth of coarse herbage, rendering it almost useless for grazing.

W. GOLDRING.

Philadelphus Lemoinei.—This Mock Orange is announced by M. Lemoine as the result of a cross between *P. coronarius* and the pretty little *P. microphyllus*, both of which occupy a prominent place among flowering shrubs. It is said to be a compact-growing, very free-flowering shrub, but whether it will ever take a foremost position in our gardens remains to be seen. As yet it is quite scarce, being one of the novelties sent out by M. Lemoine last autumn.—H. P.

The Rosemary-leaved *Phillyrea* (*P. rosmarinifolia*) is one of the neatest little evergreen shrubs I know, being like a miniature Olive with tiny narrow leaves similar to those of Rosemary. It appears to be a rare shrub. I had not seen it before Mrs. Robb pointed it out to me in her rich shrub collection at Chiltley. This lady had it sent to her from Italy, where it is a native, its synonym being *P. neapolitana*. It is evidently a variety of the well-known *P. angustifolia*, or Narrow-leaved *Phillyrea*. English nurserymen do not look upon *Phillyreas* favourably, as a severe winter is apt to injure them, the only two kinds one can get in

quantity being the Holly-leaved (*ilicifolia*) and the Privet-leaved (*ligustifolia*). But it is pretty well certain that *angustifolia*, *media*, *latifolia*, and *Buxifolia* are as hardy, and certainly are very fine Evergreens. The best of all the *Phillyreas*, *P. Vilmoriniana*, is, I am glad to find, being propagated in nurseries now as a first-rate Evergreen.—W. G.

Elliottia racemosa.—*Elliottia racemosa* is a native of the mountains of Georgia, from whence come so many of our beautiful trees and shrubs. Though discovered and described long since, its habitat being local, it was lost until recently rediscovered. The racemes as well as individual flowers are large and showy. As the shrub is quite hardy in this latitude, where it will stand 10° below zero, it will doubtless be hardy in any part of Great Britain, provided it gets a warm, dry position to grow in where it can mature its wood.—JOHN SAUL, Washington City, D. C.

The Golden Heath is the name I heard the other day given to the pretty little Australian shrub whose name botanically is *Diplopappus chrysophyllus* or *Cassine fulvida*. The popular name expresses the similarity of the shrub to a Heath, and the yellow under-surface of its tiny leaves quite entitles it to be called golden. As in the case of other Australian shrubs, such as *Olearia*, it is only of recent years that it has been found to be perfectly hardy in this country. Already in some of the great tree nurseries it is being grown by the thousand, as it is likely to be much in demand. It makes a neat little bush about 2 feet or 3 feet high when fully grown, and is very dense in foliage and much branched. The golden undersides of the leaves are for the most part upturned, so that the whole bush has a golden hue. It flowers freely in this country, but the blossoms being small and whitish are not conspicuous. It seems to grow best in warm localities in light soils, but it even flourishes on stiff soils and in exposed places. It is quite a choice little Evergreen, and one that may be obtained from nurseries and planted successfully at any season except the height of summer or the depth of winter.—G.

Camellias out of doors.—I was not a little surprised recently when I saw in Mr. John Waterer's nursery at Bagshot a plantation of *Camellias* growing in the open and looking as fresh and green as any *Camellia* in a conservatory. The only protection the plantation has is a canopy of tall Scotch Firs, which is sufficient to break the frosts, while the situation is in a measure sheltered from cold winds. The luxuriance of these plants astonished me, and as their new leaf-buds were bursting, they looked the picture of health. They have been here throughout the winter, and though the frosts have been hard, the plants have not been injured in the least. There are few, if any, flower-buds, but I understand that the motive for wintering them out of doors is to get vigorous and hardy growth. There is no hardy Evergreen that has such a singular richness of foliage as the *Camellia*, and even if it does not flower freely out of doors, it is worth growing for its foliage alone in spots where it could have protection similar to that afforded the Bagshot plants, the bulk of which were of the old double white (*alba plena*) variety, which is most in demand. I fancy that this sort is the hardiest, as other *Camellias* out of doors, notably the magnificent specimen in Baron Schroeder's garden at Egham, were mostly of this variety.—W. G.

The Spurge or Wood Laurel (*Daphne Laureola*) is not commonly recommended as an ornamental Evergreen for the garden, though it is included in the stock list of covert shrubs. In most gardens there are shady spots beneath big trees where a very few kinds of Evergreens will thrive, and unless these few are repeated monotonously the spots must be bare. Every Evergreen that makes itself at home in heavy shade should be made note of, and this *Daphne* is one of them. When fully grown it is a bush a yard or more in height and as much across, has thick glossy leaves of a pale green arranged in tufts at the tips of the branches. The flowers are not worth considering, as they are yellowish green borne in drooping clusters about this season of the year or earlier in mild

winters. Its berries are choice morsels with many birds, but if the bush is near a house the less timid birds, like the robin, get the largest share. Being a native of the greater part of Europe, it is as hardy as other native plants, and is not at all particular as to soil, but grows strongest and best in heavy loam. Evergreens that thrive under the drip of trees are not unfrequently inquired for, and this Spurge Laurel should always be recommended. It forms a fairly good covert plant, though gamekeepers will tell you that its fault is its denseness and low branching growth. The best way is to mix it with some other shrub that would lift its branches and make openings in the growth for the birds.—W. G.

STOVE AND GREENHOUSE.

T. BAINES.

PLUMBAGO ROSEA.

THIS evergreen *Plumbago* was at one time better known and in more general cultivation than at present. Why it is now so seldom met with is difficult to say, for it is one of the brightest of winter-flowering plants. It is also easily grown, and is a free and certain bloomer. The flowers are produced in long terminal spikes from the points of the shoots; the individual flowers being in shape like those of the summer blooming *P. capensis*. In colour they are bright rose. The plant is a quick grower, so that it can be had in flower from cuttings struck in spring and grown on in heat through the summer. It is an effective object in the stove during the dull late autumn months, at which time its bright flowers are highly attractive. The plant may be grown to a considerable size, but it is most useful when of medium size, such as obtainable from cuttings struck, as already said, in spring, or plants that have been headed down and grown on after the first time of blooming. The flowers are also useful for cutting if the plants, when the bloom is developing, are kept near enough to the glass. Unless this course is adopted, they will be somewhat thin in texture. The plants should have plenty of light all through the season of growth, and from the time they begin to show flower ought to be stood near the front of the house, with the branches so arranged that their tops will be close under the roof. A hip-roofed house or pit, with the usual shelf on which the pots can stand with the heads of the plants trained under the roof, is just the place for them. Here the flowers open of a brilliant colour, and with the substance requisite to enable them to last.

Cuttings are produced freely by plants that having bloomed during the latter part of the year were cut back and kept in an ordinary stove temperature. The shoots, taken off when about 4 inches or 5 inches long, may be put three or four together in 4-inch pots, drained and half filled with a mixture of sand and loam, the top all sand. Keep the cuttings close enough to prevent flagging under propagating glasses, or in an ordinary striking frame. In a temperature of about 70° they will root in three weeks, when air may gradually be admitted, ultimately dispensing with the glasses. In five weeks from the time of putting in the cuttings they should be ready for being placed singly into 3-inch pots. Sifted loam, with some rotten manure, also sifted, and enough sand to keep it porous, is the best material to grow this *Plumbago* in, for though it will thrive in peat, like most other things that bear flowers that are thin in substance, loam tends to give more solidity. As soon as the little plants get fairly established cut out the tops. It is necessary that this should be attended to early, as the

plant is an erect grower, and runs up to a considerable height before branching out if left to itself. As the sun's power increases, the young stock will bear a high temperature, but accompanied with this they must have plenty of light. Use a thin shade in bright weather and syringe overhead at the time of shutting off the air in the afternoon. The roots will soon fully occupy the soil, so that by the beginning of June the plants will require more room, and may be put at once into the pots in which they are to bloom; these should be 8 inches or 9 inches in diameter. This may appear a large shift, but the plants will bear it, and it will be found better than giving less and moving them a second time. Treat as before, keeping the soil for a time after potting somewhat drier until the roots begin to move freely in it. In July again cut out the tops, removing two or three joints. By stopping the shoots well back to where the wood has got more solidified more of the eyes will break, and in this way the plants will be better furnished; whereas if only the extreme ends of the soft tops are pinched out, not more than one or two eyes will push.

During the summer a low, light pit will be better than a house, in which there may be more difficulty in keeping the heads of the plants well up to the glass, a condition which it is necessary to secure in order to keep the shoots short-jointed and the growth strong and bushy. The atmosphere should be kept fairly moist, but as the summer advances more air may be given in the daytime. In autumn cease syringing and shading, so as to help the growth to get well matured, for on this to some extent depends the amount of bloom that will be forthcoming. Through the latter part of summer, when the pots get full of roots, manure water may be given occasionally. In October the plants should be stood where they are to bloom; the night temperature ought then to be about 60°; a degree or two more will do no harm. Give less water as the days get shorter, but care must be taken that the soil does not become so dry as to cause the leaves to flag or it may affect the flowering. When the first crop of flowers is over cut off the bloom spikes. If the plants are strong they will push a second set of flowers from the joints on the upper part of the stems. The second lot of spikes will not be so large as the first, but they will come in useful. After the plants have done blooming keep the soil drier and give them less heat, so as to afford them a rest for a time. Then cut the branches back to within 12 inches or 15 inches of the collar. Increase the temperature, and as soon as the plants have again broken into growth turn them out of the pots, shake as much of the old material away as can be done without much destruction of the roots, and give pots 2 inches or 3 inches larger. Grow them on through the summer in the way advised for the preceding season, stopping the shoots once or twice if it appears necessary. During the second year the plants will produce a greater quantity of bloom. After the second season's flowering it is better to discard them and grow on younger stock.

Night-scented Tobacco (*Nicotiana affinis*).—This is an excellent plant for winter-flowering in a cool conservatory. Its culture is very simple, and it gives far better results than many other things that give more trouble to grow well. The seed should be sown early in the summer, either out of doors or in a cool frame, and when the plants have made three or four leaves they should be transplanted about 1 foot apart on a sunny border, where they will grow into good specimens by the autumn. Pot them up and treat them in the same way as *Solanums*, *Arums*, &c., and they will suffer little, if

anything, from the removal. Preference should be given when lifting to those plants which are showing bloom, for they will go on flowering all the winter and spring without intermission. The best plants should have their centre spikes taken out a few weeks before lifting them, as that will induce them to throw up several others, all of which will bloom well; these should be put into 8-inch or 10-inch pots. The smaller plants should not be stopped, for if placed in 6-inch pots and kept to one bloom-spike, they will be found very useful for placing among other things where their heads can show well through. The soil used in potting them should be a fairly light loam with about a third of leaf-mould added, though they are not very particular in this respect, as they do well in ordinary garden mould, provided it is not too heavy. To show the persistency in flowering of *N. affinis* I may say that a plant is now in full bloom, and has been ever since November. During that time it has been twice used with good effect for room decoration for several days together. As a summer-flowering plant this has a very woe-begone appearance during the daytime when its blooms are closed, though its beauty and fragrance in the evening and early morning are delightful. In winter the flowers keep open all day; unfortunately, however, this is at the expense of its exquisite scent, for this is not nearly so powerful as it is in the summer.—JOHN C. TALLACK, *Livermere Park*.

USEFUL FUCHSIAS.

FUCHSIA DOMINIANA, which was shown at the last meeting of the Royal Horticultural Society, is now quite a rarity, though it is very ornamental and useful, from the fact of its flowering during the winter and early spring, or, at all events, it can be grown so as to bloom at those seasons. It is the result of a cross between *F. spectabilis* and *F. serratifolia*, the foliage being more in the way of the last named, while the flowers to a certain extent resemble those of *F. spectabilis*. Though *F. Dominiana* is of hybrid origin, it is widely different from the garden varieties of *Fuchsia*, of which there are now such a large number in cultivation that it is hard to make a selection. On the other hand, the true species, or hybrids but one degree removed therefrom, are hardly ever met with, though some of them are very beautiful. Planted out in a large conservatory, for instance, *F. corymbiflora* forms a handsome specimen; while the leaves are large and the plant well furnished with them. The flowers are borne in long terminal clusters, while the individual blossoms also are of great length. *F. fulgens* is another species that forms a bold, handsome specimen, and one that flowers profusely during the summer months. This was one of the parents of a variety that has since become popular as a market plant, viz., *Earl of Beaconsfield*. This kind was raised by crossing *F. fulgens* with the pollen of a garden variety. Another desirable species is *F. splendens*, which has peculiarly-shaped flowers, and of rather an odd combination of colour, the blooms being scarlet and green. This will also flower in the winter and spring, that is, if it is kept in a temperature above that of an ordinary greenhouse. One of the finest species of recent introduction—or rather re-introduction, for it is, I believe, one of the oldest, but was lost for a long time till again found within the last few years—is *F. triphylla*, a neat, bushy-growing kind that during the summer months is profusely laden with orange-scarlet-coloured flowers, which make it very conspicuous. If it can be intercrossed with the ordinary garden varieties, it will in all probability prove the forerunner of a new race of *Fuchsias*, though it is very doubtful if the original *F. triphylla* can be improved upon. As far as my experience goes, this *Fuchsia* is more tender than most of the other kinds. The New Zealand *F. procumbens* is widely different from any of the others, for it assumes the character of a low creeping shrub, with slender wiry stems and small round leaves. The flowers are very curious, but by no means showy; indeed the most conspicuous feature is furnished by the comparatively large oval fruits, which are of a magenta-crimson colour, and remain

on throughout the winter; consequently during that season the plant is more showy than at any other. This *Fuchsia* is seen to the greatest advantage when grown in a suspended pot or basket, as the long shoots hang down for a considerable distance, and being studded at intervals with the large showy fruits they may be employed for decorations. Two miniature species, as far as the leaves and flowers are concerned, are *F. thymifolia* and *microphylla*, both very pretty flowering shrubs, as they are during the summer profusely laden with blossoms, but for some reason or other they are scarcely met with. *F. penduliflora* is a free rambling growing species, very effective when treated as a pillar or roof plant, as it will cover a considerable space when once established, and the long pendulous blossoms are very effective in such a position. *F. dependens*, another climber, and having smaller blossoms, more like those of the old *F. gracilis*, can also be planted in similar positions. The hardy kinds, such as *F. Riccartoni*, *gracilis*, *globosa*, and *corallina*, are all well known and generally admired shrubs, while of *Fuchsias* with foliage differing from the usual type we have a form of *gracilis* in which the leaves are prettily variegated with creamy white, and another, *aucubæfolia*, with spotted foliage. The finest, however, of variegated-leaved *Fuchsias* is *Sunray*, the young leaves being deeply suffused with bright crimson, beneath which the variegated markings are readily seen. As the foliage becomes more mature the variegation changes to creamy white and green. This variety is sometimes used for bedding out, as it stands the open air well in the summer, in proof of which I may mention that we have a large specimen (quite a bush, in fact) that is planted out of doors in the summer and lifted in the autumn. It is planted in a spot well exposed to the sun, and the colouring it thereby acquires is extremely bright, especially the crimson of the younger shoots. Of the varieties with golden foliage, *Meteor* and *Golden Fleece* are among the best. H. P.

Laurustinus forced.—It will be some time ere *Laurustinus* in the open comes into bloom, and those who grow it in large pots or tubs will, in this cold, late season when flowers are scarcer than usual, have reason to congratulate themselves. A good-sized specimen in a tub placed in a corner of a warm house at the beginning of November will give a lot of bloom from Christmas onwards. Few things yield a better return for so little labour than the *Laurustinus*. There is no need to plant out for the summer, as by well feeding and liberally watering, a plant can be kept in good health for years without change of soil.—J. C. B.

Francisceas.—A few years ago these plants were frequently to be seen in collections of stove plants; and such kinds as *F. uniflora* and *F. latifolia* were largely grown for the grateful odour of their blooms. Now, however, one seldom meets with them except as specimens at public exhibitions, and as these are being much cut down in the neighbourhood of London, the *Francisceas* stand a chance of being ignored. I was, therefore, pleased to see these plants still carefully nursed by Mr. Williams at Holloway and Mr. James at Norwood, in whose establishments I recently noted *F. calycina major*, *confertiflora*, and *eximia* blooming profusely, and was assured that they had been laden with their deliciously fragrant flowers during the whole winter. The flowers of all the kinds with which I am acquainted are of some shade of blue or purple, which passes into lilac and white with age. *Francisceas* are easily managed and bear retarding in a cool house, so that a succession may be obtained for months. Their colour is very attractive during the dull days of winter.—W. H. G.

The brightest Bouvardia.—Several good articles on *Bouvardias* and their culture have appeared in *THE GARDEN* during the past few months, but although I carefully read them I saw no mention made of *Vulcan*, by far the brightest coloured kind hitherto raised. I do not wonder at this, because the stock is at present in the hands of a London market grower, who is by no means desirous of seeing it generally cultivated. I rather

doubt if any plants of it have yet found their way into Covent Garden, for as the blooms realise more than those of any other kind, it is decidedly in his interest to hold the stock in his own hands for a time. I was told that during the time the flowers of this kind could be had no others could be sold, and that the price realised was much higher than for any other *Bouvardia* blooms. It is, I believe, of American origin. When it does get distributed it is sure to be largely grown, for, as the above mentioned grower says, "it supplies a long-felt want."

are quite hardy, the delicate foliage which is just expanding, as well as the blossoms, are when in the open border often injured by rains and storms, so that they are never so clean as when grown under glass.—H. P.

Chorozema cordatum splendens.—There are few plants that remain so long in beauty as this. We have some specimens in pots that are secured to a few sticks in order to form a bush, and they have not been without flowers since the beginning of the new year, and, to all appearance, they will continue

cover as large a space as possible the latter may well be planted, as they grow rapidly. An open soil consisting of two parts peat to one of fibrous loam, with a liberal admixture of sand, will suit this *Chorozema* perfectly either in pots or planted out. In any case thorough drainage must be ensured. The smaller side shoots are not difficult to strike during the summer if dibbled into pots of sandy peat and kept covered with a bell-glass till rooted.—T.

WORK IN PLANT HOUSES.

STOVE.—WINTER - FLOWERING BEGONIAS.—Amongst the fibrous-rooted section of *Begonias* there are several of the best winter-blooming sorts which may be described as perpetual bloomers. Of these may be named *B. Carrièrei*, a beautiful white-flowered sort; the rose-coloured and the dark red

form of *B. semperflorens*, and also the large or giant varieties of these, *B. nitida* and *B. nitida alba*, both of which are well known, but not so much grown as they deserve to be. Their large bunches of beautiful flowers borne on long stout stalks are well adapted for using in a cut state. Wherever there is a back wall in a fairly light house, or a pillar that requires clothing, there are no plants that I can call to mind so useful as the two varieties of *B. nitida*. Where a large space is to be covered the plants should be turned out in a bed or border to enable them to make the requisite amount of growth. Now is the best time for planting out; the border or bed need not be a large one, as the strength of the plants can be kept up by annual surface dressings and stimulants. The space must be well drained, as when the plants become large, copious applications of water will be necessary during summer, and the roots will not bear the presence of stagnant moisture. Good turfy loam used in a lumpy state, with rotten manure and some sand, is the best compost for them. Before being turned out,

the plants should be grown for a year in pots, so that their tops will at once obtain sufficient light. *B. fuchsioides* is one of the best of all pillar plants for growing in a house where an intermediate temperature is kept up, for though not a continuous bloomer like the sorts previously named, it is one of the most telling of all flowering plants when in bloom, whilst its neat foliage always looks well. Small examples of all the kinds mentioned that were struck last summer and have been kept growing since, should now be potted, giving them room in proportion to the strength the sorts naturally attain, and to the size the specimens are wanted to be grown to.

PROPAGATING BEGONIAS.—Where any increase in the stock of these winter-flowering kinds is required cuttings should at once be put in, as if the propagation is deferred longer the plants will not acquire strength enough before autumn to be of much use when wanted. Stout pieces of the leading shoots with about three joints will root readily; they are best put singly in small pots. The pots should be drained and half-filled with a mixture of loam and sand, the rest all sand. They will root readily in a moderate stove-heat and should not be confined more than necessary to prevent the leaves flagging. Neither must the soil be kept too wet, or from the succulent nature of the stems the plants will be likely to decay. As soon as the cuttings are well rooted move them into 3-inch or 4-inch pots; a mixture of loam, rotten manure and sand will be found to suit them well. Pinch out the points of the shoots when a little growth has been made. It will be best to keep the plants in an intermediate temperature until the weather becomes warmer.



Azalea mollis. (For description, see p. 321.)

As regards habit of growth and free-flowering qualities, it is all that can be desired.—J. C., *Byfleet*.

Tooth-leaved Primrose (*Primula denticulata*).—For flowering in a cool house *Primulas* of this section are very valuable and easily grown. The principal consideration in their cultivation is to see that they are not starved, for although they may be, and often are, planted on the rockwork, yet they will repay liberal treatment in the matter of soil, and when in pots liquid manure occasionally is of great assistance to them. A group of them in bloom forms a pleasing feature just now in the greenhouse, very soon to be succeeded by a selected few from among the many varieties of *P. amoena* or *Sieboldi* which are so beautiful in the spring. Though these last

to bloom for a long time yet. As we are close to London, and have had consequently an almost total absence of sunshine during that period, combined with a smoke-laden atmosphere, the surroundings during the whole of the time they have been in flower have not been at all favourable, and though the young foliage was injured during a long spell of dense foggy weather, the blooms were uninjured. This *Chorozema* is about the most robust of the genus, and is well suited for planting as a pillar or screen plant where medium growing subjects are desired. The best types are usually propagated from cuttings, and plants raised in this way possess the great advantage of flowering more freely in a small state than seedlings, though when required to

EUPHARIS.—No *Eucharis* is better than *E. amazonica*. It differs from most bulbous plants in this, that disturbance of the roots, such as becomes necessary when large specimens are broken up, interferes but little with the flowering, as when through any cause the plants have failed to bloom, if the bulbs are separated it seldom fails to throw them at once into flower. Large examples that are to be divided should now, if in a state of comparative rest, be taken in hand. My own practice is to turn them out of the pots, plunge the balls in a tub of tepid water, and then work all the soil away from their roots. In this manner there is no difficulty in getting them completely free from it, and in separating the roots with much less breakage than occurs when the material is shaken out in the ordinary manner. It is better to keep the largest bulbs by themselves. They may be put six or eight together, or in fewer or larger numbers. Large specimens are effective, but for general use small or medium-sized examples are best, as when a sufficient number are at hand they admit of being treated so that portions of the stock can be had in bloom at intervals, thus keeping up a better succession than is obtainable by a limited quantity of large specimens. *Eucharis* are not so particular in the matter of soil as many plants; good turfy loam with some sand added answers well for them. Pot firmly, and do not cramp the plants for room, as they increase most quickly when liberally treated in this respect. After potting a brisk stove temperature of about 70° in the night will benefit them, though they will do with less than this. If a bottom heat of 80° can be given, the plants will make greater progress. After potting, and until the roots begin to move freely, it is well to keep the soil somewhat drier than when active growth is going on. Anyone who has a healthy stock of *Eucharis* should rigidly exclude additions, through the introduction of plants obtained elsewhere, either of any of the kinds of *Eucharis* or of *Amaryllis*, unless they know that the stock from whence the additions are made is perfectly free from the mite.

GREENHOUSE RHODODENDRONS.—Many fine varieties of the Javanese section of *Rhododendrons* have appeared of late in addition to the numbers of well-proved sorts that previously existed. Where large conservatories have to be kept furnished these plants are very useful, not only from the distinct character of their flowers, but also for the length of time they bloom. The flowers appear at different times of the year. The hybrids in question require less pot room than many plants, but it is a mistake to cramp them for root-space to the extent that is often practised, especially whilst they are young, as it stunts their growth and tends to aggravate the natural spare, straggling habit which is more or less common to most of the varieties. Any that require potting should have a shift as soon as the growth begins to move. Drain well and pot firmly. Some growers like loam for these *Rhododendrons*, and where it can be had exceptionally rich in quality, such as the silky yellow material obtainable in some parts of Kent, it answers well. But good peat that is not too hard in texture may be relied on to suit them in every way; enough sand must be mixed with it to keep the material in a continuously porous state, as with fair treatment the plants will last a long time. The desire to grow the plants to a large size usually prevents the knife being used as much as necessary, especially while they are small. This mistake should be avoided. All straggling shoots that take the lead so as to starve the weaker ones ought to be timely shortened. Much may also be done by bending the strong growth down, provided this is done in time.

EPIPHYLLUMS.—Plants of the various kinds of large-flowered *Epiphyllums* that after being kept dry and at rest through the winter were started into growth some weeks ago will shortly be showing their flower-buds. Keep the soil moderately moist, but not too wet, especially if the plants are liberally dealt with in respect to pot room, as the roots of all the kinds of these *Epiphyllums* are impatient of much wet. Where there is any sign of the drainage being imperfect, this should be seen to at once.

If they can have an intermediate temperature, it will accelerate the flowering. Where a sufficient number of plants is at command, it will be well to bring a few into bloom in warmth and let the others follow with ordinary greenhouse treatment. See that the flower-buds are free from aphides, which if present in the house in which the plants are stood, are almost certain to attack the *Epiphyllums*. Dusting with tobacco powder is as good a method as any for destroying the insects. When the stronger-growing kinds get to specimen size, they keep on flowering more or less for a considerable time, and in this state are most effective. Late-flowering plants of *E. truncatum*, which is one of the most distinct and useful of winter-blooming subjects, should now be encouraged to complete their growth. Give them all the light possible, and keep them in a moderately warm house or pit, so that the young shoots may get thoroughly hardened.

ACACIAS.—The different kinds of *Acacia* that are grown as pot specimens for winter and early spring flowering should, as they go out of bloom, have their branches shortened as far as necessary to prevent their becoming straggling; afterwards any that require more pot room should have a shift. Loam, with some rotten manure and sand, is the most suitable compost for them. Surface dressings of concentrated manure should be given to plants that are not to be potted, and manure water later on, when free growth is being made. Stimulants of this kind are necessary for free-growing things.

T. B.

Three good Pelargoniums.—When looking through a market garden where *Pelargoniums* are made a speciality, I particularly noted the varieties *Venus*, *Triumph*, and *Tommy Dod*. The first-named is an exquisitely pretty white kind with pink blotch. It grows compactly and flowers profusely. In that establishment it is considered to be the best of its class. *Triumph* is a mauve-coloured kind, evidently descended from the old woolly-leaved *Alma*, and *Tommy Dod* is a bright flower with dark spots in which the parentage of *William Bull*, a great favourite twenty years ago, is traceable.—J. C. B.

Alonsoa incisifolia.—Among plants that can be easily cultivated and flower during the winter and early spring months must be included this *Alonsoa*, the bright red blossoms of which have for some time been very effective. It was introduced from Chili during the latter part of the last century, but it is even now quite a rarity. This *Alonsoa* forms a much-branched bush, well clothed with foliage, while the flowers are borne freely. The latter last well in water, and on that account they may be used in a cut state. Cuttings strike readily at any season, but the best time of the year to put them in is during the spring, as they can then be grown on throughout the summer, and will by autumn have formed good flowering plants.—T.

SHORT NOTES.—STOVE AND GREENHOUSE.

Six best stove-flowering plants.—Will any reader of *THE GARDEN* say which are the six most useful stove-flowering plants that do not require much heat in the winter, say 55° at night?—T. W. BROWNING.

Amaryllids at Veitch's.—These plants will be in their full beauty in a week or a fortnight's time. There are about 1500 spikes of bloom almost ready to burst open. Lovers of *Amaryllids* should not fail to see them a little later on.

Rhododendron Lord Wolseley.—This is one of Messrs. Veitch's new hybrids, and it promises to become a fine plant; the truss is dense, the individual flowers large and regular, and the colour very pleasing, being of a deep rich salmon, flushed with orange.

Nidularium striatum.—This is one of Mr. Bull's new plants, and it is certainly of great beauty. The leaves are arranged in a rosulate manner, and are of a brilliant shade of green, the centre of the leaf being relieved with numerous stripes of pure white, which alternate with the green.

Clivia v. Imantophyllum.—At the floral committee meeting last week it was decided that the plant known generally as *Imantophyllum* *miniaturum* shall in future be recognised only under its true name *Clivia*, which is always used on the Continent. This change is desirable, inasmuch as the plant is sometimes called

Himantophyllum and *Imantophyllum* as well as *Imantophyllum*. *Clivia* is an older and simpler name, and takes less label room.

PROPAGATING.

DOUBLE PRIMULAS.—Several methods of propagating double *Primulas* are resorted to, one of which, that possesses the great advantage of not requiring any accessories in the shape of propagating houses and close lights, is to take the old plants and thoroughly clean them; remove flower-spikes, dead leaves, and all decaying matter, then, in all probability, most of them will branch out at about the ground-level. Work some fibrous loam around the centre of the plant in such a way that the branches all start from this cone of soil. If the compost is kept fairly moist and the plants under conditions favourable to growth, they soon push forth roots in the soil at the base of the branches, and when sufficiently struck the plants may be split up, each branch then forming a separate plant. This is but another form of layering, and the general way is to partly divide the branch and secure it in position by a peg or pegs. Good fibrous pieces of loam must in either case be used to work around the branches, and the roots are produced far more freely in a fibrous turf than in loose soil. Roots are more quickly formed if the structure in which the plants are kept is rather warmer and closer than would be needed if the plants were established, and after being divided they should be kept somewhat close until root action recommences. By many, double *Primulas* are propagated from cuttings, a method I always follow. The advantages of cuttings are that you can get a larger stock from a given quantity of plants than by means of layers; the disadvantages are the greater risk one runs with cuttings, and the fact that propagating cases and other appliances are needed. The plants that are intended for stock are now carefully gone over and cleaned, after which the house is kept just a little warmer and moister than hitherto. So treated, roots are pushed out from various parts of the old stems, and when they can be rather plentifully seen is the best time to take the cuttings. As a rule, this will be during the first half of the next month. It is preferable, of course, to have as many rooted shoots as possible, and the plants must be turned out of their pots. When the soil has been shaken off they can be divided with a sharp knife. In this operation save as many of the roots as possible. A compost well suited for the cuttings consists of loam, peat, or leaf-mould, and silver sand in about equal parts, the whole having been finely sifted. The cutting must be put in at such a depth that the naked stem is completely buried, but on no account any deeper, as if the base of any of the leaf-stalks is below the surface of the soil the probability is that the cutting will decay. In inserting it in the pot a little dry silver sand should be worked around the base. The better way is to put the cuttings singly in small pots, as when rooted they can be shifted on, for this *Primula* is very impatient of being disturbed. Each cutting should be secured to a small stick, and after the plants have been watered and allowed a little time to drain the pots must be placed in a close case kept at an intermediate house temperature. The after treatment consists in shading when necessary, watering and removing the lights every morning to drain off the wet, and also to allow an examination of the cuttings.

RETINOSPORA ERICOIDES, which was recently noted in *THE GARDEN* as a very desirable shrub, is one of the easiest of all *Conifers* to strike from cuttings; indeed, the genus *Retinospora*, as a whole, is not difficult in this respect, but those with long leaves, such as *ericoides*, *dubia*, and *squarrosa*, root more freely than those with small scale-like leaves closely adpressed to the stem, of which *obtusata* and *pisifera* are examples. Of *Retinospora ericoides*, cuttings may be put in at any season, though the best time is towards the end of the summer when the season's growth is completed. However, cuttings put in now will soon strike if they are formed of pieces of the branches from 4 inches to 6 inches

long and dibbled firmly into sandy soil. They may be put in pots or pans and kept in a frame until rooted, or in a sheltered border and covered with a hand-light. In either case they must be shaded from the sun until struck. The best way to effect this is to put in the cuttings on the shady side of a wall, as then mats or any other shading material can be dispensed with.

ROCHEA FALCATA.—This succulent, whose heads of bright-coloured blossoms are so effective during the latter half of the summer, is best propagated by single leaves, and the present is a good time to carry out the operation. The leaves can be dibbled into pots or pans of sandy soil and placed on a shelf in the greenhouse or in some such a position. Little water will be needed; in fact, just enough to keep the soil slightly moist. The young shoots will be pushed up from the base of the leaves, and when sufficiently advanced can be potted off.

CLERODENDRONS.—Several of these can be propagated by cuttings of the roots as well as pieces of the branches, and some ripen seed rather freely. The showy *C. fallax*, *C. Kämpferi*, and *C. fragrans*, with its double-flowered variety, can all be propagated by both methods, while the climbing kinds are, as a rule, increased by cuttings of the shoots. The present is a good time to carry out all this, as most of them will have made young shoots of sufficient length to be used as cuttings if taken off just at their base and dibbled firmly into pots of sandy soil, while a few old plants will give a fair number of root cuttings. The stoutest roots should be chosen for the purpose, and having been cut up into lengths of a couple of inches or thereabouts, must be dibbled into well-drained pans of light, open soil at such a depth that the upper part of the cutting is just below the surface. The top of the root will soon callus over and shoots be produced therefrom, the lower part pushing forth fibres at the same time. The hardy *C. trichotomum* and *C. foetidum* (this last a showy, but uncommon plant) are among the easiest of shrubs to increase by cuttings of the roots, as if dibbled into a sheltered border they grow readily. Of course, where put in the open ground, the pieces of root must be larger and buried more deeply than when protected, but for these hardy kinds the shelter of a frame will be of great assistance.

BOUVARDIAS.—The old plants of these that have been rested for a little after flowering and then placed in a growing temperature will be by this time studded with young shoots, which strike root in a fortnight if kept close during that period. The cuttings should consist entirely of the young, succulent shoots, for whereas one is occasionally recommended to take a heel off of older wood, it only arrests the formation of roots. At one time Bouvardias were extensively propagated by root cuttings, but such a method of increase has to a great extent been given up, the young growing shoots being usually chosen. The cuttings must have plenty of air given them directly they are rooted, as if allowed to remain in the close case only for a few days after they are struck, they will become weak and drawn, and, consequently, it will then be difficult to lay the foundation of a good, sturdy plant.

FUCHSIAS, HELIOTROPES, and all subjects of this class will now strike root in a few days if placed under favourable conditions, whether in soil, sand, Cocoanut refuse, or even in water. The best medium is, however, sandy soil, as in pure sand the roots are so brittle, that they are apt to be broken in potting, a remark which also applies to those struck in water. In Cocoanut refuse they strike root well, but require to be potted off directly they are struck, as in a few days the roots will often commence to decay.

DIPLODENIAS.—These beautiful stove climbers will be by now starting strongly into growth, and when the young shoots are a few inches long is the time to take them off. The best cuttings are furnished, not by the strongest shoots, but by those of a medium character, and the shorter-jointed they are the better. Whether the cuttings are put singly in small pots or several around the edge of a larger one, good drainage should be ensured, and the soil must be light and open in character, two parts peat to one of loam and sand suiting them perfectly. It

should be sifted before use. The cuttings must be taken off at a joint and dibbled in as soon as possible. Being then watered, they should without delay be placed in a close case until they are rooted, which will be shown by the points of the shoots commencing to grow, when they must be hardened off. As mealy bug is very fond of the *Dipladenias*, a sharp look-out must be kept that there are none on the cuttings, as in a close place they make rapid progress, and a few aphides will also cripple the point of the shoot, so that they must also be guarded against.

CRINUM CAPENSE.—Not only can this be increased by suckers which are pushed up, but it also seeds freely; indeed, we have quite a crop of young plants from seed which ripened last year, and when it dropped was allowed to remain on the ground. The decaying leaves in autumn formed a covering for the seeds, through which the young foliage is now pushing.

LOBELIAS.—Plants of the speciosa type may be easily increased from seed, but where perfect uniformity is desired, it is necessary to strike them from cuttings. When it is intended to propagate them in this manner, if the stock plants that are to yield the cuttings are kept in a rather moist and warm temperature for about a week, roots will be pushed forth freely from all the older parts of the stem. The plants may then be split up without risk, and give but little trouble if they are at once potted and kept in the same temperature for a few days until established.

T.

NOTES OF THE WEEK.

Narcissus pallidus præcox.—We have received from Messrs. Collins Bros. and Gabriel, Waterloo Road, flowers of this early Daffodil now generally grown. They were from the open ground, and were amongst the best flowers we have seen this season. The two shades of yellow in this *Narciss* are delightful.

Thunbergia fragrans.—In this case the flowers belie the name, as they are not fragrant; albeit the climber is elegant in growth, and the snow-white blossoms are large and showy. It is now festooning the roof of one of the greenhouses of Veitch's nursery at Chelsea. It is an Indian plant and has been grown for nearly a century in gardens.

The yellow Banksian Rose has been very fine in Messrs. W. Paul's nursery at Waltham Cross. A plant covers a portion of the roof at one end of a long house, and has this season given a profuse display of the small, delicately beautiful yellow flowers, which have the advantage of a sweet, but not powerful fragrance. It makes a very vigorous and quick growth, as shown by the specimen here, but is rather tender.

Bauera rubioides, an extremely pretty little shrub from New South Wales, is now in bloom. It grows as bushy as a Heath, and its delicate stems are hung thickly with small saucer-shaped blossoms of a deep pink colour. It is one of the neglected New Holland plants once the pride of English gardens. Now we see it only in botanical collections, though in the best nurseries it is still grown. It is a charming plant for the greenhouse at this season, and may be seen in bloom at Kew.

Aerides rubrum.—This plant, a native of the Madras Hills, was imported some years ago in great quantity, but it has now become scarce. It is distinct in growth, and produces an erect branching spike bearing numerous flowers, which, however, are not very large, neither are they red, as one would infer by its name. The sepals and petals are soft rose, and the long, narrow lip is of a rich rose colour. It is in flower at the present time in Messrs. Veitch's nursery at Chelsea.

Cinerarias.—Seeing your remarks in THE GARDEN (p. 284) about Sutton's double *Cineraria* led me to look among my own to see if I could find any double ones, having purchased my seed from that firm. I beg to send you a flower or two I discovered, but regret the smallness of the sample, as they are almost over. I have had flowers measuring more than 3 inches across.—T. W. SWINBORNE.

. Evidently a fine variety; the colour brilliant magenta.—ED.

Kniphofia sarmentosa.—Strange to say, this has been in bloom all the winter, and one plant has now six spikes showing colour; the plant re-

ceived no protection whatever. I am pretty certain that a race of perpetual blooming forms will in the future be raised from this species. It is strange that an African plant should stand unharmed where our brave and ever welcome Snowdrop should be cut up by the late frost and cold.—W. J. GRANT, *Ledbury*.

The scarlet Windflower.—What a valuable flower for cutting this is! A warm position suits it best. I could not succeed with it in the open border with an east aspect, where the soil is heavy, but it is quite at home in a narrow border in front of some forcing houses. Some blooms appeared in January, and now the plants are gay with bright scarlet flowers during the rare periods when the sun shines. The flowers if cut and taken into the house when the buds have attained full size, expand and remain open and fresh a long time.—A. BAKER.

Paul's single white Rose reminds one of the wayside Rose of the hedgerow, but it is far better, as the flowers are larger, the petals broader, and of the clearest white, except that there is just the suspicion of a pinkish tinge, while the delicate fragrance, sweet, but not powerful, adds an additional charm. A plant in a pot in a warm house is flowering freely in Messrs. W. Paul's nursery at Waltham Cross, and those who are fond of single flowers, especially Roses, will appreciate such things as this. It is of robust habit, and for cutting appears most desirable, as the flowers are so elegant, yet withal bold and striking.

The Violet-scented *Boronia* (*B. megastigma*).—There should be no greenhouse without this fragrant little New Holland shrub, whose sombre-tinted flowers, like tiny bells lined with gold, give out a perfume both powerful and pleasant, like that of Violets. Those who do not know it may be glad to know that it is an easily-grown plant, of slender growth, and keeps in bloom for several weeks in spring and early summer. There is no plant so deserving of universal culture for the greenhouse as this, and, happily, it is an inexpensive plant; one well-flowered specimen is sufficient to perfume a small greenhouse or room.

Burchellia capensis.—Gardeners will remember this as an old favourite among the hard-wooded greenhouse plants of bygone days. It is happily still grown, and I was glad to see it the other day grown in quantity at Veitch's nursery. It is now in bloom there, and is among the plants that cannot be passed by, as it is out of the ordinary run. It makes a dwarf spreading bush, and bears tufts of tubular flowers of a bright orange-scarlet. It is an Evergreen, and flowers for a long time at this season in a warm greenhouse. It does not attain a large size when grown in a pot, but planted out as Mr. Green used to grow it at Pendell Court it makes a big shrub, 5 feet or 6 feet high.

Hypoxis stellata elegans.—None of the species of *Hypoxis* have come into general cultivation, but here is one that deserves to, as it is so pretty when in flower. Its blooms are like those of some of the dark-eyed *Ixias* and similar in size and shape. They are pure white, with a black shining centre or eye. The flowers are borne singly on stalks just overtopping the Grass-like foliage. It seems to grow and flower freely, and is quite out of the ordinary run of greenhouse plants. It is now in bloom in the Cape house at Kew, and is a native of South Africa. It is not a bulb, though it looks like one, and that is probably why it is not more common, not being so easy of importation as bulbs.

Hardy Cyclamens.—Some large tufts of spring blooming Cyclamens are now in great beauty in Mr. W. Barnard Hankey's hardy fernery at Oaklands, in stiff soil, on the edge of the Weald of Sussex. The place is well chosen, both for the welfare of the plants and for the best possible display of their beauty, the inequalities of the rockwork offering plenty of choice nooks for their comfortable establishment, and the background of old Fern fronds and carpet of Oak leaves showing off the brilliant little flowers to great advantage. The brightest tufts are of the *C. Atkinsi* varieties, but hardly less beautiful are some well-flowered tufts of *C. repandum*. Further on some masses of the beautifully

marbled leaves of *C. europæum* show that this pretty fernery is furnished with autumn-blooming Cyclamens as well as with those that flower in spring. Mr. Hankey scatters the seed as soon as ripe both in special parts and also broadcast among the Ferns, the result of last year's sowing being seen in many places, where well-to-do looking little leaves of threepenny-piece dimensions show where there will be strong tufts a few years hence.—G. J.

Dendrobium densiflorum Fieldeni.—Here-with I beg to enclose flowers from the above-named plant, which I think you will agree with me is a beautiful variety, and so far as I know quite distinct from the type. The plant from which it was cut has been in the possession of my employer's family for fully twenty years, if not more. It is of much stronger growth than *D. densiflorum* usually is, the pseudo-bulbs being over 2 feet in length and strong in proportion; the nodes are much farther apart, too, and the darkish skin is partly covered with the bright silvery veins seen on well-cultivated plants of *Dendrobium Schroederi*, which, as you will know, is another handsome variety of *D. densiflorum*. The individual flowers of the one sent are, as you will see, much larger than those of the last named kind usually produces. The colour is of a deeper yellow, and the lip is beautifully fringed.—H. J. CLAYTON, *Grinston Gardens, Tadcaster*.

* * An excellent form of *D. densiflorum*; the flowers large, wax-like, and most vividly coloured, especially the rich orange downy lip.—ED.

Kämpferia rotunda.—If this lovely Indian plant belonged to the Orchid family instead of the Ginger family we should see it one of the most belauded of plants, for without question it is as beautiful as any Orchid, and few flowers possess such a delightful spicy fragrance. The blooms appear before the leaves. The flowers are large and showy, the upper petals being pure white; the lower, which are each an inch broad, are of a bright violet-purple feathered with white. They are produced two or three together in a dense tuft, which presently will be succeeded by broad handsome leaves of rounded outline. It is a stove plant of easy culture, requiring a dry rest when not in active growth, that is from the time the leaves die down till the flowering season returns. It was imported from India about the middle of the last century, but though such an old garden plant it is only to be seen in gardens like Kew and where a speciality is made of uncommon plants. It is now beautifully in flower at Kew, and its perfume pervades the house it is growing in.

The bulb trade in Holland.—Last July a note as to the plans of the General Royal Union for the Cultivation of Flower Roots at Haarlem to do everything possible to stop the trade in cut flowers, considered so very injurious to the bulb trade, appeared in THE GARDEN. The resolutions for this purpose had been taken at the 68th general meeting of the said society, which took place 30th January last, and at the 69th general meeting, 26th March last, the results of the operations of the society in this direction have been communicated. At that date 2081 bulb growers and bulb tradesmen had signed the declaration not to sell any cut flowers of Hyacinths, Tulips, Narcissus, Ranunculus, or Anemones, and not to deal with those who sell such flowers, or who refuse to sign such declaration. The number of such signatures increases daily. On the contrary, there were only 107 names on the list of those who refuse to sign, and it is very likely that this number will yet decrease by-and-by. From these facts it may be concluded that the measures taken have received general sympathy.—J. H. KRELAGE, *Haarlem*.

Lachenalias.—Mr. Rawson (p. 293) is not the only one who is complaining of the difficulty of getting these plants true to name. I have heard the nurserymen themselves admit that the confusion is pretty general, and they can scarcely be blamed for not being much in advance of other people in respect of correct knowledge and stock of the different varieties. It was thought by the members of the R. H. S. Narcissus committee to whom the subject was mentioned the other day that they

might properly undertake to try to abate the confusion. The flowering season of most of the varieties which are suitable for garden purposes coincides with that of the Daffodil, and the growers of the one are so often also growers of the other. By getting together flowers from all parts of the country we shall be able to judge of the forms best suited for cultivation and for effect, and also be able to distribute information and name varieties for those who have not similar means of comparison or access to coloured plates. There are now a good many which are not generally known, and there can be little doubt but that we may hope for some fine seedlings in the future. In the meantime no one can complain if the right names are given to the right sorts, and it is this which we propose to do. I am instructed to ask that flowers of any *Lachenalias* likely to be of interest may be sent in time for the next meeting of the Narcissus committee on April 10. Address to 111, Victoria Street, S.W.—C. R. SCRASE-DICKINS.

CERTIFICATING NEW PLANTS.

TO THE EDITOR OF THE GARDEN.

SIR,—Can anyone tell on what earthly principle awards are made by the societies? As Lord Dunderbary said, "No fellow knows." I see that at the Botanic show on the 21st ult., Messrs. Veitch received a certificate for *Lilium roseum* (L. Thompsonianum) as a "new plant." I showed it at the Horticultural at least fifteen years ago and it was passed by unnoticed. Knowing how unusual a thing it was to see it in flower, I wrote to the *Journal of Horticulture*, and my letter was handed by the editor to Mr. G. F. Wilson, who sent the following communication to that paper:—

Lilium Thompsonianum has appeared at South Kensington twice before. A plant in large bud was sent to me by M. Leichtlin, of Carlsruhe, in 1868. It flowered in the South Kensington conservatory, and was exhibited at the next committee meeting. If I remember rightly, Major Trevor Clarke exhibited a plant in bloom about the same time. Mr. Rawson's plant though not very tall, was very well bloomed. I rather wondered at the time that it had not more notice from the floral committee, especially as I saw one "*lilomane*" at the table.

Now that is at least fifteen years ago (I have not the exact date), yet lately a certificate as a new plant was awarded it! Surely there ought to be some regulation by which a system of awards not so deceiving should be made.

Windermere.

A. RAWSON.

Narcissus committee, R. H. S.—A meeting of the committee was held in the Drill Hall on Tuesday, March 27, when the list of garden and selected forms registered up to the present season was submitted. These number altogether thirty-one varieties, if those of the white Ajax section, now under trial at Kew, are not excluded. A variety which was shown on April 13, 1886, and was then named provisionally *minor citrinus*, was received again this year, and was found to be identical with *pallidus præcox*. The variety which has been widely distributed as *Ard-Righ* was registered under that name. It is, in the opinion of the committee, identical with what has been shown as *Irish King*, *Yellow King*, and *Golden Dragon* on previous occasions. Mr. A. D. Webster was elected a member of the committee.—C. R. SCRASE-DICKINS, *Hon. Sec.*

The Gardeners' Orphan Fund.—A meeting of the committee was held at the Caledonian Hotel on Friday evening, March 23, Mr. George Deal presiding. After the transaction of some routine business it was resolved that the money invested in consols should be converted according to the requirements of the recent Act of Parliament. A further sum of £500 will be invested shortly. It was reported that since the last meeting of the committee the names of seventy-four new donors

and subscribers had been received, the donations amounting to £29 1s. 6d., and the subscriptions to £19 5s. The total amount promised to date is, donations £1150, of which £968 6s. has been received, and annual subscriptions £353 3s., of which £224 4s. has been paid. The annual general meeting of the subscribers to the fund will take place at 2 p.m. at the Cannon Street Hotel on July 13, the day of election. The sub-committee appointed to consider the proposal to hold a popular dinner on the evening of July 13 reported that they had made arrangements for such dinner to take place at the Cannon Street Hotel at 5 p.m., the tickets for which will be 5s. each, and for which a generous menu is promised. The sub-committee have also arranged for the after-dinner proceedings to be of a very enjoyable character. No attempt will be made to collect funds during the evening. It is believed that many of the local secretaries and those interested in the fund will be present. The commodious hall can be made to dine over 400 persons. The president of the fund, Sir Julian Goldsmid, Bart., M.P., will take the chair at the dinner. Sub-committees will be appointed to take charge of the various details of the election and dinner. Several applications for money-boxes and collecting cards were received from various parts of the country.

Show of bulbous plants in Holland.—Among the numerous varieties of bulbous plants cultivated in Holland during late years sufficient attention does not seem to have been paid to early flowering sorts. The aim has always been to have well-developed flowers, and those are not always found among the early-flowering varieties. For many purposes, however, early-flowering kinds are wanted, and, therefore, there is just now a tendency among growers to give more attention to them than before. In January last there was opened at Overveen, near Haarlem, a show of flowering Hyacinths and Tulips, which succeeded pretty well. At the general meeting on March 26 last, the General Royal Union for the Cultivation of Flower Roots at Haarlem decided to hold on December 24, 25, and 26, 1888, a show of flowering bulbous and tuberous-rooted plants. The previous programme, which was discussed and enlarged at the said general meeting, contains forty classes, viz., for Hyacinths and Tulips in pots or glasses, for Crocus, Narcissus, Amaryllis, Orchids, Anthurium, Cyclamen, and for miscellaneous bulbs and tubers for the open ground as well as for glasshouses, novelties included. As this exhibition is principally undertaken for the benefit of the trade and for study, there will be no medals or money prizes given, but certificates of the first, second and third class. By this exhibition the varieties fit for early forcing, and not sufficiently known at present, can be seen, and in consequence become more appreciated by growers. It is to be hoped that cultivators of bulbs will do their best to make this show a fine one.—J. H. KRELAGE.

Red Rose boiler.—If any reader of THE GARDEN who has experience in using the above would kindly give his opinion of its merits, he would much oblige AN INQUIRER.

Preserving Dracæna flowers.—I have a *Dracæna* in flower here. The flower is of a stiff, woody, branching character. As it is new to me I should be glad, if possible, to preserve it. I do not think that such flowers are very common. Will you kindly do me the favour of saying how such a flower may best be preserved?—T. W., *Hayward's Heath*.

The best Pentstemons.—In a recent number of THE GARDEN there appeared a list of the best *Phloxes* now grown. Will some reader give a selection of a dozen or eighteen of the best *Pentstemons*? The lists will, no doubt, be of service to competitors in renewing their stock of such at this season both here and elsewhere.—A CONSTANT READER, *Aberdeen*.

Names of plants.—H. L. B.—*Helleborus colchicus*.—T. S.—*Cologne cristata*.—J. Hinton.—*Convolvulus Cneorum*.—W. J. M., *Clonmel*.—The common Coltsfoot (*Tussilago farfara*).—W. Spencer.—A most unusual and curious growth of the Chinese *Primula*.—A. S. Claudley.—*Leucocjum vernum*, the Spring Snowflake.

WOODS & FORESTS.

PRUNING FOREST TREES.

IN THE GARDEN, March 10 (p. 232), "Yorkshireman" gives an article upon pruning forest trees, and, in handling the subject, is far wide of the mark. "Yorkshireman" told us that he considered the wind by far the best pruner, but he now seems to have changed his mind, and gives us a tirade about cutting off the limbs of trees with a chisel and mallet, which he calls pruning, as practised by scientific foresters on large estates in Scotland. But, allowing such to be the case, that is no reason why he should try to connect my name with a system which I have neither practised nor advocated. Again, the writer tells us that he has been quite tired out with swinging the said mallet, and goes on denouncing all and sundry for pruning trees at all. Although he has found the wind, chisel, and mallet to prove defective, this by no means should retard others from prosecuting a rational system of pruning and tree culture. Further on "Yorkshireman" makes the following astounding announcement:—

Pruning is the last thing a forester need trouble himself about, and if he plants judiciously the right trees in the right places, he may discard pruning entirely.

I often find it necessary to prune young trees in the nursery before they are planted out into the forest ground at all. In speaking of Brown's "Forester" some time ago, "Yorkshireman" told us that he considered "Brown more of a bookmaker than anything else;" but now he quotes him as one of the best authorities in support of his theory of the non-pruning system. I do not happen to have the book which he refers to in my possession, and consequently cannot read the text, context, and all its bearings; but, granting that the quotation is correct, I fail to see a single word in it forbidding the pruning of young trees when it becomes necessary.

We are not discussing bad management at the time of the formation and planting trees in wrong places, but the utility of pruning trees in the early stages of their growth when it proves necessary, no matter where they are planted, and Brown does not say a single word against such practice. I consider James Brown a man that did much good in his day, and, from his extensive practice and matured experience over a wide range of country, he is certainly entitled to respect; but, at the same time, I do not require to tie myself to "Brown's book" nor "Yorkshireman's" dictum, but prefer to act purely and simply on my own experience and observation. I conceive there are few foresters or gardeners of any extensive practice but can call to mind many instances where, having planted young healthy trees on good suitable soil and situations, yet it sometimes happened that some of these trees produced double leaders, as well as strong rambling side branches, and I maintain that such should be pruned and corrected before they attain a large size, and when trees are well managed in this way in early life, and until they are thoroughly established and in a fairly active state of growth, they seldom give much more trouble.

"Yorkshireman" takes me to task for referring to the natural forest in illustration of my subject on the evils of non-pruning of forest trees under certain conditions. No better illustration could be adduced than that of the natural forest, inasmuch as we have the Book of Nature laid wide open before our eyes, and in dealing with the subject I gave a faithful sketch of the trees as found in the interior as well as the exterior of the forest, and which would only be wasting time and space to repeat, and if "Yorkshireman" would read them, he would find his remarks altogether illusory and uncalled for. He falls back upon the old threadbare argument used by a few theorists about the fine clean timber which we receive from foreign countries, and the produce of crowded forests untouched by the hand of man, but he forgets to tell us that owing to our geographical position we never can produce timber trees 200 feet and 300 feet high with a corresponding diameter of trunk. For many years back our government, im-

pelled by wise counsel, has spent considerable sums of money in sending young men to France and other places to learn the art of forestry, as a preliminary step to sending them to India and other places to turn the wild jungles and woods in these places to better account. According to "Yorkshireman's" idea, however, this is of no use; leave the trees to take care of themselves is now his theory and doctrine. Owing to the low price of agricultural produce many a landowner's income has been reduced nearly one-half, and wise prudence has induced some of them to reduce their expenditure by reducing their staff of woodmen, and this appears to be good news for "Yorkshireman," as he tells us that as the trees are left to themselves we may yet see a forest of good timber some day here and there. No experienced forester who has acquired a proper knowledge of tree culture can be so indolent as to allow any of his young trees to assume the shape of mere bushes, when a few well-directed cuts with a sharp knife would convert them into the shape of trees.

J. B. WEBSTER.

WIRE FENCES V. HEDGES AND WALLS.

FENCES are incompatible with that freedom of aspect which should always be aimed at in the disposition of ornamental grounds, either extensive or otherwise. In parks where cattle are admitted some kind of barrier is necessary to protect the plantations, but there are ways of accomplishing this now without resorting to the plain stone fence or hedge, or expensive Ha-ha—all of which are objectionable. Nothing more than the edge of the wood should denote the boundary line. If a fence is necessary, a wire or iron one will, perhaps, be the least expensive in the end, and it may be placed so as to be invisible to the ordinary observer. It is not unnecessary to state this much, for the very object of wire fences is frequently lost sight of in their erection.

Sometimes one sees an ornamental plantation, railed off by a wire fence, rendered hideous by cumbrous sawn wooden posts placed every 15 feet or 20 feet apart. This is a common way of putting up such fences when the work is entrusted to those who know nothing whatever of their object. In other cases, where it is needful to fence park plantations temporarily, a strong but light fence, which does not offend the eye, is used.

In very extensive domains, where the parks are tenanted summer and winter by highland cattle, not a fence is visible for miles from the mansion, but the fences are there nevertheless, and they consist of only a few strands of wire rope stretched upon rustic posts placed pretty widely apart, close to and near the drives and avenues and quite within the margin of the plantation, so that they cannot be seen unless they are looked for, and they follow every winding of the wood.

Wherever the presence of fences is objectionable this plan will commend itself. It is necessary to have wires strong enough, as cattle scratch themselves upon them and strain them. Where sheep graze, the wires must be closer at the bottom than the top. Such fences might be made to supersede sunk stone fences, which often enclose pleasure grounds and form boundary lines to plantations skirting the park; but as these are common and cannot always be hidden from view, the best plan is to plant the common Ivy on the top and let it grow down, which it will do readily and quite hide the stones.

F.

Books on Indian and Australian forestry.

—In reply to Mr. Clark, of Buenos Ayres, I may state that I have collected almost every publication relating to forestry in different parts of the globe. Some of the following publications may suit his purpose: For India, Balfour's "Timber Trees and Forests of India" (Madras, 1870); "Notes on Forestry," by Amory (Trübner, London); Col. Michael's "Catalogue, &c., of Indian Timber shown at Edinburgh Forestry Exhibition"; "Woods of the Indian Archipelago," by W. L. Stinler, in French (Leyden, 1867); and a paper of mine on the "Teak

Forests of India," in No. 1684 of the "Journal of the Society of Arts," 1885. For Australasia there are numerous useful works, especially Baron Mueller's "Report on the Timber Trees of Western Australia (Trübner, London); "The Timber Trees of New South Wales," by A. Nilson (Sydney, 1884); "The Timbers of Victoria," by J. C. Newberry, Melbourne; "Queensland Timbers," by Walter Hall; "The Economic Value of the Forests of Tasmania," by H. M. Hull; "Report of the Forest Branch Department of New South Wales, 1885"; and the "Parliamentary Report on Colonial Timbers, 1878," may be consulted.—P. L. SIMMONDS, F.L.S., 85, Finborough Road, South Kensington.

GROWING DECIDUOUS FOREST TREES FROM SEEDS.

WE sow all our tree seeds in spring, and as the following rules are based on our own experience, they all apply to spring sowing:—

WHITE ASH seeds ripen in early October, and fall after the first severe frost. They should be mixed with moist sand and not allowed to become dry before sowing. This same treatment should be followed with all the native Ash family, with one exception, viz, the Green Ash, which hangs on longer and will germinate if sown dry; all others will remain dormant until the next season if sown dry.

HARD MAPLE seeds ripen early in October, and require the same treatment as the White Ash.

SOFT MAPLE seeds ripen in spring immediately before, or about the time, that Apple trees begin to blossom. They should be sown within a few days after having been gathered.

ELM seeds ripen in spring, and they require the same treatment as those of the Soft Maple.

BLACK WALNUTS and all nuts with a pulpy covering may be spread in thin layers, say 6 inches deep, and covered with sods and litter to prevent them dying during the winter, in which case the pulpy covering will be easily disposed of in spring.

Other Nuts and Acorns, together with seeds of the Tulip Tree and Basswood, are more safely treated as recommended for Ash and Hard Maple seeds.

CATALPA and AILANTUS seeds are kept dry during winter and sown rather late in spring.

BIRCH and ALDER seeds are kept dry and sown dry early in spring.

LOCUST seeds and those of all that family are kept dry through the winter and soaked in hot water immediately before sowing.

All seeds with a fleshy covering, such as Apple, Cherry, Mountain Ash, Cucumber Tree, Buffalo Berry, Red Cedar, and Holly, are washed free from the pulp, mixed with sand, and sown in spring. We make an exception generally with the Red Cedar and the Holly, as they never germinate evenly in the spring; therefore, we bury them in a rot-heap during two winters and one summer, and sow the following spring.

POPLAR and WILLOW seeds are very fine and delicate and require skill, close attention, and continual moisture during the early part of the season. Therefore it is cheaper and surer to raise them from cuttings than from seeds.

All seeds mixed with sand must be placed so that water will not stand around them. Frost will not injure them, unless in a position where they will freeze dry. A cool shed where they are protected from sun and wind will be a proper place.—ROBERT DOUGLAS, in *Garden and Forest*.

SHORT NOTES.—WOODS AND FORESTS.

Wood for telegraph poles.—Would you kindly inform me what kind of timber is generally used for telegraph poles, and where grown?—ARBORICULTURE.

Book wanted.—If R. N. Clark, Buenos Ayres, will send me his address, I will have much pleasure in sending him a duplicate copy of "Indian Forest Trees and Forestry,"—A. D. WEBSTER, Holwood Park, Keston, Kent, England.

No. 856. SATURDAY, April 14, 1888. Vol. XXXIII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

BOUQUETS.

HAVING read with much interest the letters on bouquets, and having noticed that, although you especially asked for the opinions of lady readers, very few ladies have responded, I will give you briefly a few of my ideas on the subject.

At the first glance, the idea of a few sprays of flowers with their own foliage tastefully tied together with a silken cord is quite fascinating; but practically it will not answer. There are very few flowers which will bear being carried about for hours in a hot atmosphere and not become unsightly, withered, miserable objects. The wire and lace paper are doubtless artificial monstrosities, but, when supplemented by damp cotton wool, they are monstrosities that must be comforting to the flowers.

Some fifteen years ago bouquets were certainly quite ugly, but there has been a great improvement in taste since then, which has permeated even to the much-abused florists. I noticed several bouquets a few days ago at a wedding, and though the ones I admired were all of the "pincushion mushroom" shape, they were, nevertheless, distinctly pretty, and formed a most stylish finish to the ladies' toilettes. Two girls had carelessly-tied, would-be artistic posies; alas! the effect was only dowdy. One of these posies consisted of Daffodils tied with yellow ribbon; the other of *Anemone fulgens* with pink ribbon. Before the ceremony was over both were drooping, and certainly a hall-room ordeal they could not have stood. On the other hand, the "pincushions" were fresh to the last. Amongst these were some really charmingly made bouquets, positively light, graceful, and most artistic. Several were entirely of *Azalea indica*, with Maiden-hair; *Terra-cotta* *Azaleas* shaded with creamy yellow, tied with broad terra-cotta ribbon, with a beautiful costume of striped terra-cotta and creamy yellow silk; pink and white *Azaleas* with pink ribbon on a grey dress; magnificent *Maréchal Niel* Roses with their own leaves; and *Mignonette* with a black satin, trimmed with that fascinating Parisian green and gold braid. These were all, of course, specially ordered bouquets. Each bouquet should have the stamp of the individual taste of the bearer, or, if it is a gift, the giver should most carefully ascertain the colours to be worn, and if he cannot rely on his own taste, he must obtain competent assistance or not attempt to give flowers for a special occasion.

I may frankly say that until quite lately I have detested all bouquets, but now I am nearly converted to their beauty and desirability. The weight is against them, but "we must suffer in order to be beautiful," and if

they are to be used at all, I do not think we have yet arrived at a better arrangement or shape than the much-abused "mushroom."—A. M. G.

—As several notes have appeared in THE GARDEN lately on the pomps and vanities of personal adornment, I will just mention a mixture that met with approbation this winter. I never go in for bouquets, thinking them a nuisance to carry; but for a head-dress and bouquet to be fastened on the dress, sprays of *Pernettya* mixed with tips of Young's Golden Cypress were much approved, or *Pernettya* with sprigs of Lavender Cotton (*Santolina*) and bits of Japanese Golden Box. These things, even in bad wintry weather, could be gathered in the open air, and cost nothing to produce. It was remarked that the Golden Cypress was "as good as feathers" for the hair. *Berberis*, or *Mahonia Jamesoni* also is very suitable and pretty for mixing with any flower for the same purpose. These natural decorations also have the advantage of sometimes making you acquainted with some pleasant flower-loving individual. Few people, when I wore the *Pernettya*, knew what it was, and some unknown individuals accosted me to know its name, as the "crushed strawberry" hue of its berries goes so well with the kind of artistic red used now. Once, years ago, a very shy professor at Oxford who was rarely known to speak in society, ventured, after having sat silently for a long time, to say that he could resist no longer inquiring what it was I had got in my hair. He said he thought he was a good botanist, but that he was fairly puzzled. The mystery was autumnal Carrot leaves, which have such pretty tints and look rather like Fern.—M. A. ROBE.

EASTERTIDE DECORATIONS AND DIFFICULTIES.

Two circumstances combined to seriously check church decorations, and in not a few cases wholly suppress them this year. It need hardly be added that these were an early Eastertide and a late spring, or rather the running of winter right through February and March into April. Hence, while Christmas Roses and Snowdrops yet linger with us, neither Daffodils, Tulips, Primroses, Violets, nor early Wind-flowers have as yet appeared. In many districts no common flowers have yet come forth, in none have they appeared in their usual quantities; hence the scarcity of common flowers in our markets, shops, and churches. Enormous quantities of *Narcissi* and other flowers were imported from France and other warmer countries, but as these realised 6d. a bunch for about the same quantities that could be purchased at home for 1d. or so, this price, of course, lessened consumption to such an enormous extent, that many contemplated decorations were given up. Hence the result in many instances that the demand fell far short of the supply, so that in the end decorations flagged less through lack of material than the rise in prices. The latter was inevitable, as most of the material consisted of hothouse and not hardy flowers. The result also proved that it is the hardy stuff that creates and sustains the demand for exotic flowers, for unless the former can be had at a cheap rate and in plenty to lay the broad bases of decorative results, either decorations are not attempted or they are severely limited in their scope and area. Hence the absence or scarcity of hardy flowers limited the use and spoilt the sale of the hothouse ones.

Explain it as we may, there can be no doubt but that the decorations of our churches were

fewer and less elaborate this Eastertide than they have been for years. Some affirm that the tide in such matters has turned, and that the energy and zeal so liberally devoted to church decorations are on the wane. But there is little or no proof of this, and the falling off this year is easily accounted for through the season, and also partially as a reaction and a protest against excess. Of late years all our decorations have tended to run to seed through being egregiously overdone, and an early Eastertide and a late spring will not have come together in vain should they combine their influences to reduce the volume and raise the style and quality of our church decorations. The forcible reductions of this year have not all been a loss to artistic taste and appropriate beauty. Even cartloads of Primroses, Violets, and Daffodils will inspire more love and bestow more pure pleasure on their mossy banks and in their shady copses than huge masses of decorations. The loss of hardy flowers brought out the supreme merits of forced or hothouse ones all the more conspicuously. Perhaps never did *Arum Lilies*, *Deutzias*, *Spiræas*, *Stephanotis*, *Eucharis*, white *Hyacinths*, Paper *Narcissi*, white *Roses*, *Camellias*, and *Azaleas* make more chaste and satisfactory decorations between them than this Eastertide. In some cases plants of the *Arum Lily*, and in others their leaves and flowers together, furnished the sole decorations, and it was felt that they were at once complete and sufficient, suggesting not merely unity of expression, but rest and peace to the eye and heart.

CELESTE.

NOTES.

SHOWERY APRIL.—The crows are busy about their nest-building high up on the dark-boled Elms, and among the sparse Grass beneath sparkle the golden stars of the lesser *Celandine*. In the flower borders are its greater allies, *Ficaria grandiflora* and *Ficaria alba*, the last a gem in its way. But the fairest of all the Buttercup family now in bloom is a mass of *Adonis vernalis* a foot across, and closely set with burnished brass-coloured flowers and soft pale lilac or purplish mauve buds amongst the Fennel-like leaves. Best and brightest and most welcome of all the heralds of spring-tide are the Daffodils, white, sulphur, golden, double and single, frilled, and close-clipped at the mouth of the trumpet—some from the Pyrenees, others from Oporto—these *Narcissi* from sunny Spain, Ireland, Normandy, India, China, and Japan. Who can tell me where bulbs of the Chinese *N. Tazetta* named Grand Emperor can be obtained? It is photographed in a recent number of the *American Garden and Forest*, and is said to have been introduced and cultivated in the towns of the United States by the colonists from the Celestial Empire.

LESSER ALEXANDRIAN LAUREL (*Ruscus racemosus*) is a plant quite unique in its way, and not so often seen in cultivation as it deserves. In mild and sheltered gardens, near the sea, it grows from 3 feet to 4 feet in height, its leafy wands being nearly as fresh and as graceful as those of a Bamboo. The great advantage of it is the long enduring character of the leafy stems when cut and placed in water indoors. Three of its stems, before me as I write, have been cut seven weeks, and are nearly, if not quite, as fresh now as fifty days ago. The leaves (of course I know that they are phyllodia, and not true leaves at all) are bright shining green, and as used for funeral wreaths with Rosemary, &c., remain fresh for several weeks after they are arranged. But *Ruscus racemosus* will not thrive everywhere out of doors. In Ire-

land, and in Devon and Cornwall, it is often luxuriant, but the plant is beautiful enough to grow in pots or tubs, or to plant out in a cool house amongst Camellias, Sikkim Rhododendrons, and other half tender things from Japan. It is reputed to be one of the plants employed by the ancients in the making of triumphal or victors' wreaths, and it is just the kind of thing anyone would like to use in that way, because, as above indicated, it is almost imperishable. The leaves of some old Florentine wreaths in the British Museum made of pure beaten gold much resemble those of this *Ruscus*, but the plant itself is well worthy of careful culture by all who are interested in beautiful plants.

THE BUNCH NARCISSUS (*Narcissus Tazetta*) is a most variable species, and as I am making a special study of its numerous forms and phases this year, I shall be glad of any specimens or information as to rare kinds. Of all the species of *Narcissus* it has the widest geographical range. It is abundantly naturalised on St. Michael's Mount and on the Scilly Islands. Little thought the old monk who ages ago brought its roots from Europe, perhaps on account of their then old-reputed medicinal virtues, that he was laying the foundation-stone of the staple industry of the Cassiterides to-day, when steamers ply regularly to carry these flowers to our towns during winter and early spring. But it is in Egypt, Palestine, or Algeria where these Bunch *Narcissi* are most highly prized. Canon Tristram tells us that the fellahin almost worship them, so also the Arabs of Tunis, who wear fancy bouquets of them as we wear flowers, or they distil an attar from them, and otherwise delight in their fragrance and beauty. In China *N. Tazetta* is the great flower of the new year, being grown in vessels of water ballasted by stones or coloured pebbles of various kinds. A well-grown bulb of *N. Tazetta* is one of the most acceptable new year's offerings a Chinese gentleman can make to his friend. Their head centre seems to be the Mediterranean region, Greece, Spain, Italy, Southern France and Portugal, while Cyprus has long been known for its fragrant varieties of this plant, which thence ranges away across Egypt, Palestine, through Persia and Cashmere to China and Japan. The old Dutch florists took *N. Tazetta* in hand and raised many fine varieties long before they thought our Lent Lily or the other species of Europe worth their thought or care. I have long been collecting roots of both wild and cultivated kinds, but I am still anxious for information from anyone who has studied these plants in their natural habitats in Europe or the East.

COPYRIGHT OF SEEDLING PLANTS.—Mr. Rivers puts this question moderately and fairly at p. 305. The whole thing is a question of simple justice, of whether or not a man shall be protected by legal right in the reaping of the harvest that he has sown. I know very well that many exceptions may be urged, but these only prove the rule to be in the main a right one. Mr. Smith tells us (p. 260) that the restrictions placed on Fay's Prolific Currant resulted in failure, but he should also have instanced Bennett's pedigree Roses, including Her Majesty, the partially restricted sale of which in the United States was such a great success. The main point of the whole matter is that by a system of public registration, titles and products could be legally acquired by their rightful owners. Singer could patent and secure his rights and royalties on an "eye-pointed needle," but the man who raised Cox's Orange Pippin Apple had no protection but secrecy

until his stock-in-trade was secured. I do not hold with partial protection. If a "gimblet-pointed screw" can be patented as a mechanical invention, why not *Dendrobium heterocarpum* × *D. nobile* as a physiological one? We need not argue long about the matter; both products are the result of brain force, and I hold that if novel and useful results in the one case are to be protected by the law, it amounts to injustice to ignore them in the other. As I said before, the system of enforced secrecy, *i.e.*, self-protection, absolutely necessary in the nursery trade of to-day before a new plant is sent out, is more suggestive of smuggling than of fair, open, and legal trading operations, and so it will remain until physiological inventions and improvements can be registered and protected like mechanical ones.

ARRANGING CUT FLOWERS.—Mr. Hemsley, at page 305, tells us that "the best and choicest productions of the florist are rarely exhibited." This is not quite true. Florists are like painters, photographers, dressmakers, and everybody else, inasmuch as they do not hide their brightest light under a bushel. I have frequently seen bouquets when in the window addressed in large capitals to their owners, and nothing is more common than for visitors to the florists' shops to be told that this bouquet is for one, and that for the other. I did not say that all my ideas were derived from the shop windows, but I certainly know how far public progress and taste are affected by the florist's display. I know exactly what flowers to employ in posies and fair bouquets, and how to prepare them for the Dutch-ovens of rooms into which flowers are often carried, and I find that when rightly selected and prepared, flowers endure fresh and fair quite as long when made into posies or when carefully arranged on fans as they do when made into a pincushion bouquet. Mr. Hemsley should tell us candidly what he proposes instead of the big mushroom bouquet, which everyone of any pretension to taste and culture condemns as an absolute sham. I say that either posies of a few good, bold flowers and fresh leaves or fan bouquets are better in all ways, but Mr. Hemsley simply reiterates, "You are quite wrong," without telling us exactly and simply what is the right and most proper thing to do. What is to supersede the "family jam" bouquet?

FERTILISING MOSS.—"R. B.," in THE GARDEN (p. 287), says that there were errors in my statement on the subject of fertilising Moss, and that it is made or consists of Sphagnum, and not of Hypnum Moss. In my article I never attempted to say what it was made of; indeed, I never said a word about the stuff in any way whatever, except that I had tested by experiment several samples purchased in the ordinary course of trade, and that I had found the common species of Hypnum gathered from the woods quite as efficacious for some cultural purposes, and actually better for others. To that statement I adhere distinctly and firmly. I do not say that fertilising Moss is a delusion and a snare, but I maintain that wild Moss may be used to equal advantage in gardening operations by any amateur or professional gardener of average intelligence.

SINGLE HOLLYHOCKS.—Nothing can be much more effective than these when well grown, but on hot, dry soils the fungus pest soon destroys them. Last year I saw a splendid row in an old garden that recalled old days, and reminded me of cottage gardens in England twenty or more years ago. "However did you get these fine healthy plants?" I asked. His reply was laconic; in one word he expressed it "Cow-

manure," said he; "nothing like it for Hollyhocks and Pansies." This year I have a fine batch of seedlings and shall follow his advice. "Plant them like Celery," said he. "Dig a trench 2 feet deep, and put 8 inches of cow-manure at the bottom, and then fill in the soil and plant your seedlings, and the fungus will not hurt them much, if at all." The Hollyhock is so straight and tall, and stately and beautiful when at its best, that no trouble is too great if we can but make sure of their great spikes during the rich sunny autumn days. Deep digging and plenty of manure below the roots, and strong, healthy seedlings to begin with seem the only way to ensure any measure of success.

DAFFODILS FROM NORMANDY.—A friend who has been wintering at Avranches sends me a nice little lot of Daffodil plants, roots and all, as dug from a sloping hillside to the north of the little town. They are naturally divided into two groups. Firstly, there are pale-perianthed forms with pure chrome trumpets similar to our native Lent Lily, but perhaps more variable in form and size. Then, secondly, there is a larger-growing, self golden yellow very near, if not identical with, the *N. Telamonius* of Mr. Barr from Val d'Arno. It is very rich and beautiful, and may be the single form of our common large garden double *Narcissus*. I am told that this last, *viz.*, common double, is not found wild at Avranches, as it is beside the Arno, near Florence. The Normandy name for these Daffodils is "Porrior," meaning "little Leeks." In this connection we may remember that the early Greek writers noted this resemblance to Leeks, and one of the Gaelic or Welsh names for the Daffodil to this day is equivalent to St. Peter's Leek. I should be glad if anyone would tell us the Scotch (Gaelic) name for the Daffodil found abundantly in Ayrshire. I believe Burns did not mention the Daffodil, just as Shakespeare omitted the Snowdrop in his poetry and plays.

THE CAPE HYACINTHS (*Lachenalias*).—There is quite a little flutter in the gardening world about these lovely flowers, but I do not know anyone who cultivates them much better than my friend Mr. F. W. Moore, of Glasnevin, who has a very fine collection of them. I counted twenty-four bells on a 16-in. spike of *L. Nelsoni* at Glasnevin the other day, not including the abortive or half-developed buds at the top of the spike. Mr. Ware also has a good collection, and Rev. A. Rawson has also done something towards improving these long-enduring flowers. I think "W. W." should tell us the length of his finest spikes, and the number of bells or flowers they bear, as some sort of standard for ordinary non-botanical cultivators to go by. He tells us at p. 293 that *L. orchoides* "looks better in a picture than in a pot," but, so far as I have seen, a well-grown plant of *L. orchoides* is far finer than it is represented to be in the *Botanical Magazine*. Some of us do not agree with "W. W." that *L. aurea* is better than *L. Nelsoni*, good as *L. aurea* is when well grown. I never saw it with spikes 16 inches long and bearing twenty-five bells. A lovely species with hyaline blue flowers greenish in shadow, reminding one of those of *Ixia viridiflora*, is now flowering at Glasnevin. No picture could do it justice, it is so lovely. VERONICA.

Large table bouquet.—There is but one fault to be found with the illustration of this in THE GARDEN, March 31 (p. 285), and that is the foreign foliage. The leaves of Globe Artichokes and Cardoons are bold and striking in form, while their semi-downiness adds to their richness and softness. They go very well with Hollyhocks, Dahlias, or Peonies, but not with Irises. So far as I have

observed and practised, no foliage suits Irises better than their own, and that is perfect. There is also a profusion and a great variety of foliage in the family, from the ample common Flag to the scant or narrow-leaved dwarf varieties. Hence there is the less need to go further and fare worse for foliage for the exquisitely beautiful flowers of this rich and striking family. A tall vase or jug loosely filled with Iris shoots and flowers is a sight to stimulate the artist's pencil on the spot, as well as to gratify every beholder of refined taste. They are not so superbly artistic in a basin or fluted dish. But anyhow, everywhere the unique grace and stately style of the Iris is half ruined when mixed with any other, even such partially appropriate leaves as those of Globe Artichokes.—CELESTE.

ORCHIDS.

W. H. GOWER.

ARUNDINA BAMBUSÆFOLIA.

A LARGE importation of masses of roots of this little-known Orchid has recently been received by Mr. Sander, of St. Albans, and has been disseminated amongst Orchid growers from the sale rooms of Messrs. Protheroe and Morris and Mr. Stevens. This plant was grown many years ago in the rich collection of plants gathered together by the late Consul Schiller, Hamburgh, but I never saw it flowering in England until a few years ago. About the year 1862 I brought from Germany a small piece of this plant, but it did not long survive. I have tried to induce my friends in India to send it to me, but never received it, so that I am inclined to believe that it is local, although by no means rare in the spots in which it grows. Although now thoroughly established in cultivation, it is a plant very little known. In habit it much resembles a *Sobralia*, and attains a height of about 5 feet, the stems being amply furnished with alternate narrow leaves which are about a foot long, thin in texture, and light green in colour. The racemes are terminal, and I have never seen more than one flower open at a time on the same raceme. The blooms are somewhat short-lived, but as they rapidly succeed each other this is not of much importance, more especially when numerous stems are flowering together. The individual flowers are large and handsome, somewhat resembling those of a *Sobralia*, and are each about $2\frac{1}{2}$ inches across. The sepals and petals are soft pink streaked longitudinally with rose; lip three-lobed, the basal portion of a deeper pink than the petals; front lobe spreading, rich magenta with a white throat, bearing two raised crests on the disc. It enjoys strong heat, a moist atmosphere, and an abundant supply of water to its roots, and should not be kept dry at any season of the year. It usually blooms during the late summer months.

Lycaste Skinneri.—This Orchid is remarkably fine in Mr. Bull's nursery just now, the numerous varieties being wonderful. The pure white form was well represented, in one instance as many as eleven flowers being developed from one bulb. This plant, I observe, in spite of what the late Mr. Skinner used to say about it, prefers a trifle more warmth than the *Odontoglossums*.—W.

Cattleya Trianae.—Although now getting late for this species, I should not like to guess at the numbers of blooms still open in the large house at Chelsea built by the Messrs. Veitch purposely for these plants, and in which they maintain such an admirable display of bloom nearly all the year round. At the present time there are hundreds of flowers, many of them of the choicest varieties, and these will be followed by those of other kinds, such as *C. Mendeli*, &c. These *Cattleyas* at Chelsea assuredly prove that Orchids are certainly just the plants to grow in towns.—H.

Lælia flava belongs to the same section as *L. cinnabarina* and *L. crispilabia*, and produces flowers of a similar shape. The pseudo-bulbs are short, ovate, and

bear a pair of leathery, oblong, acute leaves. The spike is erect, and has a raceme of from six to ten flowers, which are of a soft and pleasing shade of yellow, the lip being frilled in front, the side lobes streaked inside with crimson. This is a colour which is much wanted amongst Orchids, as it is so distinct. Several plants are conspicuous amongst other Orchids in Messrs. Veitch's establishment at the present time.

Epidendrum rhizophorum, sometimes called *E. radicans*, is a much-neglected, yet very showy plant, and fully bears out its original description—"one of the finest of its race." The flowers, each about $1\frac{1}{2}$ inches across, are dark orange-red; the stem is slender, and attains a height of 9 feet or 12 feet, the leaves being arranged in a two-ranked fashion; and the blooms are large, wholly rich orange-scarlet, and produced in a dense corymb, the lip being beautifully fringed. This plant must be grown in a cool house, and when it becomes strong it will continue to flower nearly throughout the season. It is said to grow amongst the Grass in a wild state in Guatemala and Mexico. It is now flowering in Messrs. Veitch's nursery.

Calanthe vestita oculata gigantea.—The more one sees of this plant the more there appears to admire in it, and I was particularly struck with the majestic appearance of two specimens of it now flowering in the nursery of Messrs. Veitch. It has been recommended for its habit of flowering after the other kinds are past, but I have now seen this form in bloom every month of the year in various places, so that it must be recommended as a perpetual bloomer. It is very robust in habit, and retains its large and beautiful plaited leaves whilst flowering. It produces stout arching spikes, which attain a length of some 6 feet, bearing a raceme of from twenty to thirty flowers, which are very large and of great substance, creamy white, with an intensely deep red blotch at the base of the lip. It requires to be potted in loam, leaf-mould, and cow manure, and to be grown in the East India house without rest.—W. H. G.

Odontoglossum Wallisi and Sanderianum.—These two Orchids, both natives of New Grenada, are flowering side by side in the Kew collection, so that one may see how closely related they are, and how greatly they resemble each other in bulb, leaf, and flower, the chief difference being in the colour of the labellum. Perhaps if *O. constrictum* also were placed by the side of the others, the close relationship of all three would be plainly seen. Both *Sanderianum* and *Wallisi* are very pretty Orchids, extremely graceful in growth, and, though not particularly showy, are admired by everyone. The flowers are about the same size in both, the sepals and petals narrow and pointed, and the labellum long and pointed. In Sander's variety the sepals and petals are pale yellow, spotted with coffee-brown, and the lip is pure white, with a few spots of reddish purple. In *Wallisi* the sepals and petals are rather darker and more heavily blotched, while the lip is white and adorned with a heavy blotch of bright reddish purple. The spikes of both are slender and gracefully recurved, and both the varieties are worthy of being included in a choice selection. They are undoubtedly distinct plants, but whether specifically so is another matter. For cultivators the names must be retained.—W. G.

Odontoglossums at Chelsea.—These plants are just now well represented in Mr. Bull's establishment, and, judging by the vast quantity of spikes which are just pushing out from such kinds as *O. citrosimum*, *O. vexillarium*, *O. Roezli*, *O. crispum* and its varieties, and many others, the display will not only be maintained, but considerably increased for a period of at least three months. Amongst the many open were a goodly number of various forms of *O. triumphans*, but one called *triumphans grandiflora* was a long way superior to anything I have yet seen. The flowers were very large, the sepals and petals golden yellow, heavily blotched with deep chestnut, all the front portion of the lip being of the same colour. Here also were to be seen a quantity of *O. cirrhosum* in variety. This is a plant far too seldom seen, and which I cannot but think has been sadly mismanaged to have disappeared so rapidly. It is said to be a species of

limited distribution, and, to my mind, it is one of the best, if not the very best, of its section. Besides these were some excellent examples of that grand and massive species *O. Halli* in good variety; also several heavily spotted forms of *O. gloriosum* and *Andersonianum*, whilst the numbers of *O. crispum* were very numerous, and nearly every plant presented different characters. *O. hystrix* was here in quantity, some remarkable types being amongst them. *O. Roezli* and *O. Roezli album* were not yet in great force, but their magnificent flowers render them very conspicuous. Here also were quantities of *O. Rossi majus* in great variety, and the elegant *O. Cervantesi* and its variety *decorum* and a form with very large flowers having, instead of the lines which are such a remarkable feature at the base of the sepals and petals of this kind, a number of very small crimson dots, freckled round the base instead of the bars, and a yellow crest on the lip. Another very fine example of *O. cariniferum* is also to be seen. This, one of the discoveries of Warscewicz in Central America, was flowered by myself somewhere about 1856. It is seldom seen, but although not a very showy species, it should be included in a collection. I may here observe that the whole of the western species of Orchids are kept remarkably cool in Mr. Bull's establishment, and all appear to be doing well.—W. H. G.

Oncidium Marshallianum.—A fine plant of the crispum section, but infinitely superior to that species. It is a bold and robust-growing plant, and one of the very best of the genus either for home decoration or for exhibition purposes, the flowers being very numerous, produced on much-branched panicles, the individual blooms flat, and from 2 inches to 3 inches across; sepals and petals rich golden yellow, blotched and streaked with purple and rich brown, the large lip being flat, of a clear rich golden-yellow, spotted with red on the disc.

Dendrobium Jamesianum.—This is a superb species of the nigro-hirsute section of the genus, and quantities of it are now making a grand display in Mr. Southgate's garden at Streatham, where it appears to thrive under cool treatment, that is to say, in a house a few degrees warmer than that in which the *Odontoglossums* are kept. I have observed these plants occupying the same position for over twelve months, so that I know they have been grown in this temperature. The flowers, which remain in beauty a long time, are similar in shape to those of *D. formosum*, and are nearly as large, pure snow-white, with a bar of cinnabar-red in the centre of the lip. It comes from the Arracan Mountains, in the vicinity of Prome, where it is found growing at some 1500 feet to 1600 feet elevation, in situations where the average temperature is said to be about 80°, but it thrives well under cultivation in much less heat.

Cattleya Lawrenceana.—This species would appear to require considerable warmth and moisture in the atmosphere to induce it to bloom under cultivation. It is a grand acquisition to this gorgeous family, especially as it comes into bloom when those of the *Trianae* section are on the wane. The pseudo-bulbs are furrowed and have a peculiar reddish brown hue, bearing a single fleshy, oblong leaf, upwards of 7 inches long and deep green; the flowers are large, measuring some 5 inches across; these vary considerably in colour, but some forms which I recently noted were of a deep purple-maroon, having a white throat. This *Cattleya* is of too recent introduction to have yet been seen at its best, but I anticipate that when established it will take rank as one of the finest.—W. H. G.

Dendrobiums at Messrs. Veitch's.—These are remarkably beautiful plants, and especially the numerous forms now flowering in profusion with the Messrs. Veitch. Amongst the most showy were fine examples of the grand *D. Wardianum*, representing several varieties, but all beautiful, and mixed with these were many varieties of the old but popular *D. nobile*, also quantities of *D. crassinode* and *crassinode Barberianum* and the beautiful *D. aggregatum*, which is a charming little yellow-flowered species for a hanging basket. All these, however, do not last long in bloom, nor continue for so long a time as do those of *D. superbiens*. This plant is a native of North Australia and several of

the islands in Torres Straits, and a magnificent spike is now to be seen in full beauty at Chelsea. It grows something in the way of *D. bigibbum*, but is stronger, the spikes bearing upwards of twenty flowers, which are each nearly 3 inches across and arranged in a two-ranked fashion; the colour is a beautiful rosy-purple. It is a remarkably free-blooming plant, but it must have strong heat and light, with a great deal of atmospheric moisture.

Galeandra dives.—This pretty member of a small genus was recently in bloom with Mr. Bull. It has erect, somewhat stout stem-like pseudo-bulbs, and produces a pendulous raceme of flowers, which are in the sepals and petals of a reddish brown, and the lip creamy white tinged with pink. Galeandras are deciduous plants, and should be kept dry when at rest, but require plenty of heat and moisture when growing.

Miltonia Warscewiczii.—An excellent form of this species is now flowering in Messrs. Veitch's nursery at Chelsea. The spike is much branched; sepals and petals dark brown tinged with purple; lip velvety brownish purple, which is glossy as if recently varnished in the centre, the outer border being soft rosy-lilac; disc spotted with yellow. It is a native of Peru and New Grenada, and thrives best in an intermediate temperature.

Masdevallia Shuttleworthii acanthocorys.—This is a pretty and distinct form of the species, but I cannot say that it is so beautiful as the type; nevertheless it affords a striking contrast; the plant and the shape and size of the flower are just the same as in *Shuttleworthii*; the sepals are creamy white, the upper one streaked with lines of crimson, the lower ones freckled with small dots of crimson, the tails being yellow. I recently noted this kind flowering with Mr. Bull at Chelsea.—W. H. G.

Restrepia antenniferia.—An elegant small-growing species with large flowers. It has no pseudo-bulbs, but short, slender stems, which bear a single leathery deep green leaf. The flowers are curiously constructed, the chief beauty being in the sepals, which are long and reddish brown, profusely spotted and dotted with blackish purple. If grown in the cool house with the *Odontoglossums*, it usually continues in bloom for about six months. I observed a good form of this plant flowering with Mr. Bull at the time of my visit.—W. H. G.

Odontoglossum Edwardi.—Fine examples and good varieties of this distinct and fragrant species are now flowering in the cool house in Messrs. Veitch's at Chelsea. This, although not a large-flowered kind, is of such a distinct colour from that of every other species in the genus, and produces a large panicle, that it cannot fail to become a general favourite. The individual flowers are about an inch across, deep purplish mauve crested with yellow. Native of the Andes of Ecuador.

SHORT NOTES.—ORCHIDS.

Maxillaria Sanderiana is in bloom at Messrs. Veitch's. It is a rare kind, the sepals ivory-white, the lower part stained with crimson; the petals are of similar tint.

Angræcum Leonii.—A pretty, pure white-flowered Angræcum, the lip shell-shaped, and the spur of considerable length and curved. It is a chaste Orchid. Several plants are in bloom with Messrs. Veitch.

The Mexican Tulip (*Cattleya citrina*) is blooming in several collections. Its Tulip-like, golden yellow flowers are of delicious fragrance. All should grow it who appreciate Orchids.

Calanthe vestita oculata gigantea.—This is in bloom at the present time, and its ivory-white flowers, relieved with a fiery crimson centre, are most welcome. It has a robust arching raceme of considerable length.

Odontoglossums are the most attractive Orchids now at Messrs. Veitch's. There were recently 243 spikes in flower or bud. It is noticeable what splendid forms of *O. Alexandræ* we have now; some are almost self-coloured.

Odontoglossum odoratum, which is sometimes mistaken for *O. gloriosum*, but is quite distinct, is now in flower. The brownish red markings on the yellow ground are very rich, and its powerful fragrance adds to its value. It ought not to be so rare as it is.

Dendrobium nobile album.—An exceedingly delicate and pretty form, which I do not remember to have seen before. The flowers were equally as large as those of an ordinary nobile, and every portion of them pure white, except the dark velvety blotch at the base of the lip. I noted a plant blooming in Messrs. Veitch's nursery at Chelsea.—W. H. G.

Angræcum Sanderianum.—This species would appear to be very free-flowering, but the flower-spikes take an immense time to develop. The leaves are thick and fleshy and pale green, the raceme being

long and the flowers of a good size, pure white, as well as the long spur. It is a very handsome species, and is flowering in Mr. Bull's nursery.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS FROM SEED.

LOOKING over some recent numbers of THE GARDEN during Easter, I met with the short article on this subject by "J. C. C." His experience seems to me not extraordinary. The raising of seedling Chrysanthemums in this country will never, in my opinion, be of much importance, and those who are willing to try experiments in that line must make up their minds to be satisfied if they obtain one thoroughly good new variety out of every thousand seedling plants. It is undoubtedly an interesting subject, as "J. C. C." very rightly says. There is probably only one English grower who has done anything worthy of mention, and that is Mr. Geo. Stevens, of Putney. Intending growers of Chrysanthemums from seed would perhaps do well to consult him about the matter before they embark upon such an undertaking. Had there been any profit likely to accrue from this method, English nurserymen would undoubtedly have discovered the way to successfully compete with their Continental rivals long since; but for amateurs to think of winning eternal fame by obtaining some great novelty in seedling Chrysanthemums is, at the best, a forlorn hope. It will certainly mean loss of time, waste of money, and vexation of spirit.

I do not feel quite so certain about the reputed success of our American cousins. That perhaps is because the necessary information is lacking. One thing is sure: they have for some years past been importing plants direct from Japan, and those plants, or at any rate some of them, have, when imported into this country, proved to be of great merit.

There is, so far as I am aware, no recognised dealer in Chrysanthemum seed in London, and it appears hardly likely, since we must depend upon the intelligent foreigner for the supply, that he will send us the very best article for our money, thereby spoiling his trade in the plants. The French raisers ask and obtain for their new Chrysanthemums prices which would astonish many a small grower in this country. I could quote plenty of cases where they charge 8s apiece. In one instance on record there was a set offered at £1 a plant, which really meant at that time a rooted cutting. Of course, there was a reduction for taking the set, but £1 was the figure required for single plants. How many of these ever appeared on the show boards it would be hard to say, and I only mention the subject to show how little probability there is of the very best Chrysanthemum seed being freely disposed of.

I have probably more correspondence with foreign Chrysanthemum raisers than any other amateur in London, I might almost say England, yet I never notice in their catalogues or correspondence any offer of seed for sale. During the last few days, however, an announcement has been sent to me, stating that Chrysanthemum seed artificially fertilised from Japanese varieties can be supplied for 5s. a packet, seed from Chinese and Indian (pompon) varieties at 4s. a packet, also artificially fertilised, and unfertilised seed from a good collection at the more moderate price of 3s. a packet.

On my own account, about 1s. a cartload is what I should feel disposed to give, and in a paper which I read two years ago at the Lewis-ham Society the question was somewhat lengthily dealt with. But still, if others are anxious to

try their hands at the experiment, any assistance on my part in importing the seed would be cordially rendered. C. H. P.

Chrysanthemums on walls.—I have a south and south-east wall unoccupied, and I have made a border 3 feet wide and 2 feet deep and filled with a mixture of old rotten manure and loam, with an admixture of weeds and rubbish. February or March is a good time to plant the rooted cuttings or side shoots singly. I differ entirely from Mr. Molyneux that "old plants from pots are most suitable for such a position, as they possess a large number of shoots near the base." I plant every rooted cutting singly from 4 inches to 6 inches or 8 inches asunder, according to their character, or whether I mean to grow them to a single stem or allow them to branch out. As far as possible, tall-growing and dwarf alternate, as do the different colours and the different classes, Japanese, incurved, reflexed, pompons, and singles. I thus become acquainted with the character of every variety. They are protected against frost in November.—W. J. MURPHY, *Clonmel*.

Fimbriated Chrysanthemums.—Besides the varieties of this class mentioned on p. 288 a great favourite of mine is Marabout, a medium-sized pompon with the tips of the petals deeply cut. It is a full double flower, and very distinct from the general run of pompon Chrysanthemums. The colour is usually white. For cut purposes this is very useful, as the blossoms resemble those of the old white Pink. There is another variety which is sometimes alluded to as one of the original kinds imported by Fortune, but whether this is correct I cannot say. Anyhow, it has been grown for many years, but seems now to have almost dropped out of cultivation, no doubt owing to the blooms being too small. I allude to *laciniatum*, a beautiful white flower, but with rather a naked habit of growth. Of distinct Chrysanthemums, perhaps the most marked is Macaulay, which was awarded a first-class certificate by the Royal Horticultural Society last autumn, and which in shape resembled a plant of finely-cut curled Endive, its colour being yellow and bronze. It was one among the many Continental novelties of last season, very few of which, by the way, seem likely to be worth growing.—T.

SHORT NOTES.—CHRYSANTHEMUMS.

Chrysanthemums will make a greater stir in the horticultural world than ever this season. The shows are on the increase, and the Sheffield affair promises to be a great exhibition of this now almost national flower.

Single Chrysanthemums.—Few flowers have the gracefulness and beauty of such single Chrysanthemums as Snowflake; its flower is like a lovely white fringe, the very ideal of natural elegance. Amateurs should grow a few of this class this season.

Fragrant Chrysanthemums.—Mr. Molyneux is interested in these. There may be others, and to such I would inquire whether they have noticed the pompon Miss Jeannie, the Japanese *Fleur des Bois*, and the pompon *Durniflet* as possessing the peculiarity of fragrance. From different sources these three varieties are credited with being sweet-scented.—C. H. P.

Weak-growing Chrysanthemums.—Will "F. W. B." pardon me not replying sooner to his query about Dr. Sharpe, *Fleur de Marie*, and Emperor of China Chrysanthemums. As grown here I find them of weak growth, requiring special treatment to produce their flowers in the best manner. I tried the two reflexed varieties outside, growing them at the base of a south wall, but with the same result. In our case perhaps the soil, which is heavy, retentive, and largely impregnated with chalk, does not agree with them. It is Emperor of China which is meant, not Empress.—E. M.

Delphinium Zalil.—Allow me to state that this was not first raised by me. For the sake of historical truth, I beg to state that MM. Haage and Schmidt were the first to raise it from seeds which they had received from the Imperial Gardens, St. Petersburg. The plant is not a perennial, but rather an annual, only about 10 per cent. surviving the heavy seed-bearing. The plant seems to have the character of *Delphinium nudicaule*, which also dies out after two years.—MAX LEICHTLIN, *Baden-Baden*.

FLOWER GARDEN.

HARDY ANNUALS.

WE have scarcely yet had even a reminder of spring weather, but we live in hope that it will come, and meanwhile make such preparations for the general seed sowing to take place when the opportunity is given. Many will now be considering what seeds they shall sow during this and next month, so this is an opportune moment to bring the annuals forward, as flowers that have great merits and impart none of that stiffness, formality, and monotony to the garden that must necessarily accrue when bedders are used. Annuals seem to be the very thing for the amateur, as the seed is cheap and the display of flowers lasting, as a rule; if not, a succession can be easily maintained. Some years ago annuals were in disfavour, not through any want of beauty, but through their supposed ephemeral character, the outcome, I need scarcely say, in many instances of a starving treatment. The seed was sown as thickly as Mustard and Cress, the plants very little, if at all, thinned out, and when once above ground almost entirely left to themselves, while very often the soil was of a poor, dry description. But a better state of things is now seen, and annuals receive their rightful share of the gardener's attention. It is the greatest mistake possible to sow the seed too thickly or to be afraid to thin out too freely. If at all crowded it is impossible for the plants to have sufficient light and air, and the natural result is they fail to make that bushy, sturdy growth so absolutely essential if a free display of bloom is required. Annuals are also most useful for filling up empty spots caused through the death of hardy perennials in the borders, and such kinds as Mignonette are extremely pretty when in full bloom in small beds and crowded amongst Roses, both filling the air with fragrance. No garden should be without its Sweet Peas, Nasturtiums, Sweet Sultan, Cornflowers, and such like flowers, that impart an interest and beauty most enjoyable in the summer months; while Sweet Peas and annuals of that character are of the greatest value as cut flowers, thus serving a two-fold purpose. X.

The blue Squills.—The Squills are now in full beauty; although the rough weather spoilt many of the earliest blooms, their appearance at the present time is charming, and an opportunity is afforded of comparing the relative merits of the new *Chionodoxa sardensis* with the other well-known kinds. It does not appear to me to possess the merits of either *C. Lucilæ* or the two *Scillas*, *sibirica* and *bifolia*; it is certainly distinct enough, and is a very pretty little plant, a valuable addition to the spring gems of the open border. *C. Lucilæ* must, I think, stand at the head of the list; it is earlier to bloom than *S. sibirica*, and when well established, the spikes are numerous and strong and the individual flowers large; the blue varies in shade, but always has the distinct white eye. It has the merit—if the surface of the ground near to it is left undisturbed—of reproducing itself freely from seed. We have some large clumps with hundreds of seedlings springing up round them from last year's seed and others of various ages. What grand clumps these will make in time! The surface of the ground is simply hand-weeded, and receives a mulching of old Mushroom bed manure every year. *S. sibirica* reproduces itself in the same manner, but I have not yet noticed self-sown seedlings of *S. bifolia*.—A. BARKER, *Hindlip*.

Chionodoxa Lucilæ.—This capital spring bulb varies much in colour and in the proportions of the blue and white markings, the variations being so distinct that it is easy to put them into five or six classes, each one of which in a group has quite a different effect to all the others. The handsomest are

those of a full blue colour with the white centre not spreading too wide. Some have a purplish colour of beautiful quality. They will probably vary still more by seed under cultivation. *Chionodoxa sardensis* shows very little variation.—G. J.

YUCCA FILAMENTOSA.

THE Yuccas, or Adam's Needles as they are popularly called, have been cultivated in our



Adam's Needle (*Yucca filamentosa*). Engraved for THE GARDEN.

gardens for over 200 years, and although we have now a large number at our disposal, they certainly do not receive half the attention their merits entitle them to. A large number of them are perfectly hardy in the open air, and even in cold, low-lying districts they rarely suffer to any extent from frosts, &c. Some of

the smaller ones, however, such as *Y. aloifolia*, &c., are hardly safe out of doors even in the south of England, though they may sometimes survive a mild winter. The kinds most generally seen in gardens are *Y. gloriosa*, *recurvifolia*, *filamentosa*, *flaccida*, *Ellacombei*, &c., although there are many more equally hardy and distinct. When nicely grouped few plants are more pleasing. There is hardly a phase of gardening, from the formal Italian to the semi-wilderness, that may not be improved by judiciously planting some of the Yuccas. Much of the sub-tropical bedding one sees in the London parks could be considerably improved by using Yuccas, and instead of lasting a few months, as at present, and in danger of being destroyed by early frosts, the beds would continue to give pleasure all the year round. A well-arranged group of Yuccas in full flower is a sight never to be forgotten, and one hard to imitate with any of the other plants at our disposal. Gerard is said to have received his first plant of *Y. gloriosa* from the Indies, and says:—

It hath neither stalke, flowers, nor fruite that I can understande of others, or by experience from the plant itsef, which hath grown in my garden for years together, and yet doth grow and prosper exceedingly.

Y. filamentosa, a flowering spike of which is here engraved, was cultivated as far back as 1675. It is a very picturesque plant with its curious long, thread-like leaves and pure white flowers. *Y. angustifolia* is a very narrow-leaved species, and is found perfectly hardy and extremely useful for rockeries or groups on the lawn. They are all easily accommodated in ordinary garden soil fully exposed to the sun, and may be increased readily by offsets. K.

Amaryllis Belladonna in Yorkshire.—In reference to "W. W.'s" notes on the culture of this plant in THE GARDEN, March 24 (p. 269), it blooms abundantly here. We have a narrow border about 100 feet in length close to the south wall of a span-roofed range of warm plant houses from which we cut close upon 200 spikes each year. The bulbs were planted about seven years ago. Previous to planting them we took out the natural soil, which is a stiffish limestone one, to about a depth of 18 inches. We then put in some broken bricks as drainage, and filled up with a quantity of light sandy soil containing also some leaf soil and peat; in fact, it was mostly old potting soil from our compost heap which we keep for this and similar purposes. The bulbs were planted as soon as we got them in the autumn, covering them about 3 inches. The first three years we did not get very many blooms, but each year since they have increased to a great extent, and last September, when they were in bloom, were really beautiful, and very much admired by visitors here. Few plants at that season of the year are so useful as cut flowers, especially in forming a base in trumpet-shaped glass vases for tall spikes of seedling Hollyhocks and other tall hardy herbaceous plants of suitable colours.—H. J. C., *Grimston, Tadcaster, Yorks.*

Arnebia cornuta.—This is a charming novelty, an annual, native of Afghanistan. The little seedling, with lance-like hairy, dark green leaves, becomes presently a widely-branching plant, 2 feet in diameter and 1½ feet high. Each branch and branchlet is terminated by a lengthening raceme of flowers. These are in form somewhat like those of an autumnal Phlox, of a beautiful deep golden-yellow colour, adorned and brightened up by five velvety black blotches. These blotches soon become coffee-brown and lose more and more their colour, until after three days they have entirely disappeared. During several months the plant is very showy, the fading flowers being constantly replaced by fresh expanding ones. Sown in April in the open border, it needs no care but to be thinned out

and kept free from weeds. It must, however, have some soil which does not contain fresh manure.—
MAX LEICHTLIN, in *Garden and Forest*.

SUMMER BEDDING.

THIS term has acquired a wider meaning since the decline in favour of the scarlet Pelargonium, Calceolaria, &c., as summer bedding plants. At one time, the principal kinds of plants used for this purpose could be counted upon the fingers, the only change being a little difference of colour; variety of form or style there was none. Not many will deny the Pelargonium and its associates a place in the garden, as they, though so unsatisfactory in wet weather, are useful for many positions. To give up, however, the whole garden to them, to the exclusion of everything that is useful, sweet-smelling, and beautiful, is as absurd as it is inconsistent. There are many plants which can be used for summer bedding that are not sufficiently known, and it only requires a little determination to effect a change from the glowing colours and fanciful patterns which have so long predominated.

Harrison's Musk, for instance, is familiar to everyone as a pot plant, but not to many as a bedder. If only for its delicious perfume it should find a place in every garden, not in some out-of-the-way bed or corner, but in a prominent position, as it possesses other desirable qualities besides its sweet scent, being a continuous bloomer from the time of being planted out till the end of autumn, while it succeeds in either full sun or shade. All the attention it requires is a little thinning of the shoots to prevent overcrowding, for if this is allowed to occur, the bed soon assumes an untidy appearance. The roots are hardy, but the best way to raise a stock of plants for bedding is to propagate it from cuttings, which, I find, make much better plants than those obtained by division of the roots, being more sturdy and branching in growth, and not so liable to become bare in the centres. If those who have not tried this Musk for bedding will give it a trial, I am sure they will be pleased with it.

Double-flowered Ivy-leaved Pelargoniums are admirable plants for beds, the green glossy foliage completely carpeting the soil, while the numerous trusses of pink and rose-coloured blooms afford a pleasing contrast. The flowers of these Pelargoniums are very useful for cutting, and are not so much injured by wet as those of the single zonals. A large bed of pink and rose-coloured Ivy-leaved Pelargoniums with a few plants of dark Heliotrope—in the way of Duchess of Edinburgh—intermixed, makes a charming arrangement. *Salvia patens* is sometimes used for good-sized beds, and if kept pegged down, flowers freely and continuously. A suitable plant to associate with it is the Night-scented Tobacco (*Nicotiana affinis*); this plant varies greatly from seed, but where a pure white form of good habit is obtained, it may be readily increased by root-cuttings.

The graceful *Fuchsia* has as yet been used on a very limited scale in the flower garden, and yet it is well adapted for bedding, as large or small plants can always be relied upon to form a beautiful bed, and if the right kinds are chosen, they will furnish sufficient colour. Those with small or medium-sized flowers are the best, and single-flowered kinds bloom the most freely. The old Rose of Castile and Mrs. Marshall, two light varieties, are very useful for the purpose. Charming is a good dark one, and there are many other suitable kinds.

Begonias, both tuberous and fibrous-rooted, are well adapted for summer beds. The tube-

rous-rooted forms especially have attained a very prominent position in the flower garden, but many fail with them, because by starting the tubers too soon they remain in the pots too long before they are transferred to the beds. I do not say they cannot be successfully managed by starting and growing them in pots, as I have seen splendid beds of them treated in this way, but there is less chance of failure if the tubers are started and grown in boxes or planted out in a cold pit. Transplanted from such positions a check is less likely to follow, as the plants are sturdy, and the roots, not having been cramped, lay hold of the new soil quickly and the bed is soon furnished. There is a danger in the blossoms of these *Begonias* becoming too large; two or three thick stems bearing a few large flowers are not to be compared to nice bushy specimens with scores of blooms all open at the same time. I hope raisers of new varieties of these useful flowers will not lose sight of this desirable quality.

Lobelia fulgens is always a striking object in the garden, and those who are fortunate enough to possess a good stock of it and the secret of keeping and propagating it, have the material for a glorious bed. I had a nice batch at one time, but lost it all, nor am I ever very successful in keeping the plants through the winter. If left in the ground the plants rot, and when taken up and stored in boxes as soon as the stems begin to decay it is imparted to the offsets, which soon follow suit, even if severed from the old stems. When the old flower-stems can be preserved fresh until the spring, the stools can then be divided without fear of losing any. The kind of soil has much to do with success or failure with this plant; it seems most at home in a light loam or peaty soil, while one of a heavy nature does not suit it at all.

There are many hardy perennials that are excellent subjects for summer bedding. If the superintendents of our public parks and gardens can be induced to follow up the departure they have lately made in this direction and show the public some of the most suitable kinds in quantity, it will go a long way towards bringing the merits of this class of plants under notice.

Hindlip.

A. BARKER.

Lilium Hansonii.—A few years ago this was one of the rarest of Lilies, but now it is often imported in small quantities and disposed of at the various auction sales that take place during the winter, so that being of a robust character it will no doubt in time get far more common. It is indeed a very pretty Lily, and one with many distinctive characteristics. The most prominent are the thick, massive petals that appear to be chiselled out of wax, while the firm solid bulb is very different from that of most of the others of the Martagon section to which it belongs. The flowers, borne rather thickly on the upper part of the spike, are of a warm orange colour, dotted more or less profusely, especially towards the centre of the flower, with yellowish brown. It is quite hardy, but may also be grown in pots, under which treatment it does well. The thick, massive petals cause the flowers to retain their freshness for a longer time than most Lilies do. One great recommendation of Hanson's Lily is that the blooms do not possess the heavy disagreeable odour common to many of the Martagon section, prominent examples of which are *L. monadelphum*, *pomponium*, and *pyrenaicum*.—H. P.

Eucalyptus globulus.—This is often used for sub-tropical bedding, and very effective it is for the purpose, the pale glaucous foliage being very distinct. By sowing the seed early in the year, good plants may be obtained the same season, but those raised the previous year make the most effective display. For this purpose the seed may be sown later in the season and the plants kept in

pots; they should be confined to rather a small size and poor soil used, otherwise they will make vigorous growth in the autumn. When this is the case they are more liable to damage by frost during the winter, but if the plants are hard and sturdy they will stand a few degrees of frost without injury, and therefore do not require to occupy valuable space during the winter. In addition to being very useful for the sub-tropical garden, this Australian Blue Gum is useful as a pot plant for decoration, as it forms a pleasant relief to the deep green foliage of Palms, &c. With ordinary care fine large plants may be obtained at a little cost, and these will be equally effective, and not so liable to get damaged as in the case of many of the more expensive plants when used for decoration. It is hardly necessary to give any cultural instructions, as the plant is so easily managed. I may, however, mention that the seed should only have a very slight covering, and the seed-pots should be placed where they are fully exposed to the sun. Young seedlings are very liable to damp off, especially if placed in a warm shady position. After the plants are well established they only require plenty of light and air and ordinary attention in watering, and they will soon grow into useful plants.—A.

HERBACEOUS PLANTS.

IN reply to the inquiry of "A. H." in THE GARDEN (p. 279), as to what kinds of herbaceous plants will thrive in a cold, clay soil in which Roses grow well, almost all our best herbaceous plants will do so if they are only subjected to liberal, but at the same time a natural course of treatment. Assuming that it is intended to form a collection of really good perennials during the present spring, no time should be lost in preparing the sites, whether they be beds, borders, or isolated corners. These may be rendered beautiful in the most unpretentious garden in the land if they are planted with suitable subjects, grouped in a natural manner. The only way to ensure success with herbaceous, as with all other plants, is to provide them with a suitable staple in which their roots may find nourishment and light and air to enable them to develop luxuriant foliage and brilliant blossoms. Let it also be borne in mind that perennials will not thrive, although they may exist, if the surrounding soil is given an annual scarifying with a digging fork, which simply means a ruthless destruction of the roots intended by Nature to extend in all directions in search of food and nourishment; therefore, before planting let the ground be trenched, keeping the raw and inert soil below, giving a liberal dressing of well-rotted manure. Afterwards, a compost, consisting of road-scrappings, leaf-soil, and if possible a little turfy loam, may be forked in, so as to be near the surface. If the situation is naturally damp, it will be desirable to raise the soil above the surroundings where stone can be easily obtained, and rough bordering or coping will answer the purpose of keeping up the soil and providing suitable homes for such plants as Saxifrages, Arabis, Aubrietias, Alyssums, and other dwarf, stone or rock-loving plants. Once planted, a great number of hardy plants go on improving year after year; others require to be removed about every third year. I find this applies especially to Asters, the Heleniums, and that fine autumnal bloomer, *Pyrethrum uliginosum*; but even the plants named remain in good condition for a long time if they receive a surfacing of prepared compost every autumn, so that the fertility of the soil may not become exhausted.

A list of plants is given herewith, all of which have succeeded with the writer in soil which grows Roses fairly well—a yellow, cold silurian clay. They are inexpensive and may be obtained from almost any of the leading nurserymen who

cultivate perennials for sale. Many of the plants named are grown in groups to provide cut flowers for the house, and make a decidedly queer-looking farmhouse and garden a source of much enjoyment to the occupier, giving pleasure to a few plant-loving friends, and, I may as well confess it, affording amusement to many a good neighbour whose well-cultivated farm is certainly a contrast to the invariably neglected garden.

<i>Achillea ægyptiaca</i>	<i>Gentiana acaulis</i> (old mortar)
<i>Platymica fl.-pl.</i>	<i>Geranium armenum</i>
<i>Aconitum Napellus</i>	<i>Helenium autumnale</i>
<i>albus</i>	<i>pumilum</i>
<i>bicolor</i>	<i>Helianthus multiflorus</i>
<i>Adonis vernalis</i>	<i>m. fl.-pl.</i>
<i>Allium Moly</i>	<i>rigidus</i>
<i>Alyssum saxatile</i>	<i>Helleborus niger</i>
<i>s. fol. var.</i>	<i>Hemerocallis in var.</i>
<i>Anemone apennina</i>	<i>Hepaticas in var.</i>
<i>blanda</i>	<i>Hesperis matronalis alba</i>
<i>fulgens</i>	<i>plena</i>
<i>japonica alba</i>	<i>Heuchera glabra</i>
<i>j. elegans</i>	<i>Iberis coriacea</i>
<i>Robinsoniana</i>	<i>sempervirens</i>
<i>sylvestris</i>	<i>Lathyrus grandiflorus</i>
<i>Arabis albidia</i>	<i>latifolius albus</i>
<i>Asphodelus albus</i>	<i>Leucojum æstivum</i>
<i>Aster Amellus</i>	<i>Lilium candidum</i>
<i>cordifolius elegans</i>	<i>Lupinus polyphyllus</i>
<i>ericoides</i>	<i>p. var. albus</i>
<i>formosissimus</i>	<i>Lychnis Viscaria fl.-pl.</i>
<i>Novi-Belgi densiflorus</i>	<i>Monarda didyma</i>
<i>N.-B. elegantissimus</i>	<i>Morina longifolia</i>
<i>grandiflorus</i> (full sun)	<i>Myosotis dissitiflora</i>
<i>Astilbe rivularis</i>	<i>Narcissus in var.</i>
<i>Aubrietia græca</i>	<i>Papaver bracteatum</i>
<i>Hendersoni</i>	<i>Phlox frondosa</i>
<i>Baphthalmum salicifolium</i>	<i>f. var. The Bride</i>
<i>Centaurea montana rubra</i>	<i>herbaceous, in var.</i>
<i>ruthenica</i>	<i>Polygonatum multiflorum</i>
<i>Chionodoxa Luciliae</i>	<i>Polygonum alpinum</i>
<i>Chrysanthemum latifolium lacustre</i>	<i>Primroses in var.</i>
<i>Colchicum autumnale</i>	<i>Primula japonica</i> (in slight shade)
<i>byzantinum album</i>	<i>rosea</i>
<i>speciosum</i>	<i>Pyrethrum uliginosum</i>
<i>Coreopsis lanceolata</i>	<i>Ranunculus aconitifolius</i>
<i>Delphiniums in many varieties</i>	<i>fl.-pl.</i>
<i>Dianthus plumarius</i>	<i>Rudbeckia californica</i>
<i>Dicentra spectabilis</i>	<i>lævigata</i>
<i>Dictamnus Fraxinella</i>	<i>laciniata</i>
<i>Dodecatheon Jeffrey-anum</i>	<i>hirta</i>
<i>Doronicum Harpur Crewe</i>	<i>Scilla sibirica</i>
<i>Echinops Ritro</i>	<i>Senecio pulcher</i>
<i>Erigeron macranthus superbus</i>	<i>Spiræa venusta</i>
<i>Eryngium giganteum</i>	<i>Aruncus</i>
<i>Oliverianum</i>	<i>palmata</i>
<i>Gaillardia grandiflora</i>	<i>filipendula fl.-pl.</i>
<i>Galanthus nivalis</i>	<i>Statice latifolia</i>
<i>Galatella linifolia</i>	<i>Thalictrum in var.</i>
<i>Galega officinalis</i>	<i>Trollius in var.</i>
<i>alba</i>	<i>Veronica longifolia sub-sessilis</i>
<i>Galtonia candicans</i>	<i>repens</i>
	<i>rupestris</i>
	<i>Iris in var.</i>
	<i>Pæonies in var.</i>

The following plants are grown for the fine effect of their handsome foliage:—

<i>Acanthus in var.</i>	<i>Funkia Sieboldi</i>
<i>Bocconia cordata</i>	<i>Helianthus orgyalis</i>
<i>Crambe cordifolia</i>	<i>Rheum Emodi</i>
<i>Ferula communis</i>	<i>palmatum</i>
<i>tingitana</i>	<i>Veratrum nigrum</i>

W. J. G.

Corbularia monophylla in the open air.—This loveliest of the little Daffodils appears to be increasing well, as this year some of those planted four years ago as single bulbs are now bearing five and six flowers. It is satisfactory to know that, at any rate in our southern counties, if in suitable soil and place, this little gem is perfectly hardy. The group in question is the same of which a wood-cut was given in THE

GARDEN. The bulbs are in poor sandy soil at the foot of a west wall, which is covered with Vines; the Vine leaves shoot off the wet in summer, leaving the bulbs to dry and ripen well. *Corbularia citrina* thrives under exactly the same conditions, although we learn from Mr. Barr that he finds it in its native countries doing best in wet places. He must inform us further whether these wet spots may not be dried up in summer, as seems probable from the obvious needs of the plant in cultivation.—G. J., West Surrey.

FLOWER GARDEN NOTES.

THE WEATHER AND OUR WORK.—In consequence of the wintry weather we have for a long time been experiencing, work has been, and is still, delayed. Pending a change, we have been doing work that by some would be considered as outside the flower garden proper; yet within it in so far that attention to it increases the interest and enjoyment of the garden as a whole. I allude to the question of neatness. Our work in this direction has been the levelling of turf margins where required, cutting the turf edgings to walks, and re-gravelling the latter so far as material held out, but this running short, other walks—the gravel on which had got discoloured from overhanging trees, damp, &c.—have been lightly forked over and again well consolidated by repeated rollings. The lawn has been levelled, where necessary, to admit of machine-mowing without injuring either lawn-mower or turf, as not infrequently happens owing to neglect of such a small matter. Some parts of turf, especially that over which there is most traffic, having got worn rather bare, a mixture of fine soil, soot, wood-ashes, and a little bone-dust, in which Grass seeds was mixed, has been thickly strewn over such plots and rolled down. A mossy turf is only objectionable on parts that are constantly trodden upon. We have some acres over which there is little or no traffic; consequently there is comparatively little mowing, owing to our practice of encouraging the growth of Moss by the "let-alone" treatment in vogue. Beds and borders lately cleared of winter bedding shrubs, Sedums, &c., are being manured and trenched as deeply as the subsoil, sand, and gravel will admit of. Starving plants through not manuring, with the idea that it increases the display of flowers, I do not agree with. I like to see plenty of healthy, vigorous growth in plants. Liberal cultivation—by which is meant high manuring and deep tilth—is indispensable to coloured foliage arrangements of every class between the small Brazilian Alternantheras and the rampant growing Castor-oils, and it is scarcely less so in respect of flowering plants—if Pelargoniums be excepted—and as we use but few of these, they are not taken into consideration at all when the beds are being prepared. I think that I remarked in a former note on the importance to be attached to thorough drainage, and to raising the soil of beds that are intended for tender kinds of plants as high as is compatible with a neat appearance. The reason for doing this is obvious, namely, increased temperature of soil, first from free drainage, and secondly from sun heat having freer access to a soil higher than the general level of the ground.

ANNUAL FLOWERS.—As soon as the ground is in a fit state to receive the seeds we shall make other sowings of several varieties. Those that have germinated cut a sorry figure, by reason of the long spell of cold weather, and, except Sweet Peas, none of them are worth the ground they occupy. Mignonette, Larkspurs, Lupines, Schizanthus, Poppies, French Marigolds, and ornamental Grasses are those we have noted to be sown at the first opportunity. Stocks, Zinnias, Phlox Drummondii, Asters, Salpiglossis, Coreopsis, Sweet Sultan, Pinks, Carnations, and Pansies sown in a cold frame two or three weeks since have germinated well, and many of them will be quite ready for planting out the first week in next month; meanwhile they are given the fullest amount of air whenever the state of the weather admits of it. Some sorts would, doubtless, be better if pricked off into other frames before being finally transplanted, but we have neither time nor space for doing this, and therefore thin sowing is

had recourse to. This, combined with the earliest opportunity afforded of transplanting, usually ends in a fair amount of success with but a minimum amount of labour. We have still a quantity of autumn-sown seedlings of Sweet Williams, Geums, Wallflowers and Pentstemons to plant out, and now that vacant spots in herbaceous borders can be seen, many of them will be at once transferred to their flowering position in clump fashion to these borders. Amongst annuals none is more hardy or self-productive than *Limnanthes Douglasii*. It is now years since we had occasion to sow afresh, as self-sown seedlings are always to be had in quantity, and come in useful for planting in any out-of-the-way place for which plants of greater value might be begrudged.

PYRETHRUM GOLDEN FEATHER.—Perhaps no plant ever gained so great a popularity in so short a time as this on its first introduction, and no wonder, seeing that it is so easily raised and so effective as a bedding plant; but experience has taught us that it is possible to have too much of a good thing. As a bedding plant it has no equal, being as suitable for edgings to flowers as it is for the centres or any other position in foliage bedding arrangements, and were it more difficult to propagate so as to hinder its being so largely grown, we should prize the plant more. If used in moderate quantity only it imparts to the garden a degree of brightness that is not obtainable with any other plant of its colour, and on this account its use is to be recommended. Our plants of it are raised by sowing under hand-lights on a sunny bank. The seedlings are now appearing, and most of them will be planted from the seed-bed direct to their summer positions. Occasionally pricking out into shallow boxes is had recourse to, this being advisable if the plants are wanted of large size before being finally planted, but for foliage bedding arrangements such pricking out is unnecessary.

GENERAL WORK.—Propagation of bedding plants and potting seedling sub-tropicals, such as *Wigan-dias*, *Solanums*, *Acacia lophantha*, and *Grevillea robusta*. Increasing the stock of herbaceous *Lobelias*, *Mimulus*, common Musk, and fibrous-rooted *Begonias* by root division, each being planted in shallow boxes of light vegetable mould and placed in heat to start them into immediate growth. To take off early runners from Violets in frames and place them in hand-lights to root, after which they will be planted on a north border for the summer. When runners are taken thus early the plants become strong and well matured, so that autumn-flowering is a certainty. To top-dress with rich soil (bone-dust is the best manure for the purpose) the beds of Lily of the Valley; a couple of inches of soil is ample, and it should be put on before the crowns are say an inch out of ground, then no injury is likely to accrue either through the breaking off the points of the growth or by the soil getting between the leaves. To plant out *Cerastium*, *Herniaria*, *Sedum*, and other hardy edgings, also *Violas* and *Pansies* as soon as the weather gets a little warmer. W. W.

SHORT NOTES.—FLOWER.

Crocuses look well in the London parks, but the beds of the yellow variety are sorely marred by the birds, which seem to have a special liking for brilliant flowers.

White-flowered Saxifrage (*S. oppositifolia alba*) is a lovely Saxifrage when the dense growth is studded with the white flowers. All who love this class should secure this one.

Salpiglossis.—Those who admire elegant, somewhat tall-growing, but with graceful annuals should sow a few seeds of *Salpiglossis* in heat and treat in the usual way. The colours of the flowers are quaint, diversified, and quiet, but make a show when bunched. They are first rate annuals for large beds.

A large Scilla bifolia.—In a group of this charming Squill has appeared one of unusual size, the individual flowers measuring a little over 1 inch in diameter. The leaf is just 1 inch broad, and the scape bears sixteen flowers and buds. It is not one of the *S. taurica* section, but a magnified ordinary *S. bifolia*. The seed will be saved in order to try and raise a race of little giants.—G. J., West Surrey.

Narcissi grown in water.—In THE GARDEN, March 31 (p. 289), "F. W. B." speaks of the cultiva-

tion of Narcissi and Daffodils in water, which seems to have been in use in England a century ago, and which is now very seldom practised. I agree with the able writer that this mode of cultivation is to be recommended, especially for amateurs. The treatment is the same as that of Hyacinths in glasses, and the flowering gives great delight. Although not generally practised in Holland, there are, however, seen there now and then very good collections of Narcissi grown in glasses. Every year there is to be found a very nice display of them at M. F. Van Velsen's, of the firm of Peter Van Velsen and Sons, at Overveen, who several times (last in 1885 at Haarlem) gained first prizes for them at our flower show.—T. H. KRELAGE, *Haarlem*.

RAISING ANNUALS UNDER GLASS.

A CORRESPONDENT, doubtless through a slip of the pen, advises sowing seed of Balsams in a cool temperature early in March, both for pots and planting out in the open ground. For the latter purpose especially it would be a mistake, as the plants would certainly get too much drawn in the interval, and it would be wrong generally for the special reason as exemplified this year that too often we get through March very cold, cheerless weather with specially long frosty nights, and tender seeds not only during such period germinate slowly and badly, but the seedlings make but a stunted growth also. Now, having raised Balsams in a cool house for planting out of doors during many years, I have invariably found that the best average time for sowing seed for that purpose is the first week in April. Then, with the average temperature of the spring prevailing, there is always enough warmth in a cool house to cause germination in about ten days, and in four weeks later the plants are from 5 inches to 6 inches in height and robust. The growth has from the first received no check and the plants are not drawn or attenuated, whilst under ordinary house or pot culture with some warmth Balsams may be pushed on as early as required. They cannot be planted out into the open ground until all danger from frost is past, and it is seldom so much can be assured until the third week in May. I always get the soil well and deeply dug, lightly manured, and as fine on the surface as possible. Shallow drills 14 inches apart are then marked out with a hoe, and the plants are dibbled in. It is wiser to plant out in dry weather and give one or two waterings than to plant out in rain, as then slugs are plentiful. In dry weather they are less so, however. Of course, plants might be got in earlier for outdoor planting by getting them singly into small pots, and thus larger and more considerably rooted plants may be had. But I have invariably found as a result of this plan, and especially when the plants are put out into good soil, that they have developed excessive growth and leafage, becoming clusters of foliage rather than of flower. When dibbled out, however, such is not the case; the plants bloom more profusely and make very beautiful objects, the quality of the flowers also being all that could be desired.

ASTERS AND STOCKS again are better for being sown early in April than in March, because these want to be caught for planting out just at the right time; that is, whilst strong and full of growth and have not become hard in the stem or drawn. Without doubt there is no better plan than sowing seed of these tender annuals in shallow boxes, placing them in gentle heat, getting the seed to germinate quickly, and later getting the boxes outdoors in a warm place or the plants to harden. But I am referring rather to raising plants of these in houses or frames in which there is no heat. In my own case Stocks and Asters are not sown in movable boxes, but in soil beds, where the plants must remain until planted direct into the open ground. Sowing early in April with plenty of room enables the plants to get strong by the middle of May, an excellent time, as the seasons go, for planting out. If the seedlings be carefully lifted with good roots, and the soil in which they are planted be light and pulverised, an occasional watering also being given, it is remarkable how soon the plants take hold and grow.

DIANTHUSES being of a much harder character though treated as annuals, may be sown in March, because even under gloomy skies and a low temperature the seed will germinate freely. These Dian-

thus, being fairly hardy, may be planted out early in May; hence there is some gain in sowing early. Pentstemons also, though biennials, yet if sown similarly early, are benefited, because if the plants are got out early in May and are strong, they will bloom freely during the autumn. I have a good plant now in a bed from seed sown in February, and shall have a strong batch of plants to go out in good time. Antirrhinums are also fairly hardy, and seed may be sown in March, as that too comes more freely in cold than does seed of tender annuals. These if planted out early will bloom profusely from July till late in the autumn. Few, perhaps, take the trouble to sow Mignonette under glass for transplanting, but I never succeed in getting a good plant here from an open ground sowing. On the other hand, seed of Giant White and Giant Red, the two best Mignonettes in cultivation, if sown in the greenhouse about the middle of April, give stout, stocky plants to dibble out during the month of May, and although looking a little shrivelled at first, yet once started they soon make splendid plants, and being thinly planted are far finer than can be obtained from ordinary open-air sowing. Lobelia seed should always be sown in gentle warmth in the spring, as otherwise growth is very slow and plants are small to get out early. I, however, sow seed in pans in October, with the result that I have now myriads of plants to dibble out into shallow boxes from this late autumn sowing, and have gained several weeks. Seedling Lobelias will keep well in a cool house through the winter in this stage if just kept from sharp frosts or excessive dampness.

A. D.

ROSE GARDEN.

OUR ROSES IN APRIL.

MARCH weather is still pursuing, I had almost said persecuting, our Roses into April. So far, however, the Roses appear to have withstood their buffeting well. Fortunately, the cold has hit them in their hardest, that is, their most dormant condition. There have also been fewer and shorter interregnums of mild weather than usual; hence the Roses have been enabled to sleep in safety through one of the most trying, though not most severe of modern winters. The Roses have had but few inducements to start into growth. There has been but little fostering and much restraining of growth throughout both months, and unless April introduces mellow changes of weather, softening into constancy, it will be safer for our Roses that it should go on as it has begun, and adhere to the now well-beaten track of February and March. For it cannot be too often repeated that in these early months and weeks of the year it is not cold, but heat that proves injurious or fatal to our Roses. Frost stings and storm drifts from the shivering east are better for our Roses than balmy southern breezes and fostering, stimulating sunbeams.

A cold April has other functions besides those of sealing up the fountains of beauty and the issues of life among our Roses. It enables us to prune and train our Roses at leisure instead of in haste, and few operations need leisure and judgment more. The more haste, the less speed, is too often verified in the pruning of Roses. Given several hundred Roses to prune or train, a sharp knife, and bursting buds and flowing sap all around, and there comes the temptation to run into an excess of speed. The command "steady" is as much needed in the pruning of Rose trees as in the judging of their blooms. Not a few of us have heard this suggestive word rung out by the late Charles Turner, of Slough, when judges were gravitating towards an excess of speed.

Permit me through your columns to utter the same warning to those who are excessively busy

finishing the pruning of their Rose bushes. It all seems so simple at first sight. Yes; but it is not. For every Rose tree should be pruned as if there were no other in the garden. In other words, hardly any two Rose bushes should be pruned exactly alike, that is, if each is to be pruned as it ought to be. It is all very well to lay down general rules—cast-iron laws—for the pruning of Roses, but the outrush of life and the bursting buds not infrequently make very short work of these. For example: A writer in THE GARDEN a week or so since lays down the law, always cut to a dormant bud, especially in the case of Teas; if you do otherwise, you will either have no bloom or deformed flowers. Well, it was easy yesterday to carry out this rule, but it may be quite impossible to do so to-morrow, for a breath of summer in the night may have started every bud from base to summit before we can get the knife at them. The same writer gives his reason for this advice. Cut to a dormant bud, for such buds are the ripest and the longest rested. This is very often just the reverse of the truth, and for this reason you cannot make the ripest buds rest the longest, do what you will. Why, indeed, should they? They are fullest of life, the best prepared for work, and consequently, as a rule, the first to get at it—that is, begin to grow.

The worst fault of hurried pruning is, that the most important part of it is left wholly undone. This consists in the removal of all weakly and useless wood, dead snags, bark or branches. Such prunings may be called constitutional rather than floral or formal. It not only removes useless encumbrances, but originates and renews vital force and vigour. It also reduces the area and opportunities of insect pests. Those inclining to weakness find favourite hiding and breeding grounds among imperfect shoots and foliage. Remove these and their favourite haunts as well as occupations are much curtailed, if not absolutely gone.

Another most important practical point deserves to be very carefully noted. Such pruning need hardly wait on seasons like those of the mere shortening back of shoots to within two or six buds of their base. But these may take place at any time when the weather is open from October to May. Surely this will prove good news to the zealous knife men. Instead of rushing all their cutting through in a fortnight or a month at most, they may prune at their leisured wisdom for six or more months at a stretch. By adopting the practice of pruning when and where needful throughout the season, pruning for bloom might be concentrated within the compass of a few days or weeks at the most.

D. T. F.

SHORT NOTES.—ROSES.

Single Roses are becoming fashionable, and the wonder is they have not been thought of before. What can be more beautiful than a single white Rose for table work, as the flowers have a peculiarly natural charm, and a fragrance that is exquisitely sweet.

Rose The Bride, the sport from Catherine Mermet, Messrs. Wm. Paul and Son, of Waltham Cross, consider is the white Rose of the future, and likely to take the place of the beautiful and now popular Niphetos. The habit is better and the flowers as useful.

The Puritan Rose.—I was glad to see the note respecting this in THE GARDEN lately. It is, to all appearances, a grand variety, and it is fortunate that it can be forced so well. There is great substance in the pearly white petals, and a fulness of form that betokens a Rose of no mean merit.—X.

The Rosa sent for name by "J. D. N." is Fortune's Yellow, to which I made reference in THE GARDEN, March 31 (p. 262). It is an invaluable climber indoors at this time of year, and far too little cultivated. The plant is not infrequently grown in a cold house in Cheshire, and I yesterday saw fine blooms of it in the flower shops in Manchester.—T. W. G.

The Cloth of Gold Rose is rarely seen now-a-days, as we have so many better things to take its

place. The specimen, however, at Messrs. William Paul's nursery at Waltham Cross deserves a note. It is in a tub and has made strong growth, flowering every year, though one of the great drawbacks of this variety is its reluctance to give a free display of its delicate flowers. This specimen will be in bloom again in a few weeks, and those who love old-fashioned Roses will then have an opportunity of seeing its yellow flowers, which are even more refined than those of *Maréchal Niel*.

STANDARD CLIMBING ROSES.

I WAS glad to read the remarks on this subject in *THE GARDEN*, March 31 (p. 287). The writer dissents from what I stated in a previous number; but that is not of much consequence if Rose growers are made alive to the fact, that a new feature in Rose growing may be created with these tall-stemmed climbing Roses. It is thirty-five years since I first became acquainted with them as standards in an old Scotch nursery where I worked as a boy. A leading variety amongst them was the *Boursault Amadis*. I have not seen Roses grown better anywhere since that time. The Hybrid China varieties have now gone out of fashion, but these were also well grown, and made large handsome bushes covered with bloom. This is how that great Rose grower, the late Mr. Thomas Rivers, of Sawbridge-worth, wrote of the *Rose Amadis*, or *crimson Boursault*.

Let us turn to the most gorgeous of Roses. The crimson *Boursault*, or *Rose Amadis*, as a standard Rose is quite unrivalled; it is also one of the first to gladden us in the merry month of June, and when cultivated as a standard in rich soils, not content with giving its brilliant crimson flowers (perhaps the most brilliant of Roses) in the utmost profusion, it continues to bloom at intervals nearly all the summer and autumn; but in June the branches are weighted to the ground with their splendid burden, arresting the attention of the most indifferent. I am not writing of what may be; for some trees, now from four to six years old, growing here, deserve more than my pen can convey. Their stems are 8 inches in girth, and their heads spread over a space 10 feet in diameter. How magnificent would be an avenue of standards of this Rose.

I am sorry to say these tall standards worked with climbing Roses do not succeed here, and I do not think they could be readily purchased as standards in any nursery; but the varieties may be obtained as dwarf plants, and country folks could find their own standards in the hedgerows or elsewhere, and work them for themselves. J. DOUGLAS.

KITCHEN GARDEN.

MAGNUM BONUM POTATO.

PROBABLY no Potato, not even the old *Ashleaf Kidney*, or even the more recently popular *Beauty of Hebron*, has attained the position held by *Magnum Bonum*, here illustrated. It came upon the Potato growing public with a remarkable reputation, not only as a cropper, but also as a disease-resister, and well justified that reputation at a time when the disease was ravaging our Potato crops. Of course, it lacked the fine quality of *Paterson's Victoria* and the *Regent*, but had it possessed that same quality it would never have proved so disease-resisting as it has. How fully it has proved to be disease-resisting is shown by the fact that *Magnum Bonum* soon spread all over the kingdom, was grown in every garden, becoming a wonderful boon to myriads of cottagers who previously had seen their Potato produce half destroyed with disease, and, still more, it became the great market Potato, being grown by tens of thousands of acres in the fields. Whether due in part to this wide cultivation of a disease-resisting Potato, as also to the raising from it of many other hardy, disease-resisting kinds, or to other causes, certain it is that the Potato disease seems now to have become harmless, although seasons of late have not favoured its development. In any case as a

professed disease-resister *Magnum Bonum* well justified its name, and it merits all possible credit.

It originated from the American *Rose Potato*, and although the raiser, Mr. Clarke, then of Christchurch, did not create the cross, he was under the impression that the pollen parent was *Paterson's Victoria*. It is an extremely unusual circumstance for any of the American varieties, because so devoid of pollen, to set seed balls naturally, and natural cross-fertilisation of Potato flowers is equally unusual. However, it matters little with respect to the actual parentage of *Magnum Bonum*, but it fell into good hands, for the Messrs. Sutton and Sons, of Reading, who purchased the stock, very quickly gave to the Potato a world-wide notoriety. If, at the present moment, *Magnum Bonum* is less grown than it was some four or five years ago, it is due to the fact that some of its progeny are gradually displacing it. Still, it bids fair to be a permanent Potato for the next ten or fifteen years. As a cropper it deserves to rank amongst the best, and even in dimensions of tubers it has often served to create local sensations. Grown in soil of moderate quality, such as a deeply ploughed

of one of these at once. To follow this, sow the Dutch or Mammoth Long-pods, and for succession the Harlington Windsor Broad Bean. The largest garden in the country need not be sown with more than these varieties, as they are quite sufficient if sown in suitable quantities to keep up a succession. The *Mazagan Bean* is a variety that is practically out of date.

Why do amateur gardeners, and not a few whom one might suppose would be well informed, go on sowing Peas of inferior quality? Sangster's No. 1 is favoured by many because it is hardy and early, but the quality is poor and the pods are small. Of the many varieties selected from it, not one can claim to bear a good-sized pod. American Wonder is a good and useful early dwarf Pea of excellent quality, and with it can be sown Improved William the First. When William Hurst and Chelsea Gem, which appear to be identical in all respects save in the colour of the seed, come to be less expensive than they are at present, they will take the first place among early dwarf varieties. To follow these there are *Stratagem*, *Telephone*, *Duke of Albany*, *Sharpe's Triumph*, *Veitch's Perfection*, and *Ne Plus Ultra*; the last is for large gardens. I think that Mr. Eckford is likely to give us before long a good main-crop Pea, with all the good qualities of *Ne Plus Ultra*, that will not exceed $4\frac{1}{2}$ feet to 5 feet in height. In making crosses he invariably uses *Ne*



Potato *Magnum Bonum*. (Natural size.)

field gives, it seldom shows abnormal size; but, as a rule, a very even neat sample prevails. Last year, because the season was of so irregular a kind, the tubers came very unshapely, owing to the supertuberation, which was so common with late Potatoes. That is, however, but an incident of an untoward season. On ordinary soil it is easy to lift from 8 to 10 tons per acre, the bulk of the sample being good market ware. The sets should be planted in rows fully 30 in. apart and 15 inches apart in the rows, as ample room for the tops is indispensable.

Bedfont.

A. D.

NOTES ON VEGETABLES.

GENERAL testimony is borne to the fact that the spring has so far proved highly favourable to the preparation of the ground for the reception of crops. Peas and Beans, Onions, and such like have been largely sown. Frost has interfered to some extent, but, on the whole, gardening operations are forward, although the frosts and drying winds prevent the sowing of small seeds. Why, it may be asked, will writers on gardening matters so persistently advocate the sowing of the *Mazagan Long-pod Bean* as an early crop? It is not an early variety. For an early crop the *Seville Long-pod* is by far the best, or that which differs but slightly from it, the *Aquadulce*. Any who are desirous of exhibiting Long-pod Beans early in July should sow the seeds

Plus Ultra as a pollen plant in order to ensure high-class quality.

The West Middlesex market gardeners have a capital plan for getting early Rhubarb. In the autumn or about Christmas they lift a quantity of Rhubarb roots and place them close together in beds with fine soil between them. They then form a light framework over the beds $2\frac{1}{2}$ feet to 3 feet in height, which is covered with mats, and then a good layer of long, fresh manure is placed over the mats. For some time past they have been gathering from these beds, taking large crops and getting good prices. The roots are thrown away after being forced in this way. In sheltered spots the *Early Albert* is coming on in spite of the cold weather. It is the custom to fork the ground between the roots at the end of January or early in February; then a good covering of long stable manure is laid over the surface, and this affords a good protection and induces early growth. Already a good growth has set in where the plantations are somewhat screened, and gatherings will soon take place. Amateurs may gather a wrinkle from the practice of the market gardeners.

The matter of the selection of Potatoes is so often referred to in *THE GARDEN*, that it is scarcely necessary to indicate varieties, although I think some of your contributors are but imperfectly acquainted with the leading varieties in cultivation, but I may mention, of white kidneys—*Midsummer Kidney*, *Cosmopolitan*, *Fidler's Prolific*, *Colonel*, and *Chan-*

cellar; white rounds—Bedfont Prolific, London Hero, M.P., and Prime Minister; coloured kidneys—Cardinal, Mr. Bresee, Prizetaker, and Edgecote Purple; coloured rounds—Radstock Beauty, Reading Russet, Rufus, and The Dean. To grow good Potatoes, and especially so for exhibition, the ground should be prepared in the autumn, taking a piece of ground from which a crop of early Cauliflowers had been taken. This should be dug over early in the autumn after the Cauliflowers are gathered, thrown up rough, and forked over two or three times during the winter when the weather permits, as it serves to pulverise the soil. At planting time it is friable and works easily. Previous to planting, if it is possible to do so, it is a great help to give the ground a good dressing of ashes from a heap where hedge-clippings, &c., have been burned. This is of great value, as it both acts as a stimulant and makes the soil work freely, while the tubers come out of it clean and handsome.

In choosing sets for planting, if the sort happens to be a weak grower, select good-sized sets, and remove all the shoots but the main one, doing this before planting time. Varieties of medium growth should have medium-sized tubers planted. In the case of strong-growing varieties it is best to cut them into two, with a good eye to each. It is a good plan to lay out all the tubers to be planted in shallow boxes, doing this some two months or so before the time required to plant them. Keep them in the light, but where the frost cannot reach them, so that they may sprout an inch or so before being planted.

The Onion is largely grown, and especially so for exhibition. It is remarkable what fine types of Onions have come to the front of late, mainly by means of selection. Some exhibitors of Onions sow their seed in autumn and transplant to beds in January or February, according as the weather serves. Others sow in January or February. An old gardener has laid down the rule that Onions should not, in any case, be grown on the same ground two years in succession. Moreover, it is of great value to have the ground deeply dug and well manured in autumn and forked over during the winter, so as to become well pulverised by the spring. In the Banbury district of Oxfordshire, where Onions are grown very finely, the growers say there is nothing like a good start. They sow in beds with five rows to a bed, drawing a shallow drill. The seed is put in very thinly, covered lightly, and then the surface is beaten down firmly by means of the back of a spade. During the summer they top-dress their beds of Onions with guano and fine wood ashes.

As to sorts of Onions, there are several good types of the white Spanish or Reading, such as the Rousham Park, which appears to be one of the very finest. Bedfordshire Champion, the Intermediate, and the Brown Globe are also good types. Then there is the French Trebons, a very large globe-shaped variety that can be grown to a great size, but does not keep well. For autumn-sowing the two best are the Giant Rocca and Giant White Tripoli.

The Parsnip is a highly nutritious and valuable vegetable, and the Hollow-crowned is known under a dozen or so names. The soil for Parsnips should be deep and rich. A fairly light, deep, sandy loam suits it best, and it should be trenched at least 3 feet deep, working in plenty of manure at the same time. The trenching should be done in November and the ground thrown up rough until February, when the seed should be sown. Sow in drills 14 inches apart, and then thin out the plants until they are about a foot apart in the lines. That is the way to grow fine Parsnips, and, next to the Potato, it is one of the most delicious edible roots we have.

R. D.

SHORT NOTE.—KITCHEN.

Barr's Asparagus.—One of the few real good things in the way of new vegetables is Barr's Asparagus. This we have tested for some years, and found it the largest and earliest of all we have ever seen. It is a

light coloured "grass," but enormous in size, and at least a week earlier than Smalley's Defiance side by side.

MUSHROOM GROWING IN AMERICA.

HAVING heard a good deal about Mr. Wilson's Mushroom beds, I called some time ago to see them. Mr. Wilson has a very extensive greenhouse establishment at Astoria, near New York. The Mushroom beds have been made under both the middle and side benches in the greenhouses, and occupy an immense space—I should think some hundreds of square yards. The beds are all flat, built upon the ground, and without any protection from drip from the benches above. And in order to exclude strong light from them muslin is tacked over the openings between the benches and the beds alongside the pathways. Some of the beds are in bearing condition, others coming in, and some more recently spawned ones not yet showing any signs of Mushrooms. The Mushrooms are of the buff-coloured variety usually got from brick spawn.

Mr. Wilson tells me that he cannot overstock the market. The wholesale dealers in New York alone will take 200 pounds a day at 4s. per pound. He says whatever he makes in this way is—the labour in making the beds and gathering the crop excepted—almost clear profit. He needs the manure and loam, anyway, for potting his plants, and it is in better condition for this use after being used for the Mushroom beds. As there are large car-horse stables near his place he gets the manure fresh and handy.

He does not think the drip from the benches hurts the Mushrooms; indeed, he had last year some of his best Mushrooms where the drip was heaviest. In a cool house he finds that the Mushrooms take sometimes as long as two months after spawning time before they appear; in a warm house usually about six weeks. Around the chimneys, where the heat is great, very few Mushrooms appear. He has planted spawn in the beds on the benches in which Carnations or other plants had been growing, but, he says, with indifferent success.

Still there is, in my opinion, something amiss in this Mushroom business, as some of them are cracked on the top, multitudes have blasted, and woodlice have eaten the tops out of many. Snails are also very fond of Mushrooms, and it is only the youngest and tenderest they care to eat. From these two pests catching and killing are the only means of escape. As the cracking seemed worse in a bed alongside of hot-water pipes, I am inclined to think it is caused by the dry heat from the pipes, and I suggested to Mr. Wilson that a 2-inch to 3-inch deep layer of the fresh, strawy part of the manure spread over the surface of the bed would help matters. My opinion of the blasting of the young Mushrooms is too much surface water either in the way of drip or otherwise, but I hardly think Mr. Wilson will agree with me in this.

I know of no good reason why Mushroom-growing should not become one of the most remunerative parts of the florist's business. In the newer, roomy, steam-heated houses, where there is plenty of accessible room under the benches, beds can be more easily made than under the old style of hot-water heated buildings. But I should not advise the making of beds under open benches—that is, under benches on which pot plants are grown—because of the great amount of drip that must fall from them. But in the case of Rose, Carnation, Bouvardia, and other benches where the plants are planted out in beds, with a little care in watering there is very little danger from too much drip.

I have grown Mushrooms in considerable quantity for some years past, and have got very satisfactory crops. We grow them in a regular Mushroom house, 83 feet long by 8½ feet wide, and heated by 4-inch hot-water pipes. While the greatest care and attention are needed in order to grow Mushrooms successfully, there is no secret at all in their cultivation. But the amount of nonsense and alleged secrets that I have heard about growing Mushrooms is almost incredible. My beds now are altogether worked by ordinary day labourers, who had no pre-

vious experience whatever in growing Mushrooms, and I must say that I now get far better crops than I did when I had a "skilled" Parisian grower who knew all the "secrets."

My earliest beds come into bearing about the end of October, and I endeavour to keep up a succession till the end of April. I have failed to get good crops before October, probably on account of the heat, and after April grubs attack the Mushrooms and render them worthless. Hence I do not attempt growing Mushrooms in summer.

MANURE.—I use horse manure as fresh as I can get it, and with the roughest part of the straw shaken out. This is heated, turned frequently to avoid burning, wetted with water if at all dry, and when moderately well rotted by heating and turning and the rank heat is gone, I make it up into beds.

The beds are about 12 inches or 13 inches deep, and built as firmly as I can pack them by beating them as we go along with the back of the manure-fork. When finished they are very solid. If the manure is pretty fresh the heat soon rises again, and in about ten days runs up to 130° or 135°, then declines gradually. There is no fear of it burning—it is packed too hard for that. But if the steam from it should be likely to be injurious to anything else in the house, a good layer of loose straw from the manure pile shaken over it loosely will greatly arrest the steam.

SPAWN.—I use the English brick spawn. I have also used many boxes of French spawn. But I get bigger Mushrooms from the brick spawn, and they are better flavoured. True, they are darker in colour, but if grown under straw or in a dark place, many of them will come as white as snow.

SPAWNING.—After the heat in the beds declines to 110°, it usually drops 5° to 10° a day till it reaches 70° or 75°. I usually spawn the beds when they are about 90°. I have spawned them at 110° with capital results; the same at 60°, only the lower the temperature the longer are the Mushrooms in appearing. In spawning, I break up the bricks into bits 1 inch to 2 inches square and insert these to a depth of about 3 inches under the surface of the manure, and about 9 inches or 10 inches apart. I do not dibble them in, but with a small pointed tool, like a hand-weeder, raise the manure enough to let in the bit of spawn, then pack down the manure again.

COVERING THE BEDS WITH EARTH.—About ten days after spawning I cover the beds with between 1 inch and 2 inches deep of soil. I do not wait till I first see the spawn "run;" indeed, there is a good deal of twaddle in this "running" business. For experiment's sake, I have had beds earthed over as soon as they were spawned, in others have waited for three weeks, and I got fair Mushrooms in both cases.

THE EARTH FOR COVERING.—I use ordinary loam. I do not like the fatted earth of the garden or the compost from the potting pile, but good pliable loam free from manure. It does not matter whether it is rough or fine; provided it is put on firmly, the Mushrooms will come through it all the same. And I have not found the slightest advantage in turf over fine soil.

TEMPERATURE.—I keep our houses night and day at 60°. In a higher temperature the crop of Mushrooms will be somewhat earlier, but lighter; while in a lower, the Mushrooms will be longer in appearing, and, as a rule, come smaller and fewer at a time, but will last in bearing longer.

WATERING.—Endeavour to do without it, at the same time never hesitate to water the beds if they get dry. Use tepid water; apply it gently through a fine rose, but never give enough to saturate the manure. If there should be any likelihood of the beds getting dry, keep them covered over with the fresh straw from the manure pile. Under this covering the Mushrooms come up as clean and white and plump as possible, only great care is needed in gathering them. But under no circumstances would I allow drip to fall upon my Mushroom beds. If the atmosphere of the house is very dry, sprinkle

a little water about, but avoid a damp-feeling, musty air, and never raise a steam in the house.

VENTILATION.—In mild weather I ventilate a little—just enough to maintain a sweet atmosphere; but I am as shy of cold draughts in my Mushroom house as in my Rose house.

DARKNESS OR LIGHT.—In dark quarters Mushroom rooms rise up higher out of the bed and are whiter in colour than in well-lighted houses; but darkness is not at all necessary in Mushroom growing. In all cases, however, sunshine should be excluded.

DURATION OF A BED IN BEARING.—A good fresh bed will continue in prime bearing for three weeks, and for some time longer in a sort of desultory way. A bed in which all the manure has not been fresh will last four or five weeks in fair bearing; in fact, I have had them keep on nearly twice as long. But the most satisfactory bed by far is the first—the brisk one. As soon as its best days are over out with it and in with another.

A second crop is sometimes obtained from the beds, but I never had them prove certain enough to justify me in risking them. But one of the finest crops I ever saw was a second crop.

GATHERING.—I gather my Mushrooms before they spread—that is, just as the frill begins to break. I do not twist them out at the root, as most people do; I cut them over and leave the stump. In gathering by twisting we are apt to root out many tiny Mushrooms; by cutting these are not disturbed. The cut stumps soften in about a week, and are then very easily removed. Put a pinch of earth into the holes caused by their removal. All things being favourable, I expect to see Mushrooms in six weeks after spawning, but not a full crop before the eighth week. But they are very unreliable in their time of appearing, and especially so between October and December. Some claim that they can tell to a day when their beds shall come into bearing, but they had better tell that little story to the marines.—W. FALCONER, in *American Florist*.

KITCHEN GARDEN NOTES.

GLOBE ARTICHOKE.—These, where not killed, are now fast pushing up a quantity of side-shoots, or suckers, and will require attention. All protecting material ought to be cleared away, and if it is not intended to form a fresh plantation this season the growths should be freely thinned out, leaving three or four of the strongest only. It is also advisable to bare the principal roots, returning the soil after a liberal dressing of partially decayed manure has been given. Unless the plants are freely manured in some way, poor thin heads will most probably be produced, and an early collapse result when hot and dry weather is experienced. As a rule, the best heads are produced by young plants, or those at any rate that have not been more than two seasons planted, and where Globe Artichokes are appreciated a fresh plantation ought to be made every year, and a corresponding number or breadth of old stools be rooted out. We are obliged to devote a space of ground 45 feet by 30 feet to this crop; but where they are not so much in demand one-fourth of this is ample. Globe Artichokes, being of rank growth, naturally require a rich and deep root-run, or otherwise they soon exhaust the ground. If the trenching has the effect of making the surface soil lumpy and unsuitable for planting in, a quantity of light mould or leaf soil ought to be freely forked into the stations, and in some instances it is necessary to completely surround the roots with fresh soil, or a bad start will be made. In order to obtain strong, well-rooted pieces for planting it is advisable to lift some of the strongest clumps, these being split up with plunging forks. Strong divisions with two or three growths may be planted 3 feet apart each way, while single pieces, each with a few roots attached, ought to be put out in groups of three. In planting, completely bury the stems, just keeping the hearts clear of the soil. Watering and mulching may well be delayed till hotter weather is experienced.

GLOBE ARTICHOKE FROM SEED.—Seedlings may

either be raised in gentle heat, potted off singly into 5-inch pots, and planted before they are much root-bound, or the seeds may be sown in the open ground. The former will be the first to perfect heads, those raised in the open being productive late in August and till severe frosts cut them down. Seedlings, unfortunately, are apt to vary greatly, one half of them at the least being worthless. This, seeing how strongly they grow and what fine succulent heads some of them produce, is a matter for regret, and it is to be hoped a better stock will soon be forthcoming. The seed may either be sown thinly in a shallow continuous drill, or in patches 3 feet apart. In the former case the seedlings must be eventually thinned out to about 2 feet apart, and those in patches be reduced to one or two plants. If two are left for a time, the least valuable can be cut out as soon as they can be distinguished. The Green Globe variety is always the best, very few of the seedlings obtained by sowing the Purple Globe being of any value.

KIDNEY BEANS.—According as the heated pits are cleared of Potatoes they might in many cases be planted with Kidney Beans, and some of the frames on slight hotbeds could also be similarly utilised, all being cleared out in time for late Cucumbers, Melons, and even Tomatoes to be planted. At least a fortnight will be gained by raising the Beans in small pots, or say two in each 3-inch pot. If placed in a brisk heat the plants would be ready to put out in a fortnight, and planting out from pots also favours early cropping, as those sown where they are to remain are apt to grow too strongly. Ne Plus Ultra is the best for pit and frame culture as well as pots, but Canadian Wonder will yield good crops of finer pods if given good room. We plant in rows about 15 inches apart, or three to each light, running from back to front, and the Beans being lightly staked up have a fair amount of light and sunshine. Those planted in frames in succession to Potatoes or otherwise may be forwarded considerably if a fresh lining of heating material is given to the spent hotbed, the frames also being duly matted up every night. Kept regularly syringed and watered frequently, these Beans in pits and frames yield good crops, and it is always a great relief to get rid of them from the forcing houses. When the handlights are taken off the Cauliflowers, the former may be set on a warm border and filled with Beans. These may be sown now in anticipation of this covering with handlights, or the plants can be raised in pots. Span-roofed frames are also well adapted for covering a few rows of Beans. The ground being well pulverised, a sowing of seed in the open may now be made with every prospect of a useful early gathering resulting. Spaces between newly-planted Strawberries or Asparagus will hold a row or two of either Ne Plus Ultra or Osborn's Forcing Beans, or the warmest ridges between the early dug Celery trenches may be cropped with them, the drills to be drawn 15 inches apart, the seed sown thinly, and the plants eventually thinned to about 6 inches apart.

MAIN-CROP PEAS.—Snow, rain, and very cold weather almost continuously have much delayed seed-sowing and vegetation generally. Peas have germinated very slowly, and many complaints are heard of the wrinkled-seeded varieties rotting in the ground. Ours were kept in the seed bags rather longer than usual, and no failures have resulted. Second early varieties sown early in March should now be coming through the ground, and more to succeed these ought at once to be sown. As any sown now will be in full bearing in July and early in August, or when much moisture at the roots is needed, cooler positions well manured and deeply dug ground, or the old Celery lines, may well be chosen for this crop. Telegraph or Telephone, Duke of Albany, Criterion, and Ne Plus Ultra—all tall varieties—are suitable for present sowing, and the rows ought to be at least 6 feet apart. Those who prefer varieties of medium height, or such as attain a height of 3 feet or rather more, may sow Stratagem, President Garfield, Marvel, G. F. Wilson, Gladiator, and Veitch's Perfection, either two or three of them being ample. The rows of these ought to be not less than 42 inches apart. If mice are troublesome,

moisten the seeds and well roll them in a little powdered red lead. Should there be any likelihood of a gap between the successional and main-crop sowings, soak the seeds in water until they have swollen considerably, this materially hastening germination. In each and every case sow thinly in wide drills, and cover with about 3 inches of fine soil.

SOWING BROCCOLI AND OTHER SEEDS.—In our district we find the last week in April or early in May quite soon enough to sow seeds of main crop and late Broccoli, Borecoles, Savoys, and Chou de Burghley. If raised earlier the chances are that the greater portion of the plants has to remain in the seed beds much longer than is good for them, as they cannot be planted out before the ground is cleared of other crops. In colder localities it may be advisable to sow about the middle of April, and in this case the system of cropping should be different, so as to admit of the plants being got out before they spoil each other in the seed-bed. Veitch's Autumn Protecting Broccoli, Brussels Sprouts, Autumn Giant and earlier Cauliflowers being raised under glass, a few more plants may yet be raised in the open so as to afford a good succession. It is a mistake to sow Snow's Winter Broccoli under glass, the most reliable plants being obtained by sowing in the open ground now or early in May. Nor is there anything gained other than a plentiful supply of plants from a small packet of seed by sowing Savoys and second early Broccoli in gentle heat. A good succession will be ensured by sowing now Savoys—Tom Thumb, Early Dwarf Elm, Dwarf Green Curled, Gilbert's Universal, and Drumhead; Broccoli—Snow's Spring White, Dilcock's Bride, Cooling's Matchless, Leamington, Veitch's Model, and either Late Queen or Ledsham's Latest of All; and Borecoles—Dwarf Green Curled, Read's Hearting, and Cottager's. Purple-sprouting Broccoli and Asparagus Kale may also be sown now, or the latter may be drilled in where the plants are to grow some time during May or early in June. If possible, the seed-beds should be situated in an open piece of ground, but if narrow borders only are available avoid sowing thickly. We usually just damp the seeds and roll them in red lead prior to sowing, and the birds seldom interfere with them. Shallow drills are drawn about 4 inches apart, the seed sown thinly and covered with fine soil. Those who neglect to red-lead the seeds will have to keep the birds off either with the aid of fish-netting fixed clear of the ground or by a thick covering of Pea stakes. Numerous lines of black cotton also have a deterrent effect on the birds, but the red lead is by far the best preventive we have tried.

LETTUCES.—Plants raised rather thickly in pans or boxes ought now to be sufficiently large to prick off 4 inches apart each way on a warm border, where they can be protected from slugs and grown on before being planted out on rich ground or between the Celery trenches. As soon as those sown in the open borders are well through the ground, sow more seed, and this time it may be where the plants are to grow to their full size. Cos varieties are usually preferred for summer use, and if a good selection of White Cos and the Black-seeded Brown Cos is sown, a succession will result, the last-named being rather the latest, and, if properly tied up and blanched, is the best summer Lettuce. These should be sown thinly in shallow drills 12 inches apart. If Cabbage varieties are liked, sow Perfect Gem or any other variety in drills 9 inches apart.

RAPID POTATO PLANTING.—Ground that has long been dug up roughly is thoroughly pulverised to a good depth, and in this case planting with a stout dibber is the most expeditious method, and answers well. A line is stretched across at one end, holes are dibbled about 9 inches apart and 5 inches deep, and the set dropped in. This is continued until the whole quarter is planted, and coarse rakes drawn over the surface complete the work. In our case each man is furnished with a bucket to hold the sets and a dibber, but, if preferred, a man may form the holes and a boy drop in the sets. This plan is not to be recommended when the ground

works badly, and in this case drills must be formed either as the ground is being forked over or with a heavy hoe, and even this is not sufficient in all cases to break up the soil sufficiently. Artificial manure cannot well be sown with the dibbled-in sets, but it may be put into the ground now or as soon as the haulm pushes through the surface. W. I. M.

LONG SEED LISTS.

It is only too obvious that complaints as to the undue length of seed lists, &c., are but beating the wind. Years ago old gardeners thought seed lists were swelling unduly, and a hundred years hence there will be no lack of writers declaring the same thing then. Of what use is it to thus declaim against that which no human power can check, and if attempted to check would only end in wrong and disaster? After all, the grievance is a purely sentimental one, and may well be left for the benefit of those writers who, occasionally short of ideas, can find material for a lengthy homily on that persistent bogey, the terrible increase of seed lists. It may be true that all gardeners do not possess the Roman stolidity and firmness found in "Granulata," for instance, who so bravely resists the voice of the syren seedsman, charm he ever so melodiously. That writer will have none of your new-fangled sorts of Peas, for instance, and swears by Ne Plus Ultra, British Queen, and Dwarf Mammoth, the which are good enough for him. But that vegetable garden mentor, "W. I. M.," is made of less stern stuff, for he in the very same column favours his readers with a list of fourteen kinds as specially good, and naively adds, "and more might be added to the list." Thus we see how doctors differ even in these small things. I could myself add to the list given by "W. I. M." yet another list of fourteen sorts of Peas, all first-rate; indeed, anyone who knows anything about Peas must admit that of superior kinds we have legion. "A. H.," whilst assuring us that many gardeners have purchased new things, paying a high price, and finding them to have fallen short of older ones, &c., would lead us to infer that in gaining such experience we had lost much. I rather think, even if the results were so disappointing, the experience has well repaid the trouble taken. But I am far from thinking that such experience has been the lot of all, as had it been it is obvious that the production of novelties must have been killed outright long ago.

The reference to the gross feeding which has led up to certificates being obtained, and so on, is but wildly imaginative. Why, of Peas and Potatoes, for instance, the most prolific of our vegetables, few, if any, certificates of merit have been granted except after fair growth at Chiswick, where the culture is rather under than above what is seen in ordinary kitchen gardens. With regard to Potatoes, for instance, let me say that although a list of kinds grown for stock gets pruned every year, yet applications are continually being made for old sorts cut out years since as inferior. And the fact that such applications are made shows that some one or other grows these old kinds, and wishes to have them, possibly believing them to be the best. What use, therefore, has it been to indicate to gardeners that such and such kinds have been omitted from the lists because inferior. They may be so in my experience, but not so in the case of others; and dictation on my part becomes intolerance if I tell those differing from me that in asking for old sorts I have ignored they are fools. They have the fullest right to grow whatever sorts they may like. And the mere fact that such persons ask for them helps to keep them in trade. Enact a penal law which shall punish seedsmen for advertising more than ten or twenty sorts of Peas, Potatoes, or similar things, and legislation would become the laughing-stock of the community. Unless some such drastic action can be taken of what use is constant cavilling? Not only is no one compelled to grow more kinds of anything than he wants, but he is not even compelled to look at the catalogues. "Granulata's" complaint that there are too many synonyms may be well founded, and refers to a very different matter than does the complaint as to too many sorts. Still "Granulata"

quotes but one example, and let me add a notable one just here, in this St. Valery, or, as is better known, the new Intermediate Carrot. We have in one of these despised novelties the very best Carrot ever introduced. There are many more of the "novelties" as good, but it is a kind of growing affectation to profess to despise them because new. A. D.

FERNS.

W. H. GOWER.

THE MOONWORTS.

(BOTRYCHIUMS.)

THESE plants are rarely seen in our gardens, notwithstanding that they are elegant. They should certainly be more extensively cultivated, especially as the majority of the kinds known may be planted in the open-air rockery, and require only a little care during the winter months. Botrychiums have not hitherto been found in any part of Africa, as far as I am aware, but I think all other parts of the world can boast of a few species or varieties, even our own island producing one species (*B. Lunaria*), which has several distinct forms or varieties. I believe this plant is scattered over a great part of the country, but is more local than rare, as where it does exist there is a vast quantity of it to be found. I first found this plant in the lower part of Surrey. These plants appear to grow amongst herbage and other low-growing things, as I have invariably found our native species in such situations, and this and the North American kinds that used to be grown so well in the Tooting Nurseries were treated thus, whilst other plants which were kept from these surroundings always died prematurely. The Moonworts are deciduous, and therefore difficult to manage; the best plan is to prepare a good-sized place in the rockery by filling it with sandy loam and peat. After the soil is in its place sow some Grass seeds upon it, and amongst this Grass the Moonworts will luxuriate. In winter, if the weather is likely to be severe, cover with dead fronds and branches of Spruce Fir, when little harm is likely to arise. During the winter months these dormant roots must not be allowed to become dry or they will surely die; therefore, should there be no great amount of rain, let them have a thorough watering occasionally.

I have grown the following kinds and found them deserving the attention of lovers of these plants:—

B. LUNARIA, the typical plant, grows some 6 inches high, but occasionally is smaller; the root-stock is tuberous, and the barren frond is simply pinnate, the pinnæ being half-circular or lunate, toothed on the edges, fleshy in texture, and deep green. The fertile frond, which springs from the base of the sterile one, is branched, bearing on the branches the little capsules which enclose the spores, and which when ripe are brown. The fronds of the variety *integrum* are entirely destitute of the serrations or dentations on the edges, but the pinnæ are plain and entire. In the variety *incisum* the pinnæ are much larger than is usual in the type and are deeply lobed. *Multifidum* is a grand form which grows 9 inches high, being about 4 inches long and bearing seven pairs of distant, lunate, deeply-lobed pinnæ; the fertile frond is also large and bears a second small one near the base. The variety called *Moorei* resembles this plant, but it is not such a strong grower, whilst *rutaceum* has a very large, twice-divided sterile frond.

B. DISSECTUM is a very pretty plant from North America; the barren frond is thin in texture and frilled, the fertile frond being much branched.

B. FUMARIODES is a thoroughly distinct plant when growing; the fertile fronds are 9 inches high and much branched. The roots of this plant are very thick and fleshy. North America.

B. AUSTRALE is a very large form with fronds from 1 foot to 15 inches high and 9 inches across at the base, deltoid in outline, and bearing from nine to twelve pairs of pinnæ. The fertile frond is from 6 inches to 1 foot long and much branched. It comes from Australia and requires to be grown in the temperate fernery.

B. DAUCIFOLIUM is a bold-growing Indian species which requires a warm house and very moist atmosphere to develop its beauty. It grows to about 20 inches in height, and the barren frond is triangular in outline, the fertile frond being rich yellow when ripe. It comes from Northern India and several of the islands in the Indian Ocean.

B. VIRGINICUM is a species similar to *australe*, but it will thrive in the hardy fernery with a little care. It grows from 1 foot to 20 inches in height, the barren frond being triangular and about twice divided, the variety *gracile* being more finely divided. These plants have a great similarity when dried, but show great difference when seen growing.

GARDEN FLORA.

PLATE 644.

GESNERA LONGIFLORA.*

THE genus *Gesnera* has been of late years much divided by various authors; nevertheless, the beauty of the individual plants still remains, but, unfortunately, the various members of this Order have become much less popular than they were a few years ago. There is little doubt but that one of the great drawbacks to the cultivation of Gesneraceous plants was the fact that the committees of horticultural societies did not foster a love for them, but, by almost entirely excluding them from their prize lists, they have been allowed to fall into disrepute, like many other beautiful plants which, though once the ornament of our gardeus, have now been allowed to go out of cultivation. Fashions in plants, however, change, as they do in other things, and I am happy to see a reaction setting in in favour of Gesneraceous plants, and one of the very prettiest kinds is the plant represented on the accompanying plate.

With these plants much depends upon storing the tubers as well as the system of cultivation. The general custom is to keep them in a high temperature when at rest, and this I have found by experience invariably weakens the tuberous roots; therefore when dormant I would advise their removal to a temperature considerably below that in which they have been grown; but whilst thus keeping them cool, they must at the same time be kept perfectly dry. These plants thrive well in a compost of turfy loam, fibrous peat, leaf-mould, and decomposed manure, to which should be added a fair amount of sharp sand. Either road, river, or silver sand will do, but if the latter is dirty, I prefer road sand. The pots in which the tubers are to be grown should be well drained, and when the plants are starting into growth careful watering is necessary, but directly they are fairly established one can scarcely err in keeping their roots and the surrounding atmosphere moist. The foliage must not be syringed, as these plants do not appear to like water overhead, and they speedily show it by a cankerous growth upon their leaves, which not only disfigures them, but is detrimental to the proper development of the bloom. During the growing season the plants enjoy a strong, brisk heat, but after blooming is over and the plants have lost their beauty it is too often the case that watering is neglected. Instead of this, however, the tuber

* Drawn for THE GARDEN by Miss E. Lowe in Col. Beddome's garden at West Hill, Putney, August 29, 1887, and printed by G. Severeys.



MIMULUS L. ALPINA

is in many instances immature and unable to undergo the severity of a dry season and dies under the ordeal. They really require a great deal of attention after flowering. The water supply must be reduced as the stem ripens, and as soon as this disappears water must be entirely withheld.

After the flowers have faded an occasional watering with weak liquid manure will be highly beneficial, tending to increase the size of the tuberous root and give extra strength the following season. Some growers of Gesneraceous plants adopt the system of storing the tubers when dormant in dry sand; others prefer laying the pots they are grown in upon their sides and not disturbing the tubers until they are required for starting. The former method economises space, but where this is no object I prefer the latter system. Gesneras usually bloom during the winter and early spring months, but by careful management may be had in bloom at almost any season. The following are a few of the best kinds:—

G. LONGIFLORA.—I am exceedingly glad to meet with this plant again, not having seen it for some years. It formerly existed at Kew in the extensive collection of this Order, which used to enliven the stoves with their blossoms during the autumn, winter, and spring months, and it may still remain there. It is an erect-growing plant, its stem and branches being clothed with ferruginous woolly hairs; leaves opposite, somewhat ovate, having the edges indented with coarse, rounded teeth, the upper surface set with fine hairs; beneath they are paler and downy. The peduncle is invariably two-flowered, the individual blossoms being tubular, with a five-cleft spreading limb, and pure white. Native of New Grenada.

In addition to the subject of our plate, the following are a few of the best kinds culled from amongst the various groups into which Gesneras have been divided by modern botanists. Many of these are admirably adapted for indoor decoration when used in vases or in groups, as the rich velvety markings of the foliage of some of them, in addition to their brilliant flowers, produce a charming effect. When, however, they are past their best for this purpose, remove them again to the plant house, and grow them carefully in order to develop their tubers for the following season's display.

G. CARDINALIS is a plant attaining the height of a foot, or more, surmounted with large brilliant scarlet flowers.

G. CINNABARINA has broadly ovate leaves, which are covered with a profusion of velvety flame-coloured hairs, the blossoms freely produced, the upper portion being cinnabar-red, paler in the lower part, with white streaks.

G. DONCKELAARI is a bold-growing plant, sometimes attaining a height of 2 feet, bearing large velvety leaves, deep green on the surface, purple beneath, and producing a much-branched panicle of long, somewhat dull red flowers.

G. EXONIENSIS produces handsome leaves, which are clothed on the surface with soft red and purple hairs, which render it extremely beautiful, and in addition it produces numerous orange-scarlet flowers, the throat of which is deep yellow.

G. GLAUCOPHYLLA has deep orange-red flowers, the throat pale, dotted with orange colour.

G. LANATA is furnished on the stems, edges of the leaves, and peduncles with long soft red hairs, tube of the flower red, limb creamy white, bordered and spotted with crimson.

G. ELLIPTICA LUTEA affords a nice change of colour, its blossoms being of a rich canary-yellow.

G. MACRANTHA somewhat resembles *cardinalis*, differing, however, in the colour of its blooms, which are of a deeper red, tinged with a purplish black in the throat.

G. MIELLEZI has flowers of a purplish violet, with a white throat.

G. MULTIFLORA has a pure white flower, stained with orange in the throat.

G. PURPUREA is an exceedingly handsome and distinct species, with verticillate leaves, surmounted by dense whorls of tubular flowers of a purplish rose colour, irregularly spotted with red.

G. ZEBRINA SPLENDENS produces very fine foliage, rich green, furnished with red and purple velvety hairs, which in different lights render it exquisitely beautiful, above which rise its numerous orange-scarlet blooms, which are yellow in the lower half. W. H. G.

FRUIT GARDEN.

W. COLEMAN.

DISBUDDING FRUIT TREES.

MR. BARKER in a seasonable article recently drew attention to the importance of thinning the flower-buds upon various fruit trees, and not only can I agree with all he says as to a system which I have long made my own, but in some respects I am in a position to supplement his remarks. My object at the present moment, however, is not to touch a ball which has so often been set rolling in the pages of *THE GARDEN*, but to ventilate another operation equally important, also seasonable, and this is the method of disbudding. When I walk through a garden and find fruit trees of various kinds crowded with young wood, I am reminded of the question put by one young gentleman to another, "Were you educated at Eton or Harrow, or has your training been neglected?" In this case, from a horticulturist's point of view, I conclude that the person in charge has not been trained in a good school; otherwise he would pay more attention to one of the most vital operations in fruit culture. There are, of course, conditions which justify early disbudding or deferred disbudding, but in all cases there comes a time, be it early or late, when all superfluous shoots should be removed. A mechanic who knows very little about horticulture may be taught how to disbud, but a gardener who knows something of theory as well as practice must decide when the operation is to be performed. If a tree, a Peach say, breaks weak, puny and sluggish, the mechanic may say, rub off all the superfluous shoots to throw strength into those left; if too strong, he will advise deferred disbudding, as he thinks to exhaust the flush of sap. The gardener who understands his business will reverse this order; he will allow all the shoots on the weak tree to grow until the sluggish roots are forced into activity, and when this has been accomplished, he will proceed slowly and gradually with disbudding. The strong tree he will check betimes by early disbudding, by pinching the points out of all gross shoots, possibly by defoliating, and in this way the current of sap in the first will be quickened; in the second it will be repressed.

WHEN TO DISBUD depends upon the position of the tree and the conditions under which it is growing. If under glass, where safe from checks and chills, from frost or other causes, foreright and double breaks may be removed as soon as they can be manipulated, then upon the little-and-often principle the remainder may be taken quite away or pinched to two or three leaves where there is fruit nestling at the base. In this way the house tree must be thinned and regulated until each shoot from which the next year's crop is expected is from 5 inches to 6 inches from its neighbour until each leaf has room to move under a circulation of air, and there is room ahead for tying in without crowd-

ing. The wall tree exposed to frost and biting winds, to sudden checks by the action of cold rain or melting snow (as at the present time) upon its roots must be manipulated with greater caution. In nine gardens out of ten, especially in low, cold situations, the removal of the young shoots is premature. The tender fruit, suddenly exposed to frost and cutting winds by the removal of its natural protection, often gets killed or severely injured. The sluggish sap, rendered still more so by the removal of leaves and exposure of the wood becoming stagnant, results in what is termed a "check," when many of the most advanced fruits fall off or remain small and puny throughout the season. To avoid this dilemma patience as well as experience must be brought to bear. The wind, the weather, as well as the condition of the trees must be watched, for on no account should disbudding be commenced when the elements are unpropitious. If the wind is in the north or east and frosts prevail, wait. If the tree is weak and heavily cropped, wait. Let the foliage be kept clean, but defer disbudding until it can be commenced in mild, genial weather.

HOW TO DISBUD.—When the fruit and young growths are making satisfactory progress commence by taking off all the foreright shoots or pinching back where there is likely to be a dearth of foliage, also remove a few from the lower sides of the fruiting wood, especially near the extremities and upper part of the wall or trellis. This thinning will complete the first operation, and being light, neither tree nor fruit will suffer. If curl or fly are detected, these faulty or infested leaves must be removed as much as possible, and the weather being mild the trees may be well washed with tepid water. As growth proceeds the shoots to be retained must be decided upon, say one at the base, another 12 inches in advance, and so on up to the extreme point or leader. Those intermediate may then be pinched where there is fruit, as two or three leaves whilst nursing and feeding will afford shelter, but others not so accompanied may be slipped off with a sharp-bladed knife to make room for extension. If disbudding is allowed to extend over a fortnight many of the trees will be ready for heeling in, but the spurs or shoots previously pinched will still remain to be dealt with. Although I do not believe in the pinching of wall or house Peach trees for future fruit-bearing spurs, I can strongly recommend this method for the protection and advancement of existing fruit, but when the small tufts of leaves have performed their office, and many of these fruits in the course of thinning have been taken off, why then these spurs in embryo, like the foreright shoots, must be slipped off with the budding knife. When Peach trees are pruned upon the restrictive principle and each shoot of the preceding year is shortened back in winter to half its length, two young growths only, one from the point, the other from the base, are retained for laying in; all the others being superfluous are then rubbed off, and in this way the tree creeps slowly along, often becoming old or crippled before half the space allotted to it is covered. The extension trainer, on the other hand, thins freely, but lays in all his wood full length, and from the upper sides of his fruit-bearing shoots, often 5 feet in length, selects two or three equidistant growths for furnishing. The unskilled trainer or non-trainer lays in half-a-dozen shoots, often in bundles, where one would suffice, and in this way crowds his trees with weak, decrepit wood and leaves which foster insects, keep the sun and air from the wall and fruit, and never ripen. I have confined

my remarks to the Peach, as this and the Morello Cherry most completely represent the species which bear fruit on wood of the preceding year. Fruits of all kinds, however, notably the Apricot and the Plum, are improved by judicious disbudding. The majority of growers, it is true, obtain their greatest bulk of Apricots from spurs, but this source of the supply is produced by allowing all the young shoots to start, and when they have grown a certain length they resort to pinching.

PLANTING ALPINE STRAWBERRIES.

To do these well they require liberal treatment and quite as frequent removal as is customary with the large-fruited kinds, and then they are profitable to grow. This is a time of large things, and those who go in for show would despise the alpine. Nevertheless, the latter are very useful, especially where fruit is eaten for breakfast. They are also valuable after the other Strawberries have disappeared for flavouring and other purposes in the kitchen. This is a good season to make new beds. It is thought by some that being an alpine plant it should necessarily be planted in some high and dry situation. This is a mistake, for though the plants will not perish, perhaps, in a dry situation, they do suffer as much as other varieties from drought in a dry time, and the fruit then becomes very small, dry, and flavourless. The finest and best flavoured fruits of this Strawberry I have ever gathered were grown on a piece of cool-bottomed dampish land, partially shaded by the branches of an adjoining fast-growing Oak tree. Here, on this bit of damp, cool land, week after week daily baskets of juicy, richly-flavoured berries were gathered for a long time, the bed remaining in good bearing condition for four years. Last season the hot summer told upon it, and this spring we have destroyed the old bed and started a new one near. If healthy plants, which is generally the case, can be had from the old beds I use them, though they can be easily raised from seed, but where seedlings are employed the young plants should now be up if they are to fruit this season. Plant a foot apart each way, and press the plants firmly in the ground, giving them a good soaking of water. It is always best to plant when the surface of the bed is dry. It is not necessary to mark the land off into beds, but to continue planting row after row till all the land is occupied. Old beds or beds of more than one year old should be weeded now and heavily mulched with rich manure. In fact, this heavy mulching is the secret of success, and this treatment of surface-feeding should begin as soon as the young plants are fairly fixed in the ground, and continue till they are destroyed.

E. H.

Rymer and Lane's Prince Albert Apples.

—Doubtless there are other sorts of Apples that are equal in cooking qualities and that will keep as long in good condition as the two sorts I have named. But I very much question whether anyone can name two others that will keep so long and crop so reliably. Some fruits of the above-mentioned sorts now before me are perfectly sound, with every appearance of their remaining in that condition for at least six weeks longer, especially those of the first-named variety, which is also much the handsomest fruit, being very highly coloured; but Rymer invariably keeps well up to the beginning of May. The great merit of these two sorts of Apples is their free-bearing character. They are nearly equal in that respect to Lord Suffield and the Hawthornden. I have not the least doubt but that other growers can bear me out in this. Both sorts are adapted for growing in any form, but it is as bushes and pyramids for garden culture that I value them most, for they make handsome trees and bear prolific crops. The trees alluded to are not quite 4 feet high, but they bore so many fruits that I had to thin them out severely. The fact that these sorts bear so freely when the trees are young and the roots kept under control is evidence of their adaptability for planting

in gardens where there is not room for standard trees. If every small garden had half-a-dozen trees of each of these two sorts grown in the form of large bushes, there would not be such a dearth of late-keeping Apples for household use. Lord Suffield is the first to come into use, with the Hawthornden and Cellini to follow. To succeed these there is no better than Dumelow's Seedling, which, with the two sorts under notice, would furnish a supply of fruit from August to the middle of May, which is as long as most people care to have Apples. If anyone can name six others equally good for cooking and as regular bearers I shall be glad to know which they are.—J. C. C.

ORCHARD GRAFTING.

AMONGST other alterations at this place, orchard improvement in the shape of draining and manuring was carried out. While many useless sorts, at the same time sound stocks both of Pear and Apple trees, were slightly headed down about twelve months ago in order to graft them with more useful sorts, old and decayed trees were grubbed up, the ground cultivated and replanted with strong useful trees of modern varieties. The drought of last season was rather against their growth, but being well mulched to keep the roots cool and moist, some of them made wonderful growth, while others suffered from leaf-maggot, although twice hand-picked. By the autumn, however, the trees made another growth, which ripened well, and from their appearance now they will no doubt make a healthy growth this season.

I will give a few notes as to securing grafts. For a large tree that will require fifty or more scions, it may not be easy to get that quantity of one good sort to put one sort upon one tree only. To meet that want we had to cut into some young trees rather severely almost to disfigure them before we could secure as many scions as to graft one tree with one sort. Blenheims and some other good sorts we had in quantity; therefore we will not be at a loss for Blenheim Oranges in time to come. It is astonishing how a crooked-looking scion of 7 inches or 8 inches long, and of two or three years' growth thinned out from a tree that has been kept close pruned pyramid fashion, will grow and make shoots nearly a yard long the first season. In the fruit-growing districts it is nothing new for farmers to exchange grafts with their neighbours. But to the grafter of the one year's shoot they appear to him more like a fagot or a bundle of Pea sticks, and it seems quite absurd to think of putting a new head upon a tree with such old stuff. But such is the case in fruit valleys, and on market days it is a common occurrence to see a bundle of grafts of some favourite sort in the way of exchange tied upon the top of the load of fruit to be taken home and laid in by the heel in some damp place to keep them fresh until grafting time. Any time during the winter months will do to cut the grafts, and out of the top or middle of the tree if possible.

The specimen which I send you was cut off a large Pear tree grafted about the end of May or beginning of June by a Herefordshire grafter; fifty-four grafts were put upon this tree with no failures, all of them growing as well as the sample sent.

Our trees were headed back in January to allow of the cutting off of a short length when the graft was inserted in May. By the beginning of June the sap is in full flow, and before a large tree could have been finished, the sap vessels in the scion being empty, the pressure of sap is so strong in a healthy tree, that the sap has been dropping from each graft all round the tree. In grafting large trees it is absolutely necessary to put on more grafts than are ultimately required. One, two or three grafts on each branch would certainly give a fresh head to the tree, but in order to keep the top or end of each branch healthy more than the above number are required to keep the end of the branch living all round until all the grafts become united in forming the new head of the tree. By only inserting one or two scions, por-

tions of the end of the branch between the grafts would become dead wood, while the graft was only attached, as it were, temporarily to one side of the branch, while with the first crop of fruit or more especially with a gale of wind, both fruit and branch are blown off the tree. The scions which are used in this system of what may be called country grafting are from three or four-year-old wood of a clean and healthy description and nearly as thick as one's finger. Instead of slipping the graft simply inside the bark, you will observe that the graft is made in a kind of wedge shape and driven into the wood with a little mallet, and daubed over and round with clay and the toughest hay that can be got.

I may state that for the first two or three years very little pruning is required, simply a little regulating of the shoots. If any shoots belonging to the original tree are present they must not be interfered with for the same period, in order to allow of the flow of the sap of a healthy tree, as the grafts themselves would not form leaves sufficient to draw the sap in order to keep the tree in health. In preparing the grafts notice should be taken that the buds upon the top of the graft point outwards, as if pointing inwards the best shoot which comes from the top of the graft will pass across the centre of the tree and will have to be removed if a well-formed head is required. Healthy trees of both Cherries and Plums can be treated in the same way, only so much sooner according to the earliness of the season. I consider it is a great loss of time to keep on growing common sorts of fruit, when with a little selection of superior varieties, which are now plentiful, and with a handy man, there is no difficulty in producing good fruit.

JOHN MILLER.

Rusley Lodge, Esher, Surrey.

NOTES ON PEARS.

BEURRE DIEL.—This free, hardy Pear does well for stewing purposes, but it falls far below the mark for the dessert. At a very large show of fruit always held in November I have tasted the most promising samples taken from a great number of dishes, but, to the best of my recollection, even a minor prize has never been awarded. Many of our large free-cropping varieties, however, which do not melt are invaluable for kitchen use, as they carry within their own rind a large percentage of sugar, and on this account, like Reinette Grise, Blenheim Orange, and other Apples, which do not require sweetening, they are great favourites with cooks and connoisseurs who can take cooked fruit without, but not with, manufactured sugar. Where cooked or preserved Pears are in constant demand, these varieties in bush, pyramid, or standard forms are worthy of a good site in the orchard.

EASTER BEURRE, from California. When in Messrs. Webber's shop the other day, I noticed boxes of this fine Pear in excellent condition. In reply to my inquiry, I was told they came from California tightly packed in those cases which hold about two pecks each. Good sound fruits innocent of paper, packing, or lining of any kind so liable to impart a disagreeable taste, are closely placed, like American Newtown Pippins. The lid is nailed down and they are ready for shipping. The flavour is superb. The samples I saw, however, were not very even; consequently the fruiterer is obliged to make firsts and seconds out of each box when it is opened. Knowing how these "seconds" detract from market value, I would suggest to our Californian friends the advisability of performing this work for themselves, or, better still, of keeping seconds at home for their own consumption. It is to be regretted that we cannot grow this fine Pear as the French and Californians grow it. Fine samples of English growth and of excellent flavour occasionally are met with, and this fact leads me to hope that the valuable information which the Pear discussion has already brought forth will yet lead to our managing it both for the dessert and late cooking purposes. Many people assert that the best flavour is found in medium-sized fruits obtained from pyramids and bushes. What say our southern growers? I am inclined to think there is something in it. Surely so valuable a variety should

be thoroughly tested in every way before it is condemned as second-rate or useless.

L'INCONNUE VAN MONS.—This Pear I grew for some years as a trained tree against a south wall, where it cropped profusely, but the fruit was hardly second-rate; consequently I had it grafted. Mr. Crump's mode of growing it as a standard rather strengthens my argument or plea in favour of *Easter Beurré*, as I do not believe that all varieties are quite at home against dry, hot south walls, especially where mulching and copious watering in dry weather are neglected. The fruits at Madresfield being far before *Beurré Rance*, whilst placing the latter rather low in the scale, afford one more proof that Pear culture in this country is governed by many conditions exclusive of climate. At this place—an hour's drive from Madresfield—the order is reversed, *B. Rance* being decidedly the best of the two. Neither of them, however, are good enough to figure in a selection of a dozen.

THOMPSON'S.—I am delighted to find friend Muir, from whom we do not now hear sufficiently often, is still in the flesh, and his name on this occasion is associated with this grand Pear. From all parts of the country the word is that of praise, and my experience justifies the assertion that it is better from a pyramid or a standard than from a wall. This opinion, in the next paragraph, is borne out by "J. C. C.," an experienced grower, who says it fruited for a number of years against a west wall in Somerset, but the fruit was always hard, gritty, and flavourless. From these remarks I conclude he has not tried it as a standard. For the benefit of others and the furtherance of Pear lore, I hope he will not allow this spring to pass away without putting on a few grafts, which in his fine climate would fruit within two years. W. C.

FRUITS UNDER GLASS.

PEACHES.

ANOTHER deep fall of snow, accompanied and followed by much raw, cold atmospheric moisture, has again driven us into hard and sharp firing, not only to maintain minimum heats, but to keep out actual frost. When gardeners whose arrangements enable them to sleep soundly sometimes get caught napping, what must those suffer whose crops of fruit or flowers are simply screened from the elements by a sheet of 15-oz. glass. I have often reminded the owners of unheated houses of the risk they run in withholding the cost of a flow and return pipe attached to an existing or independent boiler, and until quite recently, when on a visit to a gentleman's place close to a large iron foundry (save the mark) believed that these unfinished structures could no longer be found. A return at the end of March to all the rigour of a sharp winter may emphasise my advice, and lead, I hope, to arrangements for giving comfort, as well as facilities to the gardener, pleasure and profit to the employer. In cold houses in favourable districts we frequently see excellent crops of fruit, and in late structures provided with hot-water pipes we very often secure a good set without having occasion to open a valve, but these successes do not justify our neglect, especially when the most gentle warmth sets aside danger from damp as well as frost, and renders the late Peach house so useful throughout the winter.

The trees in late houses generally will now be in full flower, and, provided fire heat is at command, I would suggest a gentle circulation in the pipes by night and day, liberal ventilation, which does not mean a cutting draught, the result of throwing open the top and bottom lights simultaneously, and occasional fertilisation when the pollen is ripe and the day bright and fine. Many growers do not fertilise their late Peaches, but trust to insects and the syringe. Healthy trees under good treatment do not require any assistance, but some shy kinds, notably *Walburton Late Admirable*, are often deficient in pollen, and for this reason, independently of the fact that cross-fertilisation adds weight to the fruit, and often prevents stone-splitting, an operation so simple should not be neglected. As late trees are frequently planted in external borders, their roots so far should be in satis-

factory condition, but knowing how they suffered last autumn and how dry the winter has been, a matter of vital importance must not be left to chance. Recent rains may have penetrated the upper stratum, and some may be living in a fool's paradise, for unless the lower half and the drainage are thoroughly moist, bud-dropping, a feeble start, spider and mildew will surely follow. If all the flower buds have stood and are now expanding there is not much wrong, but, better late than never, each border should be examined carefully and repeatedly watered and mulched with long stable litter. Internal borders being entirely dependent upon the barrel and hose are less likely to go wrong, but these, as a rule, do not receive enough water through the autumn months; consequently bud-dropping, of which recently we have heard so much, is terribly on the increase. In the

Early house the most important operations will be liberal watering, good syringing, and careful ventilation. The roots of the trees being confined to internal borders, the supply of tepid water must be equal to the thorough moistening of every particle of soil quite down to the drainage; whilst the quality must be regulated by their age, strength, and crops they are carrying. Old trees which carry full crops every year will stand a good mulch as soon as the fruit is set and has cast off the remains of the decaying flowers. Also they will take weak, clear liquid at every watering, whilst young ones having a good root-run in sound calcareous loam, with plenty of room for the extension of their shoots, will make most satisfactory progress under plainer diet. To these I give a moderate mulch of old Mushroom manure, not so much for feeding the roots as for keeping the surface moist and drawing the most valuable feeders upward. Over this pure soft water is freely plied, and although the trees may be carrying a full crop, this slight stimulant is found quite sufficient until the fruit has completed the first swelling. They then begin to feel the strain of the crop, but instead of giving them more manure, stronger liquid, including a little stale soapuds and a dash of soot water, is given to them once a fortnight. The great secret in the management of these young trees is under-in preference to over-feeding through the early stages, as it is much easier to feed up the fruit after it is stoned than to repress a gross growth of young wood which does not favour satisfactory stoning or full development when the last swelling sets in. The sun having gained power, syringing backwards and forwards to ensure the wetting of every leaf may now be regularly practised twice a day—the first time when the temperature begins to rise, the second when the maximum has been reached, and sharp reducing to keep up the heat becomes necessary. On bright, sunny mornings fire-heat may be shut off early, when a thorough moistening of the walls and mulching as well as the foliage will produce a soft, genial atmosphere so necessary to a rapidly perspiring tree like the Peach, when every leaf is exposed beneath large squares of 21-oz. glass and the heat above the trellis is several degrees higher than that indicated upon the thermometer. On dull, cold mornings wetting the floors, walls, and old stems may suffice, as one good bath a day is better than keeping the trees continually wet and the atmosphere in a state of saturation.

Ventilation by night being quite as important as by day, a little front air should be given about 8 o'clock and shut off at daylight, when a temperature of 56° to 58° for the present will be quite high enough. Airing by day must be regulated by the weather, but, assuming that 70° is taken as the mean on dull days, and 75° to 80° with top and bottom ventilation under a clear sky, the top lights should be opened to let out vitiated air at 65° to 68°, but on no account must the temperature be lowered thereby, as good forcers maintain a steady rise until the maximum is reached by opening the front ventilators more or less to keep fresh air in motion without producing a draught. Early spring ventilation in our variable climate is a very difficult matter, and the mistake which many make is the too wide opening of the top lights, when the heated air escapes like smoke out of a tall chimney; the

inlet of colder air along the front then produces a cutting draught, which goes on so long as the egress openings are too large, and the house cannot be kept full. Reverse this order, and pure, fresh air passing over the hot-water pipes will rise gradually and feed, where otherwise it abstracts and carries away every particle of moisture from the tender foliage.

Manipulation.—Tying down and stopping gross shoots, especially near the apex, must not be neglected, and on no account must more be laid in than are absolutely necessary to the shading of old branches and the production of fruit another year. I never make it a rule to pinch a shoot so long as I can maintain an even diffusion of the sap, but when the lower parts of the trees show signs of weakness, pinching is the only remedy. The thinning of the fruit should be carried on conjointly with the regulating of the shoots, a fair percentage being left to compensate for dropping after the fruit is stoned. Pendent fruits, as a matter of course, will be taken first, but in the absence of an abundant choice those most easily elevated apex upwards should be preferred.

MELONS,

now swelling off crops of fruit, will take liberal supplies of tepid liquid, especially where the roots are confined to 12-inch or 14-inch pots. Top-dressing, consisting of stiff loam, bone-dust, or very old cow manure, must also be given to them, little and often, as the white feeders appear upon the surface. Where, as frequently suggested, each pot is placed upon a stout square of turf resting upon the pedestal, the double advantage of this system will now be apparent, as the roots already established in this medium will be feeding on the warm liquid intercepted in its downward course, and these in their turn will force lateral growths, and keep the thick leathery foliage fresh and free from insects until the fruit is ripe. Maintain a bottom-heat of 80° by frequent renovation, a minimum air-temperature of 70°, a maximum of 80°, and run up to 85° or 90° after closing, with plenty of moisture. Endeavour to give plants in flower nearly, if not quite as much heat. Ventilate more or less every day, but do not follow the baneful practice of checking the roots by withholding water, as healthy pot plants with plenty of roots beneath them will set an abundance of fruit. Fertilise as the female flowers open, and allow the young fruit to attain the size of Walnuts before making a selection of two or three of uniform promise for the crop. This stage reached, cut off all superfluous fruit, pinch every lateral at the first leaf, and carefully preserve every old leaf, as fracture of these not unfrequently lays the foundation of canker in the stems. If planted high and dry on cones raised to the level of the rims of the pots, a thin layer of the above-named top-dressing should be firmly rammed home as soon as the young Melons are fairly on the move; but the stems must not be earthed up, for, much as the Melon enjoys a good pasture, it always thrives best when the whole of its stem is exposed to the sun and air. Damp all available surfaces, including the plunging material, every morning, but avoid wetting the foliage, as one liberal syringing on bright afternoons with powerful heat shut in will be found quite sufficient. Keep the interior of the house, also the glass, scrupulously clean, and, if possible, economise fire-heat and atmospheric moisture by running down the blinds at night. Put out the plants for succession and make regular sowings of a few seeds, as fresh young plants are preferable to old ones, which, by the way, should never stand about as breeders and feeders of colonies of insects.

Frames.—Where pots and frames, first of all, are devoted to Potatoes and other early vegetables, good, sound stable manure and Oak leaves should now be got together and well worked, to be in readiness for renovating and lining the beds as these crops come off. A few people still grow early Melons in pots and frames, but without the aid of fire-heat. This expensive uncertainty should not be attempted. The end of April or early in May is the best time to put out frame plants, and as these can be raised in three weeks, a few seeds of some free, hardy varieties, like *Victory of Bath*, *Golden*

Perfection, or Reading Hero, may now be sown. These may be placed singly in 4-inch pots filled with loam, or, a good nursing-frame having been prepared, the plants will do best on small sods of turf about 5 inches square. If two seeds are pressed into each of these cubes, the best or both plants may be retained, pinched when they have made four leaves, and transferred to the hills as soon as they are ready for them.

CUCUMBERS.

Winter Cucumbers having come early to an end a flush of fruit may be taken before the plants are destroyed. I have kept winter plants throughout the following summer, but duplicate pits being at command, I prefer making a fresh start with spring-raised stock, as the fruit is finer, the plants are fresh, clean, and healthy, and the clearance of the old gives facilities for a thorough cleansing before we introduce the new. Where one compartment only can be devoted to Cucumbers, why then the best attention must be paid to the old ones, as it is of no use trying to introduce a few young ones into houses infested with spider and mildew. Old plants should be overhauled at least three times a week for the purpose of stopping, training, and regulating the growths, as the quality of the fruit in a great measure depends upon the prevention of waste of strength and a constant relay of fresh vine and foliage. A neglected Cucumber house very soon represents confusion confounded, and no amount of attention will restore it to a condition of which the attendant may feel proud. Therefore, to economise time and prevent waste of tissue, each growing shoot should be pinched at the first joint beyond the fruit, there must be no interlacing or overcropping, and last, but not least, insects must be prevented from gaining a foothold. The best insecticide, as all know, being good culture, the roots as well as the vines must come in for a good share of attention. Old and inert soil and top-dressing, for instance, may be removed and replaced with new compost a shade heavier than that previously used through the winter. Bone-dust, charcoal, old lime rubble, and large rough flakes of light fibry turf form a compost which no Cucumber plant can resist, and, provided the bottom-heat ranges about 80° and the atmosphere is well charged with moisture, fresh roots lay hold before the foliage has time to flag. If the plants are perfectly clean, one thorough syringing on fine afternoons will be quite sufficient for the present, otherwise morning syringing must also be resorted to. I do not, however, like morning drenching, as the fruit is so apt to scald when bright weather renders free ventilation absolutely necessary. When fresh roots have taken to the new compost, they may be fed with good clear diluted liquid guano and soot-water alternately, and the first and last poured into the evaporating pans or syringed over the surface of the bed towards nightfall will do good service throughout the summer. The next and last important matter to which I shall refer is ventilation. Some very successful growers never give air to their plants on the hottest days, but keep them from scalding in a sort of Turkish bath charged to saturation with vapour. As I should not like to operate in a place of this kind, I cannot recommend the system to others, especially when fruit perfect in form and of excellent flavour can be grown under judicious ventilation. If we place a plant in a fruiting Pine stove it soon shows that it enjoys and pays for its treatment. To the legitimate occupants we give a chink of front air throughout the night; we shut it off at daylight in winter and at 6 o'clock in summer. Surface syringing then follows. The day temperature ranges from 70° in the morning to 80° or 85° with air through the day, and 90° or sometimes more after the house is closed and syringed in the afternoon. The Cucumber is quite at home with the Pine, and those who can produce conditions favourable to the one can grow the other to perfection.

Frames and pits.—Spring-raised plants in these structures have passed through a severe ordeal, and many unfortunate gardeners have again realised the fact that early culture without the aid of fire-heat or arrangements for getting into these structures is

uphill work, and the "light does not pay for the candle." From this date forward we may look for brighter and milder weather, but for some time to come it will not be safe to trust to the elements; therefore special attention must be paid to the linings, which should be renovated back and front alternately with well-worked fermenting manure and Oak leaves. As growth proceeds the leading Vines should be trained thinly, and when they nearly touch the extremities they will require pinching to induce laterals from which fruit may be expected. Keep a supply of light, rich compost inside the frames for future use, and when thoroughly warm place it in thin layers against the sides of the hills or ridges as the roots show on the surface. Ventilate with great caution, as there is no fire-heat to prevent depressions the moment the sun disappears. Shut up not later than 2 p.m. on the brightest days, and damp round the sides of the frame with water at a temperature of 80° to 85°, but avoid wetting the foliage, unless a temperature of 70° can be maintained through the night. The greatest danger to be apprehended is the ingress of rank steam from the linings in cold, dull weather when external covering is extra heavy and the internal heat does not justify ventilation. As this subtle enemy will penetrate the smallest flaw in the woodwork, or shrinking and cracking of the soil round the extremities of the bed, a constant eye should be kept on these defects. On the other hand, tilting the back lights to the smallest extent being sufficient to allow it to escape as freely as it enters, night air, no matter how cold the weather, should never be neglected. Like Melons, free hardy sorts may now be sown in the nursing frame to secure a stock of strong plants for turning out in pits and frames after Potatoes have been taken up. The prickly or spined varieties answer best for this culture. They are extremely handsome, and unsurpassed by any others in flavour, but from some unaccountable cause they are seldom met with. The Cheltenham market gardeners grow cartloads of a variety called Lorraine or Smith's Frame. This and Cuthill's Black Spine have not yet been beaten for summer use. W. C.

Flanders Pippin Apple.—We tasted this from Mr. Coleman on the 3rd day of April, and found it an excellent, well-flavoured, juicy Apple. It is surprising how little attention has been paid to good late Apples in our country. Just before tasting this Apple we had passed through some towns in Kent in the middle of the fruit-growing district, and no such thing was to be seen as a good late Apple, or an Apple of any kind. On referring to the books we found that all our English authorities describe this as an October and November Apple. This shows how little attention has been paid to this very important subject of late varieties of our chief native fruit. Flanders Pippin certainly has qualities that place it among the best.

Pear Belle Picarde.—The *Revue Horticole* of April 1 gives a coloured plate of an apparently very handsome Pear, and if its quality is only as good as its appearance, we have a variety of considerable merit. We quote a few words respecting it:—

It reminds one a little of Colmar d'Arenberg, but is longer. The Belle Picarde Pear is a variety which will be useful from a commercial point of view, for its fruits are very large and beautiful. Excellent compôtes, jellies, or marmalade can be made from it, and for dessert it is admirable, while one can have the pleasure of eating it from February to May, at a time when Pears are almost wanting. If it is grafted on such vigorous varieties as Beurré d'Amanlis, Beurré Diel, Curé, Triomphe de Jodoigne, &c., a quantity of extraordinarily beautiful fruits is obtained.

SHORT NOTES.—FRUIT.

Pear Glou Moreau.—In my note in THE GARDEN, March 31 (p. 282), the Glou Moreau of the French is described as being Beurré d'Arenberg, whereas it ought to have been Glou Moreau is the Beurré d'Arenberg of the French.—E. PETERS.

Overproduction of fruit.—If we may judge from the past, the same bitter wail of overproduction will greet us this year after the fruiting season. It is an annual cry which acts like a deluge of water on

the spirits of the enthusiastic fruit grower. We have given the subject of overproduction considerable thought, investigation, and study for years, and have come to the conclusion that there is no such thing, so far as it relates to well-grown and well and carefully packed and shipped fruit. The basis of all the trouble in this direction lies only in the overglutted markets teeming with inferior fruit. Overproduction of inferior fruit is the evil which exists, and the only one covering the ground of overproduction.—*American Garden.*

STOVE AND GREENHOUSE.

NOTES ON CAMELLIAS.

THERE are two flowers—the Rose and the Camellia—that as long as we cherish our gardens will retain a hold upon our affections, and stand pre-eminent as flowers to be admired, cultivated, and improved. For the past few years it may be said with perfect truth that the Camellia has fallen into the background with the increasing favour bestowed upon things that have certainly more freedom of character and a greater naturalness; but lately the tables have turned somewhat, and the Camellia, once thought the very embodiment of a wax-like, formal, ungraceful flower, is again lifting its head, though it has never disappeared entirely from view, as is the case with flowers of a more "florist" type. We could ill afford to lose this noble shrub; nothing is more imposing in a conservatory than healthy, vigorous specimens of Camellias, and in the winter and spring months the rich tone of the abundant leafage is intensified by a mass of gorgeous or chaste flowers that individually are most useful for various objects, and when crowded on the plant give a warmth, freshness, and glow of colour to the corridor or conservatory obtainable in no other way. There are many fine houses of Camellias in the country, and few finer than the spacious corridor of them at Chiswick House, while a home is made for them in the nursery of Messrs. W. Paul and Son, Waltham Cross. Here they are of remarkable vigour, and presented a short time back such a sight that would at once convince the most sceptical as to the value and thorough usefulness of the Camellia for cool or cold houses. The plants range from 2 feet or 3 feet in height to 15 feet or 16 feet, and are generally trained in pyramidal form, the richness of the leafage showing wonderful health. As a speciality is made of the flower, we have here an exhaustive collection, including English, Continental, and American varieties from the latest arrivals to the type, the single C. japonica, a plant that those who love single flowers admire for the brightness of the colour and the comparative informality of the outline.

It is to the Italians that we owe much in the improvement of the Camellia, though some of the English and American raisers, as Mr. Chandler and Mr. Hovey, have done much to raise it to the high standard it now occupies. The Messrs. Paul raise their own plants, and the practice is to use the single japonica as a stock on which to graft the varieties that are in request. Cuttings of this are taken and they strike with comparative ease, though it is a somewhat slow process, occupying about six months, and then another eighteen months must elapse before the plants are ready for being grafted on. Most of the specimens are in tubs or large pots, and it is noticeable what really imposing subjects they are when in the enjoyment of a robust constitution and health. At the lower end of the house is a fine specimen of C. japonica, and those who are partial to single flowers will not despise this old friend, but grow it and the beautiful single white, which, as

seen by the coloured plate in *THE GARDEN* of August 22, 1885, are quite innocent of that "turnipy" appearance which is urged by some against the double forms. Princess Clothilde and conspicua are two semi-doubles, both desirable, the first having flowers white, flaked with red, and the other has fine broad petals of great firmness, and in colour rich rose, approaching crimson. Donckelaari is an established favourite, and the old reticulata is sometimes seen, and for gorgeous beauty is unrivalled. There is a specimen in the Chiswick Gardens that has a small pit devoted to it, and yearly bears a number of its large-sized flowers of the brightest rose, and remarkably showy.

In such a large collection as this there are, of course, many comparatively useless varieties, and so it is necessary to sift out a few of the best for the guidance of those who have no great knowledge of this queen of winter flowers. Amongst the Continental acquisitions, one of the first worth mention is Adelina Benvenuti, a very delicate pink, flaked with crimson, the form excellent. A specimen of Adamo was a mass of bloom; the flowers are of a telling colour, white, variegated with carmine. Commandatore Betti is one of the Italian section, and is a magnificent Camellia, the branches bending beneath the weight of their lovely burden. The flowers are of great breadth, full, and with shell-like petals, the colour of which is rich pink. The old Cup of Beauty is a desirable variety, the flowers white, with just a flake or two of pink. Messrs. Paul have in their collection an unnamed sport from this; the flowers are larger than those of the type, and of soft self peach colour, the tint exquisite. A nice sort for decorations is corallina, which may be classed amongst the Anemone-centred Camellias. It has bold handsome guard petals of the richest crimson colour, in perfect harmony with the luxuriant glossy green leafage. Other varieties that may be recommended are Romaniensis, white, flaked with lake; Mme. de Strekaloff, very pale pink or peach; L'Aveni, rose, margined and striped with a lighter shade, and with longer leaves than the majority of the kinds; Mathotiana, very deep crimson, but somewhat rough; Beali, crimson; Chandleri, crimson, occasionally blotched with white; and Marchioness of Exeter, brilliant rose.

There are two American varieties raised by the late Mr. C. M. Hovey, who, in *THE GARDEN* of September 22, 1883, has given exhaustive particulars respecting American seedling Camellias, and there is also given with the same number a plate of one of his greatest achievements in this direction, viz., C. M. Hovey. This is a variety that has an excellent habit, flowers almost as freely as any, and the blooms are of a bright crimson-scarlet colour, so that it only requires a specimen or two to make a great display. C. H. Hovey is smaller than the last-mentioned, but it is a beautifully arranged flower and of the richest blood-red—a contrast to the white-flowered varieties. There is also here a seedling from the crimson eximia that appears to possess great merit. It is a bold flower, more of a cerise than a crimson, and the petals are of fine proportions.

We must now briefly consider the white Camellias, and first on the list we must place the old alba plena; but Messrs. Paul consider that it will eventually give way to such kinds as candidissima and Princess Charlotte, which are quite as free and pure, and have the advantage of a more vigorous constitution. The foliage of the old double white seldom has that glossy green leafage indicative of rude health that is a marked feature of most sorts. Fimbriata finds many ad-

mirers for the purity of its beautifully fimbriated flowers, but it is not so free as the old double white. We cannot dispense with alba plena, as its usefulness for cutting is undeniable, but a trial may be given to other white-flowered Camellias that have so many meritorious points.

It may be of interest to mention that the soil used is of a good loamy character, and there is no stint of water during the growing season either at the roots or on the foliage, while the wood is always well ripened. It is at once evident that this practice is most successful, as seen by the condition of the plants and the thousands of flowers they have borne this season. E. C.

MARANTAS.

I OBSERVE "X." in *THE GARDEN* (p. 275), has a note upon *Maranta Warscewiczii*, and it certainly deserves all there said about it, and a great deal more; but the writer is certainly in



Maranta roseo-picta.

error when he states that, "although possessing distinct beauty, it has never become popular," because, some fifteen or twenty years ago, when Marantas were popular, Warscewiczii was highly esteemed. I have often wondered why these plants have sunk so much in public estimation, and I cannot find any excuse but the bad treatment they have received at the hands of gardeners, for it must be admitted that, when not well grown, they are not attractive. A very little attention, however, will enable anyone who has stove accommodation to enjoy their beauties to the fullest extent. Marantas are popularly known as Arrowroot plants, and several species are cultivated largely for the production of the starch which the tubers yield; whilst the vernacular name is derived from the fact of some of the aboriginal tribes of South America using the juice of *M. arundinacea* to cure the wounds received from poisoned arrows. Marantas are for the most part very finely variegated and form superb ornaments in a stove, and are also very telling on the exhibition table. These plants enjoy an almost unlimited supply of water to their roots, and therefore require ample drainage. They also enjoy sprinklings overhead from the syringe. But to have the plants display their charms to the fullest, my advice is, never syringe the foliage. Syringe only between the pots, sprinkle the stages and floors with water, and maintain the atmosphere

in a very moist state. My objection to sprinkling water over the foliage is grounded on the fact that water leaves a settlement which spoils the natural brilliancy of their foliage, and which, however much one may try to rub off,



Maranta fasciata.

can never be removed in such a manner as to restore it to its pristine beauty. I therefore long ago ceased to syringe them and such plants as Caladiums, &c., and ever afterwards never had discoloured leaves. A large supply of water to the roots is absolutely necessary to produce fine foliage and handsome plants. They also enjoy shade. The soil should be good rough peat, with a small portion of loam and a little sand. In watering, an occasional application of liquid manure will be highly beneficial to the smaller-growing kinds, but the more robust forms will not require any stimulant. These plants may be readily increased by division, and should the plants become too large, the same plan may be



The Maranta as a vase plant.

adopted to reduce the size of the specimens. Amongst the many forms, I select a few of the best and most distinct. The brief descriptions, however, will not afford an adequate idea of their extreme beauty. A glance at the accompanying cuts will show what excellent plants these are for vases.

M. FASCIATA has large cordate leaves, 1 foot long and 8 inches wide, bright green, broadly banded

with white, the under side paler, and suffused with purple. (See illustration.)

M. HIEROGLYPHICA.—A dwarf plant, leaves obovate, deep velvety green, passing into a bright, cheerful green, transversely streaked with lines of silvery white, under side purple.

M. ILLUSTRIS is a fine plant, dwarf and spreading; leaves ovate, streaked of a deeper green, which extends to a border of the same colour, and near the junction of these bands with the border the leaves are traversed from base to apex with an irregular band of white and pink; the under side purple.

M. LEOPARDINA has leaves of a yellowish green, and on each side of the midrib they are ornamented with oblong, deep green blotches.

M. LINDENI.—A rather tall plant, leaves oblong, of moderate size; upper side dark green, regularly blotched on each side of the midrib with pale green; beneath, the colour is deep rose, tinged with purple, showing the marking of the upper side.

M. MAKOYANA.—A dwarf plant with ovate leaves, ground colour creamy yellow, with a deep green border, blotched with regular patches of intense deep green; red beneath.

M. MASSANGIANA.—Another handsome dwarf form; leaves broadly-oblong, soft pale green, almost silvery near the midrib, and regularly blotched with purplish green.

M. NITENS is of small stature, the leaves being bright shining green, marked with oblong blotches of intense deep green.

M. PORTEANA.—This is a rather tall plant, lively green, transversely streaked with white.

M. ROSEO-LINEATA.—Leaves ovate and acuminate, deep shining green above, transversely streaked with rosy red.

M. ROSEO-PICTA.—Leaves broad and spreading, deep shining green, traversed from base to apex with a band of bright rose; midrib also bright rose. An illustration of this is given here.

M. SPLENDIDA.—A large plant with deflexed leaves, the ground colour of which is intense deep green, regularly streaked at intervals with very pale green.

M. TUBISPATHA.—Ground colour of leaf yellowish green, bearing at intervals on both sides of the midrib oblong blotches of blackish brown.

M. VEITCHI is a superb plant of bold growth; its leaves are large; ground colour deep shining green, profusely marked on each side of the midrib with lunate blotches of yellowish green and white; reverse side vinous-red, through which the markings of the upper side are visible; the combination of colours rendering a charming effect.

M. VITATA.—A distinct kind with light green leaves transversely streaked with white.

M. WARSZEWICZI.—This is a grand plant, with large leaves some 2 feet long by 8 inches wide; ground colour deep rich, shining, velvety green, the centre being broadly striped with a broad feathery band of light green.

M. ZEBRINA is a large, bold plant with the same habit of growth as the preceding; the leaves, however, are much larger and more recurved; the ground colour is light velvety green, transversely banded with dull purple; beneath, of a deep, heavy purple. W. H. G.

Camellias for cutting.—I quite agree with the estimate formed by a correspondent of the merits of the old imbricata and double white Camellias for cutting. Imbricata is remarkably free flowering, giving three blooms where many kinds give but one, and the well-formed flowers are just the size for bouquets. Its only fault is that the individual flowers soon fall when they attain their full size. They must be cut just before they come to their full size, and be wired at once, or some of the petals drop. There is one Camellia that ought to be in every garden where this flower is grown for cutting. This is Lady Hume's Blush, not a very vigorous grower, but very free flowering, the blooms being rather under medium size. The

great value of this Camellia lies in its precocious nature. It comes into bloom a fortnight or more sooner than the old double white, blooms of it being generally available at the end of October. Its delicate colour renders it suitable for hand bouquets and other choice floral arrangements. Another good old kind is *paoniflora*, which is one of the most free-growing kinds we have. It is very useful for cutting, as the blooms last a considerable time without wiring. In a large trade establishment where a good business in cut blooms was done the above four kinds were mainly relied on. The old Donckelaari, too, was found useful, some rather liking its loose, informal-looking flowers.—J. C. B.

CACTI.

I THINK that the culture of these showy plants is in danger of being much neglected. One rarely sees anything like a collection, and if there is in a private garden a few plants of any favourite species, they are generally found put aside as if of but little consequence, or under the impression that they can take care of themselves. The varieties of Cacti are very numerous, and they inhabit very different climates, some of them enduring uninjured a temperature little short of freezing, whilst others, inhabitants of the hottest and driest parts of the globe, will not bear the same degree of cold. There is also great difference in the moisture congenial to different varieties. Some of the *Epiphyllums* and *Cereus* thrive with an amount of moisture both in the soil and in the atmosphere for the greater part of the year that would be certain death to others, so that it is needful to know something of the native climate of the different varieties to be cultivated, particularly in the case of an extensive collection. Perhaps the fact that the blossoms are of a somewhat fugitive character tells against their culture, as few of them last longer than two or three days. But, on the other hand, they are very striking and showy, and also full of interest, for some are night-blooming, while others flower in the day. Of these some expand their blossoms in the sunshine, shutting up as soon as the beams are withdrawn, while others appear to flower best in the shade.

Those of the Cacti that may be classed under the head of quick-growing forms do well in a good loam mixed with a quantity of gritty matter which allows of free drainage. Those of the globular form and the dwarf types should have a still more porous soil, but it must be rich. Some appear to suppose that these plants can be grown in any rubbish, but Cacti well repay generous treatment. If it is desirable that the plants be large, they should be potted annually, but once in two years will suffice in a general way. Plants can be kept small and within bounds by being careful not to over-pot them. But it is by no means a pleasant task to pot large specimens. As an old grower remarks—

It requires two persons to do it, for the plants are anything but pleasant to handle, and if a thick soft hay band rolled in a piece of thin canvas be wrapped round the plant, it enables it to be held, and it also preserves the spines from injury. Such as require it should be well supported by stakes and tied up, and particularly so when the buds are swelling, as they frequently get too heavy for the stems to support, and either break or hang down in an unsightly manner. Whilst growing all sorts require plenty of water and heat, and also plenty of light.

The work of propagation is a simple one, as cuttings of any size almost as soon as the cut has dried over may be inserted in slightly moist porous soil, and if placed in heat, they will soon put forth roots. Not a few of the varieties produce seed in abundance, and it is quite possible to cross them with comparative ease. It is therefore not difficult to raise new forms in this way. R. D.

Primula verticillata.—I am surprised that *Primula verticillata* is not better known and more generally grown. It is a charming spring flower for pot culture, is easily managed, and gives good results for any care bestowed upon it. I consider it quite as well worthy of cultivation as the Chinese *Primula*, on which so much care is often bestowed. The flowers are rather small, with a long tube; the colour a beautiful yellow, which looks very pretty

against the mealy whiteness of the leaves and flower-stems. The flowers, as the name indicates, are borne in whorls, on a spike about 9 inches long. With me a good spike will produce over two dozen flowers. *P. verticillata* can be easily raised from seed. After blooming, our plants are divided or potted on as required, and kept in a cold pit till they have taken to the new soil; afterwards they are fully exposed to the weather until the approach of winter, when they are removed to the greenhouse.—E. B. L.

THE AMARYLLIS.

THESE are late in flowering this season, as was naturally to be expected, owing to the cold, sunless weather. In such seasons as this, however, the flowers last much longer in good condition. Hot sunshine and drying winds soon cause such flowers to fade. We do not trust the most valuable plants in the greenhouse or conservatory, but any varieties not likely to be injured by the change help to make these structures gay at this season, being so different from the usual plants in bloom now. The general collection will not be in perfection in some gardens until the middle of April this year. There will be ample opportunity afforded to cultivators to hybridise any really good varieties either by making a selection of the best garden forms in order to improve the form, colour, and texture of the flowers or to obtain a more vigorous constitution. Richly-coloured, well-formed flowers are most desirable, but if the constitution of the parents happens to be bad, the offspring is likely to be worse instead of better. In selecting garden varieties to save seeds from, let the seed-bearing parent at least be of vigorous constitution. By this must be understood a variety that can be propagated from year to year from offsets and still retain the same vigorous habit. Both parents should, if possible, have flowers of bright and decided colours. Many seedlings and named varieties, too, now grown in some gardens sadly lack brilliant and decided colours. The flowers are most readily hybridised when there is plenty of sunshine and the temperature rises by day to say 75° or 80°, with not too much moisture in the atmosphere. A seed-pod may contain 100 good seeds, and another equally promising in the first place may suddenly collapse and contain not a single good seed.

It is also quite possible to turn aside from the beaten track and introduce new species and varieties different in form of flower and character from those well known as popular garden plants. I would also here sound a warning note to those who have not yet had much experience in the culture of *Amaryllids*; that is, the danger of neglecting them when the flowering period is over. Up to the time the flowers fade the bulbs have been reduced to less than half their size by the effort to produce the flowers. The aim of the cultivator must henceforth be directed to nourishing the plants until the bulbs not only recover their lost weight, but also grow larger than they were when started into growth in January. I find they succeed best with a little bottom heat, and if the pots are plunged over the rim the roots push into the plunging material, causing a more vigorous healthy growth than they would otherwise have made. Seedlings of all sizes require much the same treatment as the large established plants, viz., the maintenance of a vigorous, healthy growth up to the time the bulbs have completed and matured their growth, when water must be gradually withheld until they are quite dried up. They require no water at the roots during the months of October, November, December, and part of January. J. DOUGLAS.

African Hemp.—Not very long ago you allowed me to deny the claim of *Spartmannia africana* to pose as African Hemp. I quoted Dr. Masters' edition of "Hemfrey," which is the text-book at St. Bartholomew's, in proof of my assertion that *Sansevieria*, not *Spartmannia*, is the source of the fibre in question. My letter, however, seems to have passed unnoticed by any of your correspondents. Will you now permit me to add evidence which I think ought to be conclusive.

Emin Pasha is the greatest living authority on Central Africa. In the most interesting volume of his letters and journals, just published, he never mentions *Sparmannia*, but as to *Sansevieria*, he says (p. 224): "Fishing is ardently pursued by the women, and is chiefly carried on by means of large nets made from fibres of *Sansevieria*, which is very common over the whole of Latúka." Again (p. 302), he finds "whole colonies of a species of *Sansevieria*, the fibres of which are used in rope-making." Accuracy in popular names is perhaps of small importance, but, at all events, they should not be, as in the present case, distinctly misleading.—FREDK. CAPES.

WORK IN PLANT HOUSES.

HARD-WOODED GREENHOUSE PLANTS.—Most hard-wooded plants that thrive with greenhouse treatment do best when potted early enough to become established before the hot, dry summer weather comes on. This includes such things as *Aphelexis*, *Hedaras*, *Boronias*, *Chorozemas*, *Pimeleas*, *Adenandras*, *Clianthus*, *Correas*, *Diosmas*, *Eriostemons*, *Gompholobiums*, *Hoveas*, *Leschenaultias*, *Phenocomas*, *Pleromas*, *Statics*, *Tetratecas*, and others of a like character. Most of the sorts named thrive best in peat. In all cases it is necessary to have the material of the right description. The close, hard-textured black peat that used to be considered suitable for plants of this nature should be avoided, as they make comparatively little progress in it compared with those grown in rich brown peat of a lighter nature, that alone is now used by those who have had an opportunity of seeing the different effect which the two kinds of soil have on the plants in question. In the brown peat named, which is full of vegetable fibre, consisting of the roots of the various Grasses that have grown on it, there is much difference in texture, some being closer and heavier than others. It may be taken as a rule that quick-growing plants do better in comparatively light peat; whilst the slower growers like heavier soil. For plants of moderately fast growth, a mixture of the two sorts often answers best. Peat of the description instanced seldom contains much sand; consequently, in preparing it for use, it is necessary to add more than would suffice for peat that was of a closer nature. When potting plants in soil of this character, it is also necessary to use the potting lath more freely than requisite for heavier material. Without this the soil will hold more water than many of the plants named require. In potting tender-rooted subjects, such as those in question, the roots should not be further disturbed than occurs in removing the old drainage crocks from the bottoms of the balls. See that the plants, whether large or small, are in right condition for water before shifting them. If the ball is dry enough to need water, this should be given before attempting to re-pot. Where this is not attended to, it becomes necessary to water soon after, and it is advisable to defer this as long as possible, so as to give any roots that get injured time to heal up before water is applied. After potting, give little side air for a few weeks and keep the stages and paths repeatedly damped, especially if the weather becomes bright and dry. Shade when the sun is powerful, and close the house early enough in the afternoon to cause the temperature to run up somewhat, this, combined with the water that is thrown about, encouraging growth as well as helping to defer the necessity for watering until the roots have begun to move. In the case of most of the plants mentioned, it is safer to cease syringing them overhead for a time after potting, as then one is able to properly judge when moisture is really needed. On account of young stock of the kinds of plants under notice flowering so as to be useful for decorations, the potting is often deferred until after they have bloomed, under the impression that it would prevent their flowering, from which delay the growth made during the season is much reduced. But if the roots are not disturbed further than already indicated, the flowers will be little, if at all, interfered with.

ORANGES.—The different kinds of Citrus which

are usually grown in plant houses require less care to keep them in good condition than most things, yet the little attention which they so well deserve is often withheld. The fact of the plants being able to live when neglected may be taken as the reason of their cultivation frequently being left to chance. Still they amply repay being well cared for. One of the causes of large plants getting out of health is through allowing them to remain for many years without any renewal of the soil, either by giving them larger pots or tubs when more root room is wanted, or by removing as much of the old exhausted material as can be got away without unduly interfering with the roots and replacing it with new. When either of these operations is required the present is a good time for carrying out the work. Even when it is decided to give larger pots or tubs, it is well to remove as much of the old soil from the upper part of the balls—which is generally the least occupied by roots—as can be done without injury. In all cases the soil should be of a lasting character, with enough sand in it to ensure the water continuing to pass freely away. This with efficient drainage is indispensable to the roots keeping in a healthy state. In common with all plants that are intended to remain for a lengthy period in the same soil, the latter should be made solid in the pots or tubs. Plants that are in a sickly condition through the roots having got out of order should have most of the old soil removed, replacing them in the same pots or tubs they have already occupied, or even smaller ones will do if it is found that such will hold them. All plants that are shifted, especially any that are out of condition, should be stood for some months afterwards where they will have a genial growing temperature, and if a moderate amount of bottom-heat can be given them it will greatly assist the formation of new roots. Plants that do not require shifting will be benefited by applications of soot-water; this will not alone act as a fertiliser, but it will banish worms, which seem to have a special liking for the soil occupied by the roots of these plants, and they often do considerable injury. The wood and foliage should be well cleaned from scale and other impurities.

STOVE.—**COMBRETUM PURPUREUM.**—This fine old plant is suitable for clothing a pillar or a rafter in the stove, where most of the stronger-growing climbers, such as *Allamandas*, *Bougainvilleas*, *Thunbergias*, and *Passifloras* would outgrow the space which it is desirable to have occupied. The plant requires a comparatively limited amount of root-room, so that in most cases it will be better in a pot than planted out. Specimens that need more room should now be repotted; when well furnished with roots, young thriving examples will bear a liberal shift. Good fibrous peat, with nothing more added except sand, answers well for this *Combretum*. Pot moderately firm, and keep the shoots as they extend regularly trained in the space they are intended to occupy. Old plants that are already in pots as large as it is desirable to give them should be turned out, and have as much of the exhausted soil got away as can be done without injuring them, replacing it with new. At the same time see that the drainage is efficient. Syringe the plants freely in the afternoon. This is necessary to promote growth and to keep down thrips, which often attack the leaves.

CLERODENDRON SPLENDENS.—In this we have another twiner that can be used similarly to the *Combretum*, as it does not attain a very large size. It is also a comparatively slow grower, consequently when young it must not have too much root-room. In most cases 16-inch or 18-inch pots will be sufficient for the largest specimens. If the plants have not already been shifted, they should be attended to at once. Good peat, with sand sufficient to keep it continuously porous, is all that this *Clerodendron* requires. Full-grown specimens, that are in pots as large as it is necessary to give, will be better for having all the old surface soil removed, putting new in its place. A little later on, when the roots are in full growth, manure water should be given frequently to both this and the *Combretum*, by which means they may be kept for many years with their

vigour unimpaired. Thriving young plants that have been during the last year in 8-inch or 9-inch pots may be moved into others 3 inches or 4 inches larger. After potting, keep the atmosphere moderately moist and the house closer for two or three weeks than will be necessary when root and top-growth have begun to move freely. The night temperature of the house may now be raised to something like what it is to be during the summer.

GLOXINIAS.—Plants raised from seed sown some time back should be moved to small pots as soon as they are large enough to handle, as if allowed to remain longer in the seed-pan than is necessary they get more or less drawn, a condition that is more injurious to *Gloxinias* than the majority of plants. Stand the pots on a moist bottom where the plants will be near the glass. Any old tubers that are not yet started should now be potted; they will come into flower after the earliest-started plants, whilst the seedlings will give still later bloom that will keep on well into autumn. In this way the flowers will be found very useful, especially for cutting; but to give them the requisite lasting properties when used in this manner the plants must be treated so as to keep them quite stout and compact.

ACHIMENES.—The last batch of tubers should be put in pans or boxes, and placed in a warm house or pit until they have made an inch or two of growth. The earlier started roots will now be ready for moving into pots or hanging baskets. For the decoration of large conservatories *Achimenes* are most effective. They look best when used alternately with baskets filled with Ferns of a suitable description, such as *Adiantums*, *Davallias*, *Nephrolepis*, *Platyceriums*, and others of a like character.

TUBEROSES.—Bulbs that were potted some time since, and have now made plenty of roots, and have their tops moving, may be put in heat. If the flowers are only required for cutting, the plants will do placed further from the glass than if they are wanted for greenhouse or conservatory decoration, as, in the former case, it does not so much matter if their stems are a little drawn. Where the appearance of the plants has to be taken into account, they should from the time they are put in heat be kept with their tops as near the roof as possible, lowering the pots as the stems extend. The bulbs put in heat now will flower in succession to the earlier forced set. Where sweet-scented white flowers that will last long, and are suitable in size and general appearance for bouquets and button-holes, are much required, *Tuberoses* should be treated so as to give a lengthened succession. This can be easily arranged by potting the bulbs at intervals. In this matter they are more accommodating than anything I can call to mind, as they do not suffer by being kept in a dormant state to the extent that other things do. Any bulbs that are yet unpotted may now be put in. As in the case of the earlier started batch, see that the soil is in right condition, neither too wet, nor too dry, and stand the pots, if possible, on a slightly moist bottom. There is even more need for this at the present time than earlier, as in the damp winter months the air has not such a drying influence on the soil as it has now; consequently, if means are not taken to correct it, the soil will require water sooner after the roots are potted than it is desirable to give it them. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

White Lapageria.—There is a large house of this with the red variety intermixed at Messrs. W. Paul and Son's, Waltham Cross. The white is propagated by the long shoots, that are layered in, and when the eyes have sprouted, are taken up and potted on. No bottom heat is given. It is a mistake to raise from seed, as the flowers vary so much.

Six best stove-flowering plants.—In answer to T. W. Browning, in *THE GARDEN*, April 7 (p. 325), *Stephanotis floribunda* and *Bougainvillea glabra* would do as climbers for the roof, or, if in duplicate, the same can be successfully grown on trellises, but for effect I recommend the former system. *Allamanda Hendersoni*, either on the roof or on a trellis in a cool house; I advise the latter plan; then in the winter, when the house is kept at the minimum temperature, it can be placed in the warmest part and kept moderately dry at the root. This latter point also refers to the two

first-named plants. *Anthurium Scherzerianum*, too well known to need any recommendation, would succeed in the same house; so also would *Eucharis amazonica* and *Euphorbia jacquiniæflora*. In all cases keep the plants in a cool stove on the dry side when the temperature is at the lowest.—JAMES HUDSON.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Berberidopsis corallina (Coral Barberry).

—This elegant and very beautiful evergreen climbing shrub from Chili (see illustration) is hardy enough to be grown on open-air walls in the southern and coast counties. It has large spiny-edged leaves much like those of some of the Barberries. The flowers are globular, with waxy petals of a bright coral-red, and hang on slender stalks in clusters from the leaf axils. It flowers continuously for several weeks in summer, and is a charming plant for any wall. It seems to prefer partial shade, such as that of a wall facing east or west. Allied to Barberry.

Berchemia volubilis (Supple Jack).—A vigorous growing deciduous climber from Carolina, suitable for trailing over tree stems, trellised arbours, and the like. Flowers inconspicuous. Buckthorn family, Rhamnaceæ.

Bignonia (Trumpet Flower).—The hardy species of this large tropical genus of climbers are invaluable, being so graceful in growth, showy in flower, and vigorous. There are three kinds thoroughly hardy against sunny walls in

roots like Ivy, and so cling to walls or any support. The pinnate foliage is most graceful, and in late summer the shoots terminate in dense clusters of showy trumpet-shaped scarlet and orange blossoms. There is a variety named major with larger flowers of a paler tint, and the foliage also is more robust. A strong plant of this Trumpet Flower will run up and cover a wall 40 feet high. It is useful also for covering arbours, pergolas, and the like.

B. grandiflora (see woodcut), a Chinese plant, is more tender than *B. radicans*, and by



Flowers of *Bignonia grandiflora*; colour orange-red.

no means so common. It is much showier when in bloom, the flowers being twice the size, of a bright orange-scarlet, and produced in large clusters, with each flower drooping. Its foliage,



Flowers of Coral Barberry (*B. corallina*); natural size; colour coral-red.

too, is larger, but the plant rarely grows so vigorously in this country as *B. radicans*. It is a glorious object in bloom and worthy of the best position on a warm sunny wall. It was introduced at the beginning of the century, but never seems to have become very common.

B. capreolata (see illustration), a true *Bignonia*, is a native of the southern parts of North

America, and is quite hardy in all but the coldest parts of England. It is commonly grown as a greenhouse climber, but it succeeds thoroughly against a warm wall. It has heart-



Bignonia capreolata; flowers orange.

shaped leaves ending in curly tendrils, like a vine, which enable it to climb high. The flowers, of a true trumpet shape, are large, reddish yellow, and produced, not in clusters, but singly. Given a sheltered spot against a sunny wall, it is a most satisfactory plant, and is almost an Evergreen. Other *Bignonias* from temperate countries, such as *B. capensis* and *B. australis*, might be planted against sunny and sheltered walls in the south, where they often flower as freely as in a greenhouse.

GHEENT AZALEAS.

GHEENT AZALEAS, as they are generally known in horticultural literature, are a race of garden hybrids produced in the first place by crossing *Azalea pontica* with different American species, especially *A. calendulacea*, *A. viscosa*, and *A. nudiflora*, and then improved by selecting the best varieties raised from the seed of these hybrids. They are, perhaps, when in flower the most beautiful of all our hardy shrubs. They are equally beautiful when massed in great beds or when grown singly. Their brilliant, deliciously fragrant flowers range in colour from crimson and pink, through orange and yellow to almost white. No plants bloom more freely and few last longer in bloom. These Azaleas flourish in good garden soil, but, like the evergreen *Rhododendrons*, they cannot bear lime, and the region where they can be grown in the United States therefore is not very large. Although the plants are all perfectly hardy, the blossom buds of some varieties are killed in severe winters, and some grow less vigorously than others.

The following varieties, selected for a large collection, are hardy, vigorous, and free-blooming, their flower buds never suffering in the most severe winters: Henry Waterer, Belle Merveille, Heuresse Surprise, Madame Baumann, Fama, Gloria Mundi, Astreans, Grand Monarque, Pallas, Beauté Celeste, Prince Henri de Pays Bas.

Hardly inferior in beauty to any of the varieties of this garden race is our native *Azalea calendulacea*, and one of the great sights of this continent for the lover of flowers is the slopes of the Southern Alleghany Mountains when they are blazing in June with the great flame-coloured masses of this splendid plant.



The Trumpet Flower (*Bignonia radicans*).

almost every part of these islands. They are *B. radicans*, *B. grandiflora*, and *B. capreolata*. The first two are strictly species of *Tecoma*, but are most generally known as *Bignonias*; therefore the name is retained here.

B. radicans (here illustrated) is a native of the North American States, and is an old garden favourite. Its long wiry stems send out

But these hybrid Azaleas can, perhaps, be still further improved, or their blooming period at least greatly extended, by mingling with them the blood of *Azalea arborescens*, a very late-blooming, hardy species with white, fragrant flowers, from the Carolina Mountains, and of the Californian *A. occidentalis*, another late-blooming species. Their further improvement offers an inviting field of experiment.

These plants are spoken of here as Azaleas; in reality they are all *Rhododendrons*, for *Azalea* only differs from *Rhododendron* in its deciduous leaves, a view now accepted by botanists, but, in speaking of them from a cultural point of view, much confusion will be saved by retaining *Azalea*, the name by which they are universally known in gardens.—*Garden and Forest*.

TREES AND SHRUBS IN ENGLISH GARDENS.

THE shrubberies which in many English gardens are at the present time in a deplorable condition and contain a mixed medley of various trees and shrubs, might well be planted with other and more beautiful things. People continue erecting glasshouses and stocking them with plants from all quarters of the globe, and spend enormous sums of money in Orchids and other things, but beyond a fleeting display in summer, the outdoor garden gets sadly neglected. We are favoured with a temperate climate, in which a great variety of beautiful things will live and fill our gardens with interest all the year round, even in winter, when there are many fine days and one can enjoy the outdoor garden if it has objects of interest. While we grant that the love of Orchids and other choice exotics has brought to our gardens many gems from abroad, still it is deplorable if, as unfortunately is the case, the love of beautiful plants from foreign lands has led to the neglect of trees and shrubs that require no shelter. Instead of the number of glasshouses, or the collection of Orchids being the main feature of any particular place, it should rather be the duty of all possessors of gardens sufficiently large to first develop the outdoor portion so far as regards the permanent planting, bestowing just as much care and thought upon it as in stocking a large Orchid house, because a choice shrub once planted out of doors, if it has found a suitable home, gives no further trouble.

There is a wealth of beautiful and hardy evergreen and flowering shrubs poorly represented in our gardens, some to be found only in nurseries, and others gone out of cultivation altogether. Had these fine things been planted in different gardens, and half the trouble taken with them that has been bestowed upon greenhouses, our outdoor gardens would then have many more features and possess double the interest.

Happily, there are a few gardens where trees and shrubs are cared for, but even then mistakes are sometimes made. It is a mistake for anyone having a garden upon the chalk to incur great expense in trying to grow plants, such as *Rhododendrons* and other things of an allied nature, which are naturally unsuited for such a soil. People go to great expense in preparing large beds of peaty soil to grow *Rhododendrons* which succeed, if at all, only for a time, as in due course the prepared material becomes exhausted, and the same labour and expense have to be incurred again, or the plants will languish and die.

Although enthusiastic persons are often very successful, that labour is most to be commended which expends itself in working upon

and developing natural resources. In some districts *Hollies* spring up in thousands on the hedge-banks and in the woods. There is no more handsome Evergreen than the *Holly*, but if one goes into a garden in a district where *Hollies* abound and expects to see this class of tree developed and the garden stocked with some of the finer kinds, disappointment is generally the result.

Of late years a great deal of attention has been given to Conifers, and it must be admitted that many of them are of pretty and neat habit, with elegant sprays of finely-cut leafage, fit ornaments for any garden, but only to a limited extent. There is a limit beyond which the planter should not go in using this kind of tree, for although they are capable of imparting quite a distinct form of tree growth to our gardens when judiciously used, yet if too freely planted—as they are in some places—they introduce sombreness and monotony, and render the whole garden dull and depressing, depriving it of variety and of the play of light and shade so enjoyable where Evergreens are carefully used among deciduous trees. Moreover, the too free use of Evergreens deprives our gardens of that beauty which is seen in the bursting of the leaf in spring, and the fall in autumn when the trees are resplendent with glowing colours. People who have travelled tell us there is nothing in foreign countries to equal the glory of an English spring when the trees are again awakening into life. Why not retain it near our dwellings? Many of our prim garden artists would drive us forth to seek it in the woods and lanes.

Nature has no lack of material; her resources are almost unlimited. There is no need for formality or sameness in different situations or on different soils, and by a careful use of suitable materials it is possible to produce pleasing and varied combinations by grouping evergreen, deciduous and flowering shrubs in such a way that we may enjoy the budding leaves in spring, the flowers of summer, the colours of autumn, and even after the leaves have fallen beauty of form in the habit of growth. Take, for instance, the *Larch*—a tree seen by thousands in woods, but rarely on a lawn, yet a more graceful and interesting tree can hardly be found, taking it all the year through.

Mr. Goldring has been doing good service in calling attention to the many old, yet beautiful trees and shrubs unknown in hundreds of English gardens, and which have almost gone out of cultivation in nurseries. Anyone who has read his articles, and has some knowledge of the condition of the average shrubbery, must have been impressed with the truth that trees and shrubs are sadly neglected. Who shall estimate the number of features that might have been found in our gardens if this department had received the attention it deserves?

A. HERRINGTON.

SHORT NOTES.—TREES AND SHRUBS.

The Kentucky Coffee tree (*Gymnocladus canadensis*).—Referring to the note on the above in *THE GARDEN*, March 17 (p. 253), in the gardens here there are several old specimens which in favourable summers ripen their seeds, by which we raise sufficient young stock to meet the demand for the Imperial gardens. We also propagate it by suckers.—*LOUIS KROPATSCHI, Laxenburg*.

Sequoia sempervirens.—In answer to Mr. Burrell in *THE GARDEN*, March 17 (p. 253), there is a fine specimen of the above in the grounds of Penjerick, Cornwall. It was planted about 30 years since, and is now 64 feet high, the spread of branches being 34 feet, and at 5 feet high the bole is 10 feet in circumference. It is growing in a sheltered valley, surrounded by many beautiful specimens of Coniferae. As an instance of the rate at which this tree grows in its

younger stages, I may state there are several young trees of this species planted four years ago that are now 24 feet high in the same grounds.—*R. GILL*.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

APRIL 10.

THERE was another bright show of flowers at the Drill Hall, Victoria, on Tuesday last, the only thing lacking to make it a success being a good attendance of visitors. But as it becomes known what really interesting gatherings do take place on these occasions, matters will perhaps improve in this respect. The hall was well filled with a miscellaneous collection of plants, including *Roses*, *Amaryllids*, *Orchids*, *Narcissi*, *alpine Primulas*, and other flowers now in season.

First-class certificates were given as under:—

BIGNONIA TWEEDIANA.—It is a pity that *Bignonias* of this character are so restricted, as there are few things that give such elegance and rich beauty to the plant house at this time of year. It was introduced from Buenos Ayres as far back as 1838, and reminds one of *B. Chamberlayni*, but is distinct in the leafage, this being exceedingly graceful. The twining stems are smothered with medium-sized flowers of the most intense yellow, so that a large specimen clothing a pillar or rafter would present a mass of colour when in bloom. It is grown at Pendell Court, Bletchingley, in a house kept at 50°. Shown by Mr. Ross, gardener to Sir G. Macleay, Bletchingley.

IRIS STYLOSA ALBA.—Several notes have appeared lately in *THE GARDEN* respecting this *Iris*, which is a form of the fragrant *I. stylosa*, and its counterpart except in colour, but the segments seem narrower. It is pure white, saving a longitudinal band of rich yellow down the lower half of the segments. It is quite hardy, and keeps sending up its frail and beautiful blooms, so that we have a succession for over six weeks. It appears to be a suitable flower for cutting and an excellent companion to the type, the two delicate colours making an exquisite contrast. From Mr. T. S. Ware, Tottenham.

ROSA POLYANTHA GRANDIFLORA.—Those who admire single *Roses* will appreciate this, which is truly single, something like, in fact, the common *Dog Rose*. A plant was shown trained as a pyramid, and for such purposes, also for climbing up poles or trellis work in the garden, it is most suitable, as the growth is vigorous. The flowers are pure white and borne freely, showing up well against the rich, shining, green leafage. The fruit is also conspicuous, so that this single *Polyantha Rose* has several good points. From Messrs. Paul and Son, Cheshunt.

CARNATION MRS. W. H. GRENFELL.—A great acquisition to the Tree varieties, as it is a good grower, very free, and carries several flowers that, as shown, are almost perfect in form; the petals broad, and the colour of a delightful self salmon-pink that we seldom see; the fragrance, though not strong, is agreeably sweet. From Mr. Charles Turner, Slough.

CARNATION PURPLE KING.—This is also a Tree variety, and in the breadth of the flower and form quite equal to the foregoing, but the colour is of the richest lake imaginable, and the fragrance is that of the old Clove, though not so powerful. It is of strong growth and very free. We want such Carnations as these that have a beautiful outline and rich self colour. From Mr. Charles Turner.

CINERARIA MARIE.—Great progress has been made during the past few years in *Cinerarias*, and this is a still further advance. The flowers are pure white, save the central tuft of purplish stamens, full, and with fine petals that make up a highly finished symmetrical bloom. The habit of the plant is compact, neat, and strong. Such white forms as this are a relief from the crimson, purple, and various shades of the same. From Mr. James, Farnham Royal, Slough.

AMARYLLIS FINETTE.—After seeing this we may

venture to hope that a pure white variety is in store for us, as this is almost white, but there is just a suspicion of green, and the upper segments are feathered with scarlet. The form of the flower is cramped, the segments wavy at the edges, and not so open and spreading as in most of the finest types of the florists' *Amaryllis*. From Messrs. J. Veitch, Chelsea.

A. RODNEY.—This is a bold, striking, and open flower, the colour bright crimson, and each of the segments has a central band of white, with mottlings of the same colour on either side. The form is almost faultless. From Messrs. Veitch.

A. MISS ROBERTS.—This shows a distinct colour, the ground white, with just a slight tinge of green, deepening in the centre, and overlaid with closely netted veins of rich scarlet. The flower is open, the segments firm and spreading, and the form exceedingly good. The curious mottling of colour renders it very distinct. From Messrs. Veitch.

A. CONQUEROR.—This justifies its name, as it seems to be the latest triumph in the way of *Amaryllids*. The plant carried three blooms on the scape, each flower measuring fully 8 inches across, neither rough nor ungainly, but of exquisite symmetry. The rich bright crimson colour, relieved only by a greenish white centre, gives it a brilliancy particularly striking. From Messrs. Veitch.

A. EMPEROR FREDERICK.—A very robust variety with broad foliage, the sturdy scape carrying four fully expanded flowers. These have all the good qualities of a first-class *Amaryllis*, the colour scarlet, with a whitish longitudinal central band down the lower half of the segments. From Mr. B. S. Williams, Upper Holloway.

CORYLINE AUSTRALIS VARIEGATA.—A variegated form of a well-known greenhouse and almost hardy plant. It has narrow leaves, variegated with yellowish green and white. For decoration it seems most useful. From Mr. B. S. Williams.

SELAGINELLA CUSPIDATA CRISPA.—A beautiful *Selaginella*, dwarf and Moss-like, the stems rising a few inches, and the pinnæ dense, crisp, rich full green, and extremely pretty. Its tufted character and beauty will undoubtedly make it popular with those who appreciate *Selaginellas*. From Mr. B. S. Williams.

There were several miscellaneous groups from the leading nurserymen, all containing interesting exhibits. Mr. B. S. Williams, of Holloway, had *Amaryllids* of various kinds; also *Orchids* and other things, including the brilliant yellow *Oncidium concolor*, the rare *Cypripedium Io*, and *Dendrobium Smilliae*, more curious than beautiful, the greenish flowers being borne in a cluster at the apex of the thickened pseudo-bulbs. There was a fine specimen of the lovely *Adiantum athiopium* var. *elata*, and also the bright *Oncidium sarcodes*, *Ochna multiflora*, and *Amaryllis Empress of India*, a very robust variety, one plant bearing two scapes, each with four richly-coloured flowers. *Camellia reticulata* was noticeable for the lovely shining rose tint of the flowers. It is far too seldom seen. A silver medal was awarded; and also to Messrs. Paul and Son, the Old Nurseries, Cheshunt, for a group of *Amaryllis* and *Roses*. Amongst the latter, especially good were the double rich pink-rose-flowered *microphylla rubra plena*; *clynophylla plena*, white, lightly touched with pink; and *Mme. Joseph Desbois*, large, pinky white. *Roses* were also shown by Messrs. Lane and Sons, Berkhamstead, including such varieties as the useful *Ulrich Brunner* that was shown so well last year; it is a full, handsome, and brightly coloured crimson *Rose*; *Mme. Marie Verdier*, large, full, rich pink; *Mme. Lacharme*, delicately tinted with rose; *Mme. Le Joigneaux*, fine rose-pink; *Duchesse de Vallombrosa*, full, fine petals, and excellent form, the colour almost white, but with centre of a flesh-pink; *Baron de Bonstetten*, crimson, and several of the *Polyantha* section, such as *Ma Paquerette* and *Mignonette*; a silver medal was given. A like reward went to Mr. J. James, Farnham Royal, Slough, who showed plants of his excellent strain, the whole of the specimens being well grown and with dense heads of bloom. The flowers show what a marked improve-

ment has taken place in the *Cineraria*; they were of first-class quality, the colours brilliant and diversified, ranging from the clearest white to the richest crimson; one great point about the specimens is their dwarf, neat, and compact habit. Seedling *Cyclamens*, all of deep crimson colour, also came from the same exhibitor. *Empress* is a variety of dwarf habit and the flowers are sturdy and rich; silver medal awarded. Mr. J. Roberts, gardener to Baron Rothschild, Gunnersbury Park, had a similar award, showing half-a-dozen model specimens of *Rhododendron Lady Mary Fitzwilliam*, a most chaste flower, bell-shaped, clear white and fragrant. The plants were one mass of bloom, and these with *Epacris* and *Cyclamens*, which are especially well grown at Gunnersbury Park, made a pretty group. A bronze medal went to Mr. W. Clay, Grove Road, Kingston, for a group of *Cyclamens*, the plants well grown and densely flowered.

DAFFODILS, as usual, made a great show of yellow, as three large banks were put up. Mr. T. S. Ware had a well-arranged display, and such *Daffodils* as the Tenby variety, the noble bicolor *Horsfieldi*, the best and most useful of all the trumpet section; *N. lobularis*, and a splendid form of *Emperor* were worth a note. There was also a pan of the beautiful *Trillium grandiflorum*, the pure white flowers having a peculiar charm as seen in the setting of green leaves; and plants of *Puschkinia libanotica compacta*, a bright spring flower of a bluish colour. Messrs. Barr and Son, of Covent Garden, had *Crocuses* of various kinds, *Snowflakes*, *Freessias*, *Chionodoxas*, and *Daffodils*, amongst which we singled out *Colleen Bawn*, half pendent, pale sulphur in colour; *Dean Herbert*, a variety of the trumpet section, the chalice of very rich colour; *pallidus præcox*, *Minnie Warren*, of the same character as *Colleen Bawn*, creamy white in colour; and the large rich yellow *Hoop-petticoat* *Narciss* as noticeable. Messrs. Collins Bros. and Gabriel, Waterloo Road, exhibited bunches of the Tenby *Daffodil*, *pallidus præcox*, *spurius*, the pure white poeticus ornatus, the diminutive *nanus*, *princeps*, *cernuus*, and the double yellow *Telamonius plenus*; cut bunches of *Anemone fulgens*, the Greek form, and *multipetala* made a glow of scarlet. In all three cases silver medals were given.

ORCHIDS were not numerous, but an exceedingly interesting group of *Odontoglossums* was put up by Mr. H. M. Pollett, Fernside, Bickley. There were specimens of *O. Andersonianum*, delicate yellow, spotted with crimson; and a variety named *lobatum*, clearer in colour and smaller, the raceme also being denser. The varieties of *O. crispum* were good, one strong raceme carrying large flowers, suffused with rose; and *fastuosum*, rich rose suffusion, the lip white, spotted with crimson on the front. *O. Wilkeanum* was represented by a well-flowered specimen with several racemes; the flowers were blotched and bordered with brown on an orange-yellow ground. A good form of *O. Sanderianum* was shown; also a species of *Odontoglossum*, the flower large, creamy white; the crest yellow, and spotted with crimson; *O. prænitens*, small, richly blotched with brown, the sepals, petals, and lip being tipped with yellow; and *O. Ruckerianum*. Mr. F. G. Tautz, Studley House, Shepherd's Bush, sent *Cypripedium Mastersianum*, a distinct form, the flower scarcely beautiful, but interesting; it has a polished appearance, and the dorsal sepal is very short, thick, and rich green, with broad yellowish margin; both petals and lip are of brownish colour. *Cattleya Bluntii*, the white *Mendeli*, was shown by Mr. Ballantine, gardener to Baron Schröder, The Dell, Egham; the plant bore a spike of four flowers, these being of chaste character, pure white, save the pink tinge on the front of the fringed lip, and the yellow pencilling within the throat. It is a beautiful flower. Mr. W. Kirk, gardener to Lady Selborne, Blackmoor, Petersfield, exhibited cut pseudo-bulbs crowded with flowers of the old but useful *Dendrobium nobile*; and a good form of *Odontoglossum vexillarium*, named *Fredericki*, came from Mr. W. Cobb, Sydenham. The flowers were very bright rose-purple in colour, veined with a deeper shade; a useful, free-flowering, and effective form.

The group of plants from the Royal Gardens,

Kew, comprised principally alpine *Primulas*, the most noticeable being *Primula Facchini*, rich lilac-purple flowers; *P. Portenschlagiana*, of a similar character to the last; *P. Clusiana*, a lovely species; *P. pubescens alba*, formerly called *nivalis*, snow-white; and the type. A delightful variety is *P. marginata cærulea*, the flowers pure sky blue, brighter and more plentiful than in the parent. Other notable things were the delicately coloured *Mackaya bella*, *Cineraria cruenta*, a weedy-looking plant, the flowers small and lilac; *Narcissus triandrus* and the white form, *N. rupicola*, in the way of *N. juncifolius*, very sweet, and several cut flowers of *Rhododendrons*, such as *Falconeri*, sulphur-yellow; *grande roseum*, fine red; *cinnamomum*, pure white; and *Campbelli*, bright rose.

A group of Ferns, representing several species and varieties, was put up by Mr. H. B. May, Upper Edmonton. There were good specimens of *Adiantum Reginae*, which is of the *A. Victoriae* character, and *A. Collisi*, the young fronds being of a showy dull brownish colour. *Cheilanthes hirta Ellisi* has graceful fronds of delicate colour, and the several forms of *Pteris tremula* show how much this Fern varies; *caudata*, *flaccida*, and *straminea* were the best. *Pteris Mayi* is useful for its bright variegation. Plants of *Mignonette* from the same exhibitor were full of flower and capital market stuff; the variety has dense spikes of strong fragrance. A bronze medal was given.

Messrs. Veitch, of Chelsea, had several pot plants that had been forced of *Chionanthus virginica*, smothered with the fringe-like creamy-white flowers; they had been grafted on stout stocks, and are most useful for indoor work at this season. It is an old plant, and does not, as a rule, bloom well in the open. *Spiræa confusa* was shown, the plant covered with the white *Lantana*-like flower-heads. It is a charming shrub. Cut flowers of *Iris reticulata*, the variety *Krelagei*, and *Narcissus nanus*, minor, &c., were also exhibited.

Other miscellaneous contributions were the following: *Boronia megastigma major*, from Messrs. Hugh Low, of Clapton; it has larger flowers, but less attractive and duller coloured than in the type. *B. m. floribunda* is very free, the flowers crimson and pretty. Parker's *Mignonette*, from Messrs. Parker and Sons, Bristol, is evidently a strong grower, but coarse. *Primula Allioni*, figured in THE GARDEN for January 21, 1888 (p. 53), was sent by Messrs. J. Backhouse and Son, of York; and also *Alyssum pyrenaicum*, a neat little alpine, the white flowers almost hiding the leafage. Cut flowers of the showy *Brownea coccinea* were shown by Mr. F. Ross, The Gardens, Pendell Court, Bletchingley. It is freer, more useful, and not so coarse as *B. grandiceps*; the colour is brilliant crimson. Mr. P. Davidson, The Gardens, Iwerne Minster, Blandford, showed flower-heads of *Clivia*, raised from seeds gathered in South Africa; the variety is an exceedingly robust one. *Auricula Raven's-wing*, rich, deep maroon-purple, with pale, whitish yellow paste, and several seedlings, were sent by Mr. Roupell, Harvey Lodge, Roupell Park. A very late *Chrysanthemum*, named *Beauty of Lympne*, came from Mr. T. Bunyard, Ashford; it is of good colour, but devoid of form.

General Meeting.

This was held in the new offices of the society at 111, Victoria Street, on Tuesday last, Sir Trevor Lawrence occupying the chair. The object of the meeting was to consider the new bye-laws prepared by the sub-committee of the council and Fellows, so that admission might be given to guinea Fellows and associates. Other alterations were also to be made. There were, however, difficulties in the way, as it was necessary for the new bye-laws to go through the lawyers' hands for revision and comparison with the conditions of the charter. Only that portion that had been passed by the lawyers was taken, and the resolution to the effect that the new bye-laws be adopted to the end of Chapter IV. was carried. It was mentioned that an exhibition, to be held in the Temple Gardens on May 17 next, was being arranged for. And it

was intimated that a show of flowers might be held at the Corn Exchange at the end of September, with another exhibition of Chrysanthemums and fruit at Chiswick in November. It will be seen from this that the Society is making a spirited move, which we hope will help to place it on firmer and safer ground.

Narcissus committee, R. H. S.—A meeting of the committee was held in the Drill Hall, James Street, on Tuesday. The name of the variety registered as Golden Prince was altered to Golden Plover by request. Professor Foster showed *N. calathinus* from Brest and from Spain, drawing attention to the spathe of each; also *Tazetta nobilissimus* and *Telamonius plenus* (as far as could be judged) collected in Asia. A number of selected forms of pseudo were sent or brought from several sources, some claiming to be as early as *obvallaris*. They were deferred in order to be tested at Kew. Other varieties received were considered and reported on. It was stated in the account of the last meeting that *N. minor citrinus* was found to be identical with *pallidus præcox*; this was a mistake, for although the two were thought by some of those present to be very much alike, the question of determining the name was postponed until after those blooms of each should have been examined which are growing side by side at Kew.—C. R. SCRASE-DICKINS, *Hon. Sec.*

United Horticultural Benefit and Provident Society.—The quarterly meeting of the above society was held on Monday evening last, April 9, at the Caledonian Hotel, Robert Street, Adelphi Terrace, Mr. E. Berry in the chair. The committee are glad to say that the number of members still continues to increase, 24 new members having been elected during the quarter, making a total of 250 benefit members and 30 honorary members, including 2 life members. The committee earnestly hope that many more gardeners and persons connected with horticulture generally will avail themselves of the opportunity of joining this excellent society. A copy of the rules will be sent to any address for six stamps on application to the secretary, Mr. Collins, 5, Martinhoe Terrace, Martindale Road, Balham, S.W.

NOTES OF THE WEEK.

Early Peaches.—Considering the season, it was interesting to see in the market during the week some excellent early Peaches grown by Mr. King, of Devizes. They were at Messrs. Webber's.

Daffodils from Cork.—We have received a gathering of Daffodils of various kinds from Mr. Hartland, of Cork; also blooms of Hale's Silver and Gold Narcissus, a perfectly double variety, but far less beautiful than any of the single forms. Double Narcissus are coarse and rough.

Aerides rubrum.—A very fine form of this plant is now flowering in the collection of Mr. Measures at Camberwell, bearing two erect spikes of bloom, the colour of the flowers being the same as that of the Moulmein variety of *Saccolabium ampullaceum*. It thrives well here under cool treatment.

Early Strawberries.—The finest fruit of *Vicomtesse Hélicart de Thury* ever seen in Covent Garden at this season were in Messrs. Webber's in the Central Row, Covent Garden, this week. Thirty-six fruits weighed 18½ ozs. They were grown by Mr. Allen, of Gunton Park Gardens, and were perfect in colour and form.

Ghent Exhibition.—We learn that the London, Chatham, and Dover Railway Company will issue special cheap circular tickets, available for twenty days, for the Ghent Show from London via Dover, Ostend, Ghent, Brussels, and Rotterdam to Haarlem, returning via Flushing, Queenboro' to London, at £3 18s. first class, and £2 15s. second class. Return fares London to Ghent and back, via Ostend, first class, £2 14s. 3d; second class, £1 19s. 9d.

Thunbergia (Meyenia) Vogeliana, a very beautiful stove shrub in flower at Kew, is a good deal like the older and better-known *Meyenia erecta*, except that its flowers are larger. They are funnel-shaped, the tube or throat being of a bright orange, while the rest of the flower is of the richest and brightest purple. The Kew specimen has but few flowers, but it may be as free-flowering as *M. erecta*,

and if so it is a valuable ornamental plant. It comes from Fernando Po, a small island off the west coast of Africa, while *M. erecta* grows wild on the mainland opposite.—W. G.

Narcissus minor citrinus.—With reference to what has been said in THE GARDEN, April 7 (p. 327), as regards the identity of this Daffodil with *pallidus præcox*, I must, in justice to the owner, enter my protest against the judgment. I do not possess the bulb, but I have seen both its flower and foliage, and there is not a shadow of similitude. The Daffodil belongs to the *nanus* section, and I do not think we shall find it in *pallidus præcox*. It was also hinted last year that Little Nell was to be found in *pallidus præcox*. When this occurs the finder shall have a white elephant.—W. B. HARTLAND, *Temple Hill, Cork*.

The Pigeon's-beak Lotus (L. peliorhynchus) is a singularly beautiful basket plant, being at once showy and quite different from ordinary greenhouse flowers. The whole plant has a silvery grey appearance, and the shoots being very slender and drooping and the leaves small and narrow, its growth is most elegant. The flowers, curious in shape, being pointed and curved like lobsters' claws, are of a brilliant orange-scarlet, hang thickly on the drooping shoots on all sides of the basket, and last in beauty for several weeks. As it is a comparatively new plant, it is not much known as yet, but as soon as nursermen grow and exhibit it, it will become popular. It comes from the island of Tenerife, and may be seen very fine just now in the greenhouse at Kew.

Angræcum Sandarianum.—This plant, which is a great acquisition to the collections of all lovers of Orchids, is at present flowering in the collection of Mr. J. Charlton Parr. The plant is bearing a raceme of sixteen flowers, each of which measures 1½ inches in diameter. The flowers are pure white, the spur also being white and about 3 inches long; ovary a delicate brown colour. The flowers have a sweet Jasmine-like scent, which is very powerful during the evening. It promises to be of robust growth and a free-flowering variety. In the same house *Angræcum sesquipedale majus* and *A. articulatum* are in flower, the latter bearing about fifty of its pure white flowers on one plant, the former seven, each of which measures several inches in diameter.—C. J. CATT.

The Dean of Rochester.—In consequence of your kindly notice of the proposal of the South Notts Horticultural Society to present an address of congratulation to Dean Hole, and acting also upon the representations of other gardening friends, the committee have now decided "to widen the area referred to in their circular, so as to include any and all of the Dean's horticultural admirers who may be willing to co-operate with them." We adhere to our original idea, namely, to present a handsomely illuminated address, together with the names of the subscribers, enclosed in a casket, carved by a Nottinghamshire man out of a piece of Oak from Sherwood Forest, which has been given for the purpose by Earl Manvers. But we shall be very pleased to supplement the gift with something in addition if sufficient subscribers come forward to enable us to do so. Subscriptions (not to exceed 10s.) towards the object should be forwarded to Mr. E. M. Hutton-Riddell, The Bank, Newark. Messrs. R. Tudsbury and Sons, of Edwinstowe, have given us a very excellent design for the casket, with an engraving of which I hope you will be able to present your readers before many weeks are past.—F. H. APPLEBY, *Barnbygate House, Newark*.

Lethorion.—I have given this new insecticide a fair trial in the Peach, Cucumber, Melon, and plant houses here, and can speak of it in the highest terms, fully carrying out in fact the many qualities set forth by the inventors. It is sure and sudden death to all kinds of fly and thrips without causing the slightest injury to even the tenderest fronds of a Maiden-hair Fern. I look on these vapour cones as a boon to gardeners, particularly for smoking pits and frames. Ladies will be able to smoke their own greenhouses—in fact, a child of six can light them without any danger. They should be lit with a taper, and care should be taken to have every aperture in the house or

frame thoroughly stopped. Should it be possible for the inventors (Messrs. Corry, Soper, Fowler and Co.) to send it out at a lower price, I have no hesitation in saying that Lethorion would be immensely popular at no distant date.—W. G. PRAGNELL, *The Gardens, Sherborne Castle*.

Eucharis bulbs diseased.—I enclose you some bulbs of the *Eucharis* and shall be glad to know if they are infested with the mite.—W. S.

*** The bulb forwarded was certainly attacked by the *Eucharis* bulb mite (*Rhizoglyphus echinopus*), a dreadful pest when it gets among bulbs, and very difficult to eradicate. Sulphide of potassium (3 oz. dissolved in half a pint of water) is said to kill them if the bulbs be dipped in it; the operation should be performed twice, with an interval of a week, as it probably would not injure the eggs. Washing the bulbs in paraffin oil, and when repotted covering the soil with about an inch in depth of soot and watering it well in, is also said to be a perfect cure.—G. S. S.

THE COPYRIGHT OF FRUITS.

THIS has attracted the attention of the *American Horticultural and Art Journal*. I hope your readers will appreciate the calm and temperate remarks of the editor, which contrast strongly with those of some of your English correspondents, who appear to think that the question is advanced in the interests of nurserymen and traders, an assumption wholly gratuitous and absurd. I annex an extract from the article.—T. FRANCIS RIVERS.

We insert the above from THE GARDEN for the purpose of calling attention to what should prove of value to orchardists in this country—two early ripening Plums, and to the pertinent remarks of the writer regarding what has been, and still is, a vexed question with those engaged in originating and introducing new fruits.

Every fair-minded man will admit that he who spends years of his life, and much of his means, in originating an improved variety of fruit for the benefit of others should in some way be justly compensated.

Yet this is seldom the case, and someone who is "smarter" in gathering to himself the dollars that are spent for such chances, and knows little of the toil and expense incurred, and does not have the brains to produce it in the first place, reaps the reward that should have gone to the producer.

To our mind this is all wrong—yet we are unable to suggest a remedy. It may be possible to patent or trade-mark a name, and in many cases there is "something in a name." Yet this would not prevent unscrupulous parties from taking to themselves the benefits that should belong to others.—*Horticultural and Art Journal, Rochester, New York*.

The death of Mr. John Hollingworth, of Turkey Court, Maidstone, occurred recently at the age of 82. He took the greatest interest in horticulture, and was actively associated with the Horticultural Society of Maidstone. There are few men who loved Roses more ardently, and his success as an exhibitor is well known. Many wreaths of his favourite flower were sent; indeed, it may be said he was buried in Roses.

BOOKS RECEIVED.

"Successful Bee-keeping." By an Old Bee-keeper. The British Bee-keepers' Stores: Fenchurch St., E.C.

Hand-book of the Naval and Military Bazaar in aid of the establishment and maintenance of soldiers' and sailors' homes in various naval and military stations at home and abroad. London: T. Woolmer, 2, Castle Street, City Road.

Table decoration.—In answer to a "Young Gardener," a book on the above by W. Low is published by Messrs. Chapman and Hall (Limited), London.

Tuberose not flowering (J. E. M.).—We cannot give any advice unless you let us know your treatment of the bulbs.

Names of plants.—*John D. Nauscauwen*.—Rose Fortune's Yellow.—*W. Spencer*.—*Akebia quinata*.—*A. B. Limerick*.—The fungus is the Edible Morel (*Morchella esculenta*). It is a very early example; the fungus seldom appears in England before May.—*R. A., West Derby*.—*Dendrobium barbatulum*.

Names of fruit.—*Mr. Bazendale*.—Next week.

WOODS & FORESTS.

FORESTRY.

I AM glad to see "Caledonicus" appreciates my remarks on pruning forest trees, and I also attach much value to his pithy remarks regarding the distance at which different species of forest trees should be planted to enable them to prune themselves most effectually, and thus promote the yield of the largest quantity of the finest timber in the shortest space of time. This is certainly very desirable, but the great barrier in giving definite instructions on this head is the capabilities of the different classes of soils, exposure, climate of the locality, and elevation above sea level. The distance apart at which forest trees of some species may be planted in order to prune themselves most effectually might prove quite efficient on some soils and situations at an elevation of say 300 feet above sea level; while in some other cases where the texture of soil was a little different as well as the exposure of the locality, failure would result. This explains in a great measure why a fixed rule applied in all cases alike might prove very misleading and do much harm. I may, however, state that in planting Heather ground with Larch, Scotch Fir, and Spruce, where heavy timber is not the object in view, they may be planted at a distance apart of about 6 feet and allowed to grow without thinning or pruning, except cutting off any rival leaders which may appear. This should always be done before the trees attain a large size. On the other hand, when planting ground on exposed situations at high elevations, the same class of trees should be planted at a distance apart of from 3 feet to 4 feet, and then thinned out to allow space for their proper development. The reason for planting the trees thickly on bare, exposed places is to obtain early shelter, as it is found that trees thrive and grow more quickly by this mode of treatment on exposed situations than when they are planted at a wider distance apart. It, therefore, follows that the planter must be guided in a great measure by local circumstances as regards thinning, and in order that his trees may effectually prune themselves, as no hard-and-fast rule can be laid down to meet the requirements of all cases alike.

Hard-wooded trees growing upon good soil and favourable situations at a distance apart of 10 feet or 12 feet, or, in round numbers, at the rate of 300 trees per acre, prune themselves in a very efficient manner. I have cut some fine, clean-grown Elm, Oak, and Beech of good size planted at the above distance apart. It is, however, but fair to state that a number of other trees, such as Ash, Alder, Larch, &c., were grown along with the above as nurses. All the nurses were cut out and turned to account before they had attained a large size, thus leaving space for the proper development of the principal trees. This is a very safe system of tree culture, as the nurses can be cut out and sold to advantage at an early stage of their growth, and the proprietor has not so long to wait until he gets something in the shape of rent for his land and to cover the expense incurred in the formation of the plantation. A good deal has been said and suggested of late about doing away with the mixed system of planting altogether and adopting that of grouping; or, in other words, planting each species of tree in blocks by itself upon the class of soil found to be most suitable to its growth and healthy development. This system can be carried out in some cases and under certain conditions with advantage, while in others it is defective in so far that it will not give the quickest and best return to the owner.

As this is a matter of much importance, the planter had better give the subject his careful consideration at the time of planting. In illustration of this I may give an example of a plantation where the soil consists of clayey loam resting upon a clay subsoil, and which was capable of producing a good crop of Oak or Scotch Fir. Instead of planting the ground entirely with either of these species, Oak was used for the principal crop at a distance apart of about 15 feet, and the ground filled up with a mixture of Larch and Scotch Fir planted about 3 feet apart. Although the ground in this case was incapable of producing a healthy crop of Larch of a large size, yet it grew well for a number of years, and attained a useful size, and proved to be very remunerative at all stages of its growth from the time of the first thinning and onwards till the trees had all to be removed to allow proper space for the Oak. When the plantation was thinned for the first time the price realised for the Scotch Fir was at the rate of 9d. per dozen, while the Larch cut at the same time fetched 1s. 6d. per dozen, and the same difference in value was maintained throughout until the final thinning. Here, then, is a clear illustration of the advantages of the mixed system of planting, and had the whole of the trees used for nurses consisted of Larch, the profit would have been still further augmented. No pruning, with the exception of the removal of rival leaders, was necessary. This plantation began to give a return after from eight to ten years' growth, but had the trees consisted of Oak entirely, the proprietor would not have received a penny in the shape of return until the trees had been growing for about twenty years. The Oak is rather a slow-growing tree as compared with some other species, and in many parts of the country there is very little demand for thinnings of a small size, so that I have found it rather a drug in the market until it attained a size suitable for pit wood, when it then realised 8s. per ton. Clean grown butt ends, free of knots and of such a size as could be split up for spokes, I have sold at an average price of about 12s. 6d. per ton. Of course the bark is worth something, but in removing the bark from small stuff it incurs a deal of labour and expense per ton, a correct estimate of which can hardly be given, as much depends upon the weather and local circumstances. Although the Oak is a hardy tree, yet its growth in early life is greatly accelerated by shelter, which is another strong inducement to use nurses, more especially on cold, exposed situations.

J. B. WEBSTER.

Larch on thin soils.—A most important fact, as regards rural economy, has arisen from planting Larch trees on rocky ground. The vegetable compost found thereon by the falling of the leaves has been the cause of producing herbage for feeding, and making the land worth from 12s. to 14s. per annum, which was not formerly worth more than 8d. or 9d. The tree is not particular as to soil, but the roots must be in a deep and porous soil, which has been cleansed by the free passage of water through it, and which has, at the same time, the benefit of being constantly kept clean and in a wholesome state by a good fall for the water that may fall upon it. Larch will not thrive on thin lands, nor on those having a retentive subsoil. Much of the disease in our Larch plantations, says Dr. Brown, has been occasioned by imperfect drainage.

Evils of thick planting.—If we wish trees to be firmly rooted we must allow the branches to spread freely. When they are so planted that the branches and leaves of contiguous trees do not interfere with each other, and thus all parts are exposed to air and light equally, the roots spread

vigorously and extensively, so as to fix the plants in the soil, and to draw up copious supplies of nourishment. But in crowded plantations, where the branches are not allowed freedom of growth and exposure, the leaf-buds are either arrested or feebly developed, the roots do not spread, and the trees are liable to be blown over by the wind.

PRUNING FOREST TREES.

MR. J. B. WEBSTER, in THE GARDEN, Feb. 25 (p. 182), still adheres to his old theory on this subject. I have often, since reading these remarks, wished that Mr. W. could have gone with me over some of the estates I have had occasion to visit. A few minutes' demonstration would be worth a column of argument, as the evils of the system of lopping which has obtained such a hold with some are so plain, that those who run may read. I speak of the Elm in particular—though the same thing applies to other trees—as the Elm is more common with us than any other field tree. Prevalent as the practice is in some districts, I have never heard it defended or advocated, except by Mr. Webster and a few others who hold similar views. In this and adjoining counties it is resorted to rather as a necessary evil for the sake of the crops underneath than as a system of timber culture. All parties concerned well know that serious damage to the wood is sure to follow. Even auctioneers take care to describe unutilised timber as "park like," or by some such familiar phrase, which they know will convey the impression to the trade that the trees are especially good, and that they have not been "pruned." If "pruning" was conducive to the production of good timber, we should see "a valuable lot of carefully pruned timber" on the next batch of catalogues which come from the press; but the fact is just the reverse, as any reference to such manipulation is studiously avoided. The reason why is clear enough if the subject is given a moment's thought.

Trees, when allowed to grow on naturally, throw out a certain number of large branches; from these again smaller ones spring, and from these again the smaller twigs, the outcome being a perfect tree in the landscape, and also one which can, in working up for use, be dealt with with complete confidence. What I mean is this: A tree in its natural growth divides itself into well-marked parts, *i.e.*, the butt portion as far as the first large branch, grows perfectly clear of knots, but, owing to the diversion of growth, generally falls off so much in size, that for purposes of economical cutting up—uniform size in the respective lengths being a great consideration—it must be cross-cut at this point. The same thing holds good of the next portion, which springs from the junction of the first large branch or branches to where another large branch is thrown off, or to the crown of the tree, *i.e.*, where all the branches radiate, and the main stem consequently terminates. What is true of this part of the tree is again true of the large branches themselves, so that we get a naturally grown tree cross-cut at each distinct division of its growth, with the general result that each portion is free from knots, and therefore of the best quality, the purposes for which it can be manufactured being so varied that, despite the uneven lengths, all can be turned to good account. The picture of a tree which has been "pruned"—scientifically or otherwise, as science wrongly applied is as bad as profound ignorance—will be altogether different. In this case the axe and the saw have been carefully kept employed; every appearance of a side branch has been the sign for renewed industry. After years of this work a "beautiful" symmetrical tree is obtained; but at what cost? Simply that of taking at least twenty-five per cent. off the value of the timber, as the whole stem is so full of knots, that it is impossible to tell where they are or where they are not, which means that the wood can only be used for the commonest purposes. I do not draw upon imagination for this, as it is a plain every-day fact, and one which, properly understood, would set at rest all advocacy of such a fatal mistake as trying to improve the growth of our timber by the use of axe and saw.

D. J. YEO.

Lyneham, Wilts.

No. 857. SATURDAY, April 21, 1888. Vol. XXXIII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

FRUIT GARDEN.

W. COLEMAN.

HYBRID CRABS.

WRITING up the Crab at a time when the editor of THE GARDEN is devoting much valuable space to a long correspondence on the reduction of our fat lists of Apples and Pears may appear a step in the wrong direction, but this I shall endeavour to show is not the case. No one would think of pitting the best Crab in or out of cultivation against a moderately good Apple, as the child would certainly beat the parent; but for all that, exclusive of its comparatively small value for cooking and preserving purposes, which by the way is not so trifling as many imagine, the Crab in its original form is worthy of our consideration. Indeed, all observant admirers of our sylvan scenery will bear witness to my statement that few flowering deciduous trees produce a more striking effect in April and May, especially when fine old specimens, many of them centenarians, are found growing on the ferrugineous and old red sandstone soils which give so much warmth and colour to their flowers. From the landscape planter's and painter's point of view, then, these trees are worthy of preservation; but it is not so much of these indigenous subjects as of the imported species and hybrids that I wish to say a few words.

The first, I believe, which found its way into this country, according to Loudon, was the Siberian Crab (*Pyrus baccata*) in 1758, sometimes called the Cherry Apple, or scarlet S. Crab. Then came the Tartarian, or yellow-fruited Crab, quite as hardy and almost as ornamental when in flower and fruit, but not so well known, and it is from these that the several forms now in cultivation have been raised.

Our friends in America are, I believe, far in advance of us in the hybridisation and cultivation of Crabs, and this is not surprising, as the intense hardiness of the Siberian so well fits it for their climate. In this country, too, the hybridist has been at work, and although it may not be generally known, there are now some most beautiful examples, the result of the fertilisation of the flowers of the Siberian and Tartarian Crabs with the pollen of some of our brightest-coloured Apples. Indeed, so beautiful are some of these, especially the Devonshire Quarrenden hybrids, raised by Mr. Philip Fry, of Addington Park, Maidstone, that Dr. Bull in the 7th part of the "Herefordshire Pomona" devoted a plate specially to their illustration. If any reader having the work at hand will refer to plate 75, he will find first, the Siberian, second, the Tartarian, beautifully figured. Then follow the Supreme and the Crimson, the latter a most charming fruit, worthy of a place on any lawn or in any shrubbery. Next, a size or two larger, we find the American and the Purple, and last, but not least beautiful, the Transparent and the Quarrenden hybrids. The trees take the form of the Quarrenden in growth, and the fruit has a mixed flavour by no means unpleasant; moreover, being extremely ornamental in the spring and autumn, they are well adapted for the lawn and shrubbery or for brightening up groups of Conifers.

The fruit of almost all the varieties when

eaten fresh from the trees has a peculiar acidulated flavour, which renders it very refreshing during the hot weather, and the juice or pulp when preserved as a conserve, cheese, or jelly, makes a rich and delicious sweetmeat, retaining the peculiar flavour so much esteemed by many, and in this form, like the Quince and the Medlar, it is of great value to the housekeeper for the dessert. When simply boiled in a paste Crabs make a pudding of delicious aroma and taste, while a refreshing drink for the sick-room may be made by pouring boiling water over the cooked and broken fruit and allowing it to cool.

NOTES ON LATE PEARS.

THAT many of our late Pears cannot be grown to perfection on east or west walls where we invariably find them, I have proved over and over again, especially so in the case of such varieties as Beurré Rance, Bergamotte d'Esperen, Doyenné du Comice, Easter Beurré, and others. Could I have shown you the magnificent fruits of Louise Bonne of Jersey grown on a south aspect compared with those on an east wall, I have no doubt that you would have placed this variety next to Marie Louise on your list. Its near neighbour, Doyenné du Comice, deserves all that has been said for it, and no better Pear can be grown for its season. But Louise Bonne produces six fruits to one of Doyenné du Comice. I have yet to learn why Bergamotte d'Esperen should not be put equal to Doyenné du Comice, for here, in a south aspect, it is equally productive, quite as good in flavour, though not quite so large, and a little later in ripening. Some time since I came to the conclusion that if we want really good late Pears, we must give the trees high south walls, all of which, as a rule, are too low, 14 feet or 16 feet being none too high, but where do we find the Pear occupying a south aspect? The Peach has the coveted position and worthily deserves it, no doubt, in many instances. But would it not be of greater advantage to plant on the south wall the good late Pears instead of the Peach? If south walls were covered with winter Pears, we may then reasonably expect to be in a position to discuss the merits of the many varieties we have often heard of, but never seen. Whatever the merits of a table Apple may be, they can never equal those of the Pear, which from November to March is highly appreciated by all in preference even to the Grape.

WINTER NELIS PEAR.—A word as to this Pear which has obtained such a high position in your list. Unfortunately, I have not grown this on a south aspect, and as a pyramid it is very unsatisfactory, but a vigorous tree on an east wall produces a quantity of small fruit, while a very old tree on a west aspect bears remarkably well. I thin the fruit, yet I only get small-sized specimens. I consider Winter Nelis most valuable, as it comes into use late in the season.

Hardwick Grange, Shrewsbury. J. TAYLOR.

Soils for Pears.—I see Mr. Rose adds clay and Vine-border soil to his trees. Assuming that the natural soil is heavy, one would gather that Williams' Bon Chrétien requires a clayey loam to bring it to perfection. Our soil here rests on chalk, and is consequently heavy and cold, but we get only about 50 per cent. of spotted fruit. A neighbour close by grows this Pear successfully in warm, sandy loam. I am convinced that soils ought to have a great deal more attention amongst Pear growers than they have hitherto had, as I believe quality as well as quantity is dependent a great deal not only on what stock, but in what medium the trees are growing. For instance, a Pear that requires a warm, porous soil in the open would require when

under a wall a more retentive medium, as the conditions are so very different, especially if on a south wall.—R. POTTER, *Sevenoaks*.

PEACH CULTURE IN COLD GREENHOUSE.

WOULD you kindly inform me if Peach growing could successfully be carried on in a cold span-roofed greenhouse, 16 feet by 12 feet, and 12 feet high in centre? If so, what arrangement would be best? How many trees would it take? How many dozen of fruit would such a house produce when in full bearing? For any information I should be much obliged. I am successful in growing Peaches out of doors, but know nothing about house arrangements. Whether they ought to be on wires, or trees in pots, how far apart, and of general arrangement in a house, I know nothing.—A. D.

** Peaches of the finest quality can be grown in a house of this description, that is, provided the temperature does not exceed a mean of 45° throughout the winter, and a free circulation of air is maintained when the trees are in flower. Trees in pots will give the greatest variety of fruit, but they will require much skill and attention with regard to watering and manipulation; therefore, fine fruit being the main object, planting out in a good border and training to a wire trellis will best answer the purpose, especially as "A. D." does not profess to understand house culture. As it is now too late to think of planting this spring, the trellis may be constructed by straining the wires horizontally, 9 inches apart and 14 inches from the glass, at any convenient time before the middle of October. If the greenhouse is built with upright sidelights—which, by the way, should open outward—this portion as well as the roof must be wired also, otherwise much valuable space will be lost; and if galvanised wire is used, two coats of paint will be necessary for the prevention of injury to the young wood by contact with the metal. Ventilation and trellis being satisfactory, arrangements, if possible, should be made for having outside in preference to inside borders, as the ordinary rainfall will be beneficial and labour will be saved. One of the cardinal points in successful culture is an abundance of water to the roots, which should be well drained, but never dry. A span-roofed house, 16 feet by 12 feet, will give two trellises 16 feet in length and about 8 feet in depth, exclusive of the vertical portions along the sides, of which I cannot speak, as "A. D." does not furnish the height to the eaves. Notwithstanding, one good tree on each side will be ample, and, trained upon the extension principle, every inch of trellis may be covered with wood in three years. About the end of October he may select two standards or half-standards, according to the distance from the ground line to the first wire, and plant precisely as he plants against walls where he is successful. The tree should be well watered home and mulched, but not coddled by keeping the house closer than is absolutely necessary, otherwise the buds may swell and break prematurely. Having established wall trees of his own, it is just possible "A. D." may find suitable varieties old enough to give fruit the first year; if so, they must be transferred when the leaves are ripe, but before they fall. If, on the other hand, a visit to the nursery is absolutely necessary, small in preference to large-flowered varieties should be selected. *Violette Hâtive* and *Bellegarde*, for instance, would be more suitable than *Noblesse* and *Grosse Mignonne*, as they are hardier, and the small petals in an unheated house are not so injuriously affected by stagnant moisture. Next and last, as to the quantity of fruit this house should give when the trees are fully established, it is hardly necessary to say there are Peaches and Peaches; therefore, assuming that "A. D." wishes to have the best, he should allow one fruit to every square foot of trellis covered with foliage at the time of thinning. In other words, a tree 10 feet by 10 feet will finish 100 fruit, and so on; whilst a *Nectarine* of the same size may be allowed to carry another score. Many people profess their ability to perform miracles—have a glut of insipid fruit one year, none the next, and soon kill their trees into the bargain. If good house

Peaches average 9 oz. each, the number I have named will be found a very heavy crop and should not be exceeded.—W. C.

BARREN VINES.

IN answer to "W. C." in THE GARDEN (p. 258) I will give him the treatment the Vines received during the last twelve months. The Vines, which were given every attention last year, had a fair crop, the bunches on some of the canes being inclined to shank, but the wood was strong and well ripened in the autumn, when the roots were lifted and relaid in fresh soil, as the border seemed in bad condition. When the roots were being lifted, it was found that they were mostly all dead, with the exception of those that were down in the turf that had been laid on the top of the drainage. These were the only roots the Vines had, with the exception of a few young ones which had been secured at the neck of the Vines by mulching and attention to watering. I may mention that the vinery has no outside border, and the Vines are at a full bearing age.—F. H.

At last "F. H." has supplied the information from which his original and scantily clothed query can be solved. The Vines, it appears, had lost nearly all their roots, and those left were deep down pumping up poison. Liquid manure, no doubt, aggravated the complaint by forcing gross wood which produced a few shanked bunches, and, thanks to a brilliant autumn, apparently ripened well. The finish under any circumstances could not have been very satisfactory, otherwise "F. H." would not have thought of lifting and relaying, probably the most sensible step he ever took in his life. But why, calling himself a gardener, did he commence forcing Vines which had been lifted, and, according to his own admission, had hardly a root beneath them to support life, much more to supply food requisite to the maturation of a crop of Grapes? His proper course after lifting, one has hardly patience to say, was rest throughout the winter, followed by the most gentle treatment as to heat when their breaking into growth, say in April, could no longer be delayed. Under this treatment shoots and roots would have worked in unison; each new leaf would have been balanced by a fresh mouth to feed it, and in this way his Vines "of full bearing age," whatever that may be, might have been restored by the loss of one crop of fruit. As it is, a flush of growth forward enough to show fruit early in March has been wrung from rootless Vines, and it is extremely doubtful, if they are worth retaining, if the wisest course would not be a complete clearance and replanting with young canes by a man who fairly understands his business. So far the verdict is against the gardener, but in how many small places is he expected to make bricks without straw, or not permitted to express an opinion of his own. This man, knowing better, may have been compelled to follow up certain instructions to force against his will, and yet he may have felt that it was impolitic to embody this statement in his original query. This being so, not only master, but man are to blame for bringing about the ruin of the Vines, as any jury of horticulturists would have supported the gardener in his protest against such wanton suicide.—W. C.

SHORT NOTES.—FRUIT.

Californian Easter Beurre are still in Covent Garden Market, the best selling at 2s. each.

Apple Northern Greening.—I consider this one of the best April Apples grown. I am using it now without sugar.—W. C.

Cherries and bees.—Despite the awful weather we have experienced lately, our Cherries in pots are now ripe. The introduction into our lean-to house of two or three hives has proved to be a first-class medium for fertilising the flowers. We began this three years ago, and the results are every year better, some of the trees being at present loaded with fruit. The hives are brought into the house as early as November, so that the bees get accustomed to their new quarters before the trees come into bloom.—J. SALLIER, *St. Germain-on-Laye*.

FRUITS UNDER GLASS.

The forcing orchard house.—If all has gone well, the fruit in this compartment will be passing through various stages from setting to stoning, and in some few places this last trying ordeal will have been got over. It is of no use trying to hurry them, as the trees must have time to supply each fruit with calcareous matter, but once this formation of stones is complete the rapid development of pulp, or flesh, will be quite as remarkable as the dead stand has been tedious. A few superfluous fruits having been left on each tree to compensate for dropping, those least favourably situated must now be removed, as every day's delay represents unnecessary waste, and all who have had anything to do with pot trees know how overcropping affects size and flavour. In the selection of fruit for swelling, those standing point upward should be preferred, and, provided disbudding has been judiciously performed, the shoot emanating from below the Peach should be allowed to extend some 12 inches to 18 inches before it is stopped, whilst the one started from the point must be pinched, not only to throw size into the fruit behind it, but also to maintain the proper symmetry of the tree. As pot trees are so entirely dependent upon the food they receive from the hand of the grower, top-dressing, consisting of rather stiff loam, bone-dust, old lime-rubble and perhaps a dash of good rotten cow manure, must be given to them, little and often, as constant watering washes it in or away, and the roots appear on the surface in search of more. The liquid used for this purpose should be perfectly clear, weak, and a few degrees warmer than the mean temperature of the house, which may now range from 58° on mild nights to 70° by day from sun and fire heat combined, and a few degrees higher when external conditions favour liberal ventilation. A change of liquid food being so acceptable to plants and trees of all kinds, clarified drainings from the frame ground, soot, and guano-water may be used alternately with advantage, but the greatest possible care must be exercised in their preparation and dilution, as one overdose may prove fatal to the roots as well as the fruit. In many places the drainage from cowsheds and stables comes within reach, but these liquids, especially the latter, are most powerful and dangerous, a pint being quite sufficient to mix with a four-gallon canful of pure water. The amateur and young beginner will do well to pay particular attention to the last sentence, as much injury, more frequently than is suspected, follows the too liberal use of stimulants containing a large percentage of animal urine. To say feed liberally is vague and misleading, as I have known forced trees paralysed for two years by one strong watering with stable drainage. Syringing as well as watering from this time forward being a very important item, the trees must be thoroughly bathed twice on fine days, the first time when the temperature begins to rise, the second when the house is closed for the benefit of sun heat in the afternoon. This operation on dull, cold days may be dispensed with, but the walls and floors must be well damped over to ensure a proper degree of atmospheric moisture. For syringing, warm soft water or water free from lime should always be used, as it does not leave an unsightly deposit on the rough coat of the Peach, whilst weak soot-water once or twice a week will give a deep green colour to the foliage and check the increase of fly and spider. Good culture in the way I have advised will, however, prevent the last from gaining a foothold, and gentle fumigation with tobacco paper is the never-failing remedy for green and black aphids.

The general house containing a mixed selection of trees will now be in a most interesting condition, as many of them will be in flower, whilst others will have set their fruit. As the petals of the flowers drop each tree must be carefully syringed with tepid water and the same may be given to the roots. Others less forward will require daily attention with the camel's-hair brush, the rabbit's tail, or the syringe. In dull, showery weather, a dry, brisk atmosphere quickened by a taste of fire-heat suits the trees best, as the pollen under these condi-

tions is not only more plentiful, but, rendered buoyant by warmth, it is always capable of performing its office. External conditions, on the other hand, being bright, dry, and bracing, a gentle dewing over with the syringe about 2 p.m., whilst keeping the delicate organs fresh and healthy, generally produces the desired result. Whether dry or wet fertilisation so late in the season is absolutely necessary is extremely doubtful, but some varieties of Peaches and Nectarines being shy pollen-producers, a cross from Elruge or Royal George very often secures a crop where otherwise it might be lost. The operation takes up very little time, fruit cross-fertilised always attains its fullest size, stone-splitting is reduced to a minimum, and for these reasons the methods most in favour should not be neglected. Having so often drawn attention to fumigation, I take it for granted that the house did not contain a living insect when the first flower appeared; if it did, the chance for the tree which nurtured it is a poor one, as Plums and Cherries, Peaches and Strawberries, suffer severely from attacks of aphids. They will stand a good volume of smoke before and after the flowering stage, but once the flowers open, the grower's hand is tied until after the petals fall. If choice Pears are grown in pots, they should be kept in the most airy part of the house, with just enough fire-heat to prevent the petals from damping in cold, wet weather. In all other respects they may be treated as Plums, Apricots, or Cherries, and space being limited, in due course they may be removed and plunged on a warm border in the open air. Aphids disposed of, the next enemy is the active little grub, which attacks the Plum, the Apricot, and the Cherry. Its whereabouts is easily discovered by the curled or closely-folded condition of the leaf, and as no insecticide can reach it, the only safe remedy is crushing with the finger and thumb or hand-picking and removal to the fire. Strawberries now on shelves must have an abundance of water and good syringing to keep them free from spider and mildew. They like an abundance of light and fresh air, and, the better to secure these two elements, the inexperienced very often thwart themselves by placing them too close to the glass. When set they will require liberal thinning and feeding, otherwise the fruit will be small and of little value. Six to eight good point fruits left on each plant will weigh quite as heavily as a dozen, and being of uniform age, they ripen together, when the plants can be removed to make room for successions.

PINES.

Down to the present time the weather has been the reverse of favourable to Pines in general, and early-started plants in particular. It is, however, a long lane that has no turning; therefore we may now expect brighter and milder days, which will spare fuel and enable us to shut up with a full complement of solar heat and atmospheric moisture, so essential to the development of the young fruit and fertilisation of the flowers. As external conditions improve, the syringe may be more freely used for damping all available parts of the structure and keeping the roots in the axils of the lower leaves fairly supplied with moisture; but it will not be wise to attempt overhead syringing until all the fruits have passed the flowering stage. An occasional dewing over on fine afternoons, with strong sun-heat, may then be beneficial, but of two evils, especially before midsummer, too light overhead syringing will do less harm than drenching. From this time forward it will be necessary to examine each plant individually once in ten days, and to give liberal supplies of weak diluted liquid guano or soot-water when they absolutely require it. Watering, like direct syringing, is sometimes carried to excess, but a wet condition, more easily produced than corrected, can always be prevented by adopting the following simple rule, viz., a plant is found in an intermediate state, it is neither wet nor dry, never give water to keep want away, but pass it by. The syringe will prevent injury, and its roots will be in the best possible condition for liquid by the time watering day comes round again. Beyond this precaution against a sodden condition no definite method of watering can be laid down, as much depends upon the elevation of the bed, the wet or

dry condition of the plunging material, and the nature of the compost. In some soils the pots soon become full of white roots, whilst in others they contain but few. And, as a natural consequence, the shy rooters require least water and most atmospheric moisture charged with ammonia to assist the fruit when swelling. When all the fruits are up they should be neatly staked to keep the crowns upright, and provided stock is plentiful, one, or at most two, suckers will be quite sufficient to leave upon each plant. Let the bottom-heat range from 85° to 90°, and see that the tan or leaves do not heat themselves dry, also that a change to hot weather does not produce a sudden fluctuation, which sometimes does much injury to the tender roots before the increase is suspected. Aim at 70° by night, with a chink of front air, and 80° to 85° by day, more or less, according to the state of the weather. Ventilate at 76°, and close early enough to secure a rise to 90° with sun heat and moisture. The second batch of plants, including Rothschilds and Cayennes, now showing fruit will take more water than would have been good for Queens started in February, and the syringe may be more freely plied about the walls and over the surface of the bed; but on no account must this be too freely used, as a slow perspiring plant like the Pine suffers more from an excess than it does from a tardy supply of water at the root.

Successions potted in March, having taken well to the new compost, may now be watered and encouraged to make an early growth by the maintenance of plenty of atmospheric moisture and early closing with sun in preference to fire-heat. A stout, stocky growth being imperative, night air must not be neglected, neither must systematic shading be indulged in. If thin blinds are fitted to the roofs of very light houses, it may be necessary to run them down for an hour or two during the hottest part of the day, and certainly they will do good service by keeping in heat and moisture through the hours of darkness. The bottom heat in this compartment may range about 85°, and the air temperature from 65° at night to 60° in the morning, and 75° to 80° through the day, the latter being the maximum with sun-heat. This should be attained under gradually increased ventilation, and maintained by timely reduction and early closing.

Suckers that were potted last month and plunged in a sharp bottom heat obtained from Oak leaves or tan, will now be rooted and ready for water if the first supply has not already been given to them. The best place for these is a close, compact pit in which the surface of the bed is not more than 2 feet in front and 3 feet at the back from the glass, and, provided they are plunged to the rims and properly sustained by atmospheric moisture, one good watering will most likely keep them going until they are ready for a shift into larger pots. If any old stools from which winter fruit has been cut are wanted for stock, this pit will suit them admirably, as they can be shaken out and put into 8-inch pots or plunged into the fermenting material. To economise space all the old stools may be shortened back to within a few inches of the main stems, when they may be planted in the boxes as closely as they will stand together. Smooth Cayennes, with which few growers are overstocked, under this treatment very often start one or two dormant buds, which make nice little plants by the end of the summer. Yet another method of making the most of these old stools is equally simple, and may be described in a few words, viz., having trimmed them close in, lay them side by side in shallow cutting boxes 4 inches to 6 inches in depth, cover with light sandy soil or leaf-mould, plunge the boxes in a strong bottom heat, and keep the soil moist until the young suckers some 3 inches or 4 inches in height can be detached and placed singly in 4-inch pots.

Spring Vine planting.—Where this now popular mode of establishing Vines is contemplated—say in May, or even as late as June—the various details so essential to success should now receive attention. The first point, as a matter of course, is the preparation of the young Vines, which by this time should be well rooted in small pots or sods of turf, the

latter being the best, as there is no cramping or coiling should planting be delayed. The best positions for these propagating cubes, as I have often stated, is the surface of a bed of tan or leaves, in which the bottom-heat ranges about 75° or 80° and not more than 3 feet from the roof of a light house or pit, which by-and-by can be freely ventilated. As it is not desirable that the young canes should be drawn, they should be quite a foot apart every way, and the better to keep them in condition for moving, a long-bladed knife may be forced along all the joints in the sods when the roots have penetrated a little beyond their boundary. By this operation each root which would otherwise interlace and form a network all over the bed will multiply and ramify close at home, the Vines will not feel the check, and, lifted with a large tan fork, they can be moved with perfect safety.

The second operation is the preparation of the border, which, it is hardly necessary to say, must be inside the house, very narrow to admit of being warmed through by a good lining of hot leaves, and about 6 inches higher than the proper level to allow for sinking. The house having been cleared out, cleansed and painted, ample drainage a foot in depth, resting upon concrete and wide enough to carry a longitudinal ridge of compost, must be provided and covered with turf, Grass side downwards. As everyone knows that good fresh turfy loam, old lime rubble, and a fair percentage of bone-dust will grow Vines and Grapes in perfection, this compost should be made up in a dry, airy shed, or in the house itself, and piled up on the drainage, say 3 feet in width at the base and 2 feet at the top, or materials being plentiful, turf walls may be introduced for keeping the sides perpendicular. If newly-cut turf, fresh and dry, aided by the bone-dust, does not ferment, hot leaves, as I have just observed, must be piled up on the north side of the border. Time and patience will bring about the desired result, and when the heat in the ridge touches 70° it will be ready for the reception of its future occupants. Having transferred the Vines and just buried the sods, now full of roots, they must be moderately watered home, staked and mulched with a thin covering of fresh horse droppings. The house at first must be kept close and moist, and possibly for a few hours on bright days it may require light shading, but Vines prepared and planted in this way generally start away at once, and once in free growth they will fill a very large house with strong canes under ordinary vinery treatment. Spring-struck Vines, I ought to say, are not absolutely necessary, as I have cut down to a single bud and shaken out weaklings of the preceding year. I have then washed and shortened back the roots, pegged them down on the squares of turf, and covered them lightly with rich compost. The growth these Vines have made has been highly satisfactory, but not, I think, quite equal to that obtained from eyes put in in January. W. C.

The best form of Peach house.—Will any reader kindly tell me the best form of Peach house?—L. H.

* * If "L. H." requires a Peach house for early forcing and has a good south wall in exactly the right place, he may put up a lean-to. If, on the other hand, he has to build a wall, I should forego this expense and erect a true span running north to south. A house of this kind should stand on cast-iron or brick piers for the convenience of letting out the roots; the width, not less than 20 feet, to allow for the full development of the trees under each—i.e., the east and west sides of the roof—and ventilation (top and bottom) should be abundant. Do not attempt a cold house, but put in 4-inch pipes, to ensure a circulation of warm air when the trees are in flower.—W. C.

Rymer and Lane's Prince Albert Apples.—I fully agree with "J. C. C." (p. 342) as regards the above Apples, whilst if Flanders Pippin, Dumelow's Seedling, and Newland Sack were added, we should have a quintet of home-grown Apples that would be very difficult to surpass at this time of year, especially if fruit growers would abandon the orthodox method of storing their Apples on dry,

arid shelves, a method which certainly hastens shrivelling and early decay. I have found good results in storing by taking old cement and other casks to the trees at the time of gathering, carefully picking and selecting the perfect fruit, packing them direct into the casks, and conveying them at once to a cool store-room or cellar where a fairly equal temperature is maintained without artificial aid, and not again interfering with them till they are required for use. We have still left several of these casks, the Apples in which are nearly as firm and sound as when they were gathered, with not one per cent. of decayed fruit. Prince Albert is rather a straggling-growing tree for a standard, which is its only fault.—W. CRUMP, *Madresfield Court*.

ROSE GARDEN.

PRUNING SUMMER ROSES.

I HAVE been working among a fairly good collection of Roses more or less for nearly forty years, and have by way of experiment pruned at various times from January onwards. I have never yet lost a crop of flowers through early pruning, and I confess, until Mr. Girdlestone mentioned it, I was unaware that summer-blooming Roses were on the whole more precocious than the Hybrid Perpetuals, as this is directly opposed to my own observation and experience. The whole efforts of the summer-blooming Roses are concentrated upon a single month's splendour, and if early pruning led to the loss of a crop of flowers, or even to malformation or green centres, I should have discovered this fact and reformed my practice long ago. I have seen malformed and green-centred flowers, but they are most frequently found upon plants badly nourished and insufficiently pruned. Many years ago I was anxious to have large Rose trees like those seen in the hedges in some of the grazing districts where the hedges are left uncut. I planted a considerable number in positions where Nature and themselves might settle the matter of growth between them. For a few years all went well, but malformed and green-centred blossoms became so common and dead twigs in the centre of the bushes so numerous, that one day in the month of February in a fit of disgust and desperation I applied the knife to the plants, and brought them into a state of subjection, from which they were never afterwards allowed to depart. I have never met with a Rose that was not improved by moderate pruning according to the object in view. It may, I think, be stated with certainty that the finest flowers are obtained from plants cut fairly well back. I have never since seen such beds of pink and white Provence and pink Moss as those I was acquainted with in my early gardening career. I remember a large French garden I had charge of which contained thirty-two large beds of dwarf Roses all on their own roots. We had no Manettis in those days, but in pruning, stray shoots were left at intervals for the purpose of layering, and by this means the beds were always kept full. Standard Roses of all the best kinds then in cultivation, but most of which have now disappeared, were employed to give elevation. I remember the great excitement *Géant des Batailles* caused, and the rush that was made to work up a stock for a bed. Whatever may be the cause, my conviction is that the summer blooming Roses were better in those days than they are now. One reason for this, perhaps, may be that we had but few others, and they received full and undivided attention.

In referring to pruning Roses to rested or dormant buds, "D. T. F." in *THE GARDEN* (p. 336) says, in speaking of their excitability, they are the best prepared for work, and, as a rule, are the first to get at it. Yes, when the proper time arrives, but they do not fidget about all winter like the unripe buds do. During a mild winter, where does the first growth come from? Does it come from the firm ripe wood, or from the excitable unripe growth? And I repeat, if fine well-formed flowers are desired, cut to dormant buds. Which is the best prepared for work, the man who goes to bed at the proper time, sleeps calmly the whole night, or

the person who fidgets about, rising up to strike a light and see what o'clock it is every hour or so? I do not think this analogy is at all far-fetched.—E. H.

I do not write as a grower of Roses for exhibition, as I have never at any time tried my hand at showing them. I grow, however, a large quantity for embellishing the garden and for cutting from, and I think the majority of Rose growers belong to this class. Certainly a great many gentlemen's gardeners do as well as numbers of amateurs. I prefer Roses grown for every-day decoration, because they are treated as objects of general interest, and are not mutilated to reduce their blossoms to one or two huge specimens. There is no difficulty, however, in growing Roses for general decoration, as it is impossible to have too many of them, and as the time of pruning and the way of doing it have considerable influence on the length of the flowering season and the quantity of the blooms, special attention may, at the present time, be advantageously directed to these points. I have known some growers prune their Roses in the autumn, because they thought the long shoots were untidy. This is a great mistake. No Roses should ever be pruned until the middle of February, and the last of them may be pruned as late as the end of March. A succession of pruning produces a succession of flowers, but Roses pruned about the middle of February may start into growth soon afterwards and be severely checked in March. This is the reason why all early-pruned Roses should occupy sheltered positions, and if they do they will grow and flower in May, while those pruned later will not bloom until June and July. Exhibitors of Roses can generally tell how long it will take their plants to come into bloom after pruning takes place, and this operation is performed on a certain date to ensure their being ready for a certain show; then the blooms come all out at once and early or late blossoms are ignored. But this is not our system for decorative Roses, and a succession of pruning is always productive of good results. We sometimes peg down a long shoot on a plant without cutting it off, and this will bloom a fortnight before all the pruned ones. The blooms on a pegged-down shoot are not large, but generally well formed, and always plentiful and early, which are two important points. In pruning we never cut back to the last bud, nor do we recommend this, but the shoots are left from 2 inches to 4 inches long, and they always start freely and produce strong shoots. In the case of old plants very thick and bushy in the head a large quantity of the old wood should be thinned out and only the strongest of the shoots left. Stock suckers which are produced by many plants should be wholly removed.—CAMBRIAN.

NOTES OF THE WEEK.

National Auricula Society (Southern Section).—There promises to be a good show of Auriculas and allied flowers at the exhibition of the above society on Tuesday next, April 24, in the Drill Hall, James Street, Westminster.

Narcissus triandrus albus.—From Mr. A. Rawson, Windermere, we have received an excellent photograph of the lovely *Narcissus triandrus albus*, one of the best of all in its particular group. The photograph showed a plant in the most robust health, and a mass of bloom.

Crinum amabile.—We have received a photograph of this plant from Mr. W. Shave, St. Heliers, Jersey, who sends the following particulars. This photograph of *Crinum amabile* was taken at the end of March in the garden of my employer, Mr. Charles Godfrey, Jersey. It flowered three times last year. The bulb is now 1 foot 10 inches in circumference, and the longest leaves are 4 feet 5 inches long and 5 inches broad.

Spring flowers.—Mr. Hartland, of Cork, sends us a gathering of choice spring flowers, including such gems as the blue and white Grape Hyacinth (*Muscari botryoides*), white Windflowers, and a very small pure white form of *Narcissus tazetta*, in the way of the Paper-white. Mr. Hartland also sends the *Gentianella*, a flower of the deepest blue.

We have received from Mr. G. Bolas, of Hopeland Gardens, a gathering of spring flowers, comprising *Scilla campanulata*, *Chionodoxa luciliae*, Grape

Hyacinths, Dog's-tooth Violets, Anemones, and *Doronicums*. The *Scilla* and *Chionodoxa* were especially well grown.

Carnations from Villa Montboron.—The Princess Kotschoubey sends us from her beautiful Villa Montboron, Nice, some of the Tree Carnations which do so well in that country. Among them there is a beautiful yellow variety, of which we do not know the name; a large white form, with a tinge of pink; a fine crimson-red, with a fringed petal; and a fringed white—all beautiful. We believe that the Tree Carnations now being raised in the south of France must some day come to our gardens, which they will grace very prettily in the autumn, apart from their use in the greenhouse.

Hardy flowers.—I send you a few spring flowers from our hardy garden. *Daphne Blagayana* has been very beautiful and sweet; *Primula viscosanivalis* does well here, as you will see by the enclosed blooms; *Fritillaria Moggridgei* is from our rock border. It seems to enjoy a position between stones. This is quite a gem as a spring bloomer, and quite distinct from any other *Fritillaria*. I think it is rather particular in its requirements. It will be a desirable plant if it becomes cheap and can be got to do well. The enclosed Pinks are Napoleon III. and Highclere, as grown for early work in pots. I think them very beautiful, and they deserve to be better known.—JOHN CROOK, *Furnboro' Grange*.

Strawberry La Grosse Sucree.—What a grand forcing Strawberry this is! It is by far the best I am acquainted with, having been able to gather large, good fruit regularly since Feb. 22; moreover, it is handsome in appearance, of splendid colour, and travels well. Can anyone give its parentage? The foliage has some resemblance to that of Keen's Seedling. I have tried Héricart de Thury several times, but cannot obtain satisfactory results. I cannot get the flower-stalk up satisfactorily above the foliage, and the fruit is always under-sized. Can it be the soil? I ask this, because I did not experience this difficulty either at Blenheim or Heckfield; moreover, my neighbours fail with it also in this district.—W. CRUMP, *Madresfield*.

Rhododendron argenteum roseum.—One of the greatest ornaments in the temperate house at Kew at the present time is the crimson-flowered variety of the silvery-leaved *Rhododendron*, whose flowers are normally creamy white with a crimson blotch in the centre. The colour of the roseum variety is more crimson than rose, and the great trusses amidst the luxuriant foliage have a most beautiful effect. The tree of it is some 25 feet in height and bears numerous trusses. The typical *R. argenteum* is still in bloom, and another remarkable species is *R. Falconeri*, with great trusses of ivory white bell-shaped flowers. These noble Himalayan trees are alone worth going a long journey to see, and at no other garden in Europe can they be seen in such perfection as at Kew.

Single-flowering Daffodils becoming double.—I have sent you by this post a few Daffodils which may interest you, especially with reference to the question of doubling. The flowers were gathered from a small clump, the original bulbs of which were planted in their present position about six years ago. The bulbs were wild ones (*N. pseudo-Narcissus*) from the neighbourhood, and were planted close to the trunk of a large old Mulberry tree on a small lawn, the soil poor and stony. The first year every flower was single, the next year some showed signs of doubling; the doubling increased every year. Last year all were double, but in none had the trumpet become cleft. You can see now what they have become by the specimens sent, as I have sent some of all the degrees of doubling which have appeared this year. For the last two or three years there have been one or two green ones, but none so green nor so many as this year. The original clump consisted of about eighteen bulbs, and the number has now about trebled. A few of the same planted at the same time in somewhat better soil have doubled somewhat, but in none has the corona split. The plants from which the flowers sent were gathered are dwarfed, the flower-stalks being $1\frac{1}{2}$ inches shorter than some

recently planted ones which still remain single. The doubling is in no way due to seminal variation, as any capsules which formed have always been removed. I have watched these plants with great interest, especially since there has been some controversy about the doubling, and am certain there is no mistake about it in this case. The appearance of the flowers, which look decidedly aborted, seems to show that the doubling is probably due to ill-health or want of proper nourishment which has probably affected the generative functions, causing the corresponding parts of the flower to revert to a lower degree of development.—W. A. SHOOLBRED.

* * The flowers sent were all double, and certainly very interesting.—ED.

Cistus Clusi.—Among the numerous plants that now make the greenhouse (No. 4) at Kew so attractive is this charming Portuguese Gum Cistus, which at once engages attention, because so seldom seen in bloom at this season. It is a dwarf, spreading bush with small evergreen foliage and studded with numerous snow-white blossoms—about the size of florins—which, though short-lived, are succeeded day by day by others, thus rendering the shrub attractive for a long time. This little Cistus, being naturally an early flowerer, does not require much forcing to bring it into bloom, a slightly heated house or pit being sufficient. This, one of the many beautiful greenhouse plants that one sees from time to time in bloom in the conservatory at Kew, is seldom, if ever, met with in nurseries or private gardens, simply because it is not known.

Eranthemum cinnabarinum.—Among the many Acanthaceae plants cultivated in stoves, there are few (if any) that surpass this in beauty when well grown, and it is to be regretted that it is still so seldom seen in private gardens. Every spring it is one of the most conspicuous plants in the stove at Kew, and at the present time is in perfection. The flowers, each as large as a shilling and of a bright magenta, blotched with crimson, are borne in tall, loose clusters, and as the buds open in succession, the plant remains long in bloom. If it has a fault, it is that its habit of growth is not so compact as a gardener would like, but probably if the plant were grown specially with the view of obtaining dwarf, bushy specimens, it would be amenable to such treatment. At any rate, its beautiful flowers entitle it to consideration. It was the subject of a coloured plate in *THE GARDEN* (Vol. XVIII.), and since then it has become more generally known and cultivated. It is a native of Northern India, and may be grown in a greenhouse. Probably a lower temperature than that of a stove would induce a dwarfer growth.

Pitcairnia Maroni and Darblayana.—In addition to the note on *Pitcairnia corallina* mentioned in *THE GARDEN*, Feb. 11, it may be of interest to add a few words about *Pitcairnia Maroni*, which is just now in bloom in one of our houses. This is perhaps the first and certainly the best *Pitcairnia* hybrid, the result of a cross between *P. Altensteini* and *P. corallina*. It was raised by M. Maron, already known for his beautiful *Gymnogramma schizophylla gloriosa*. The plant much resembles *P. corallina* in habit, but the flower-stem, instead of being deflexed, as in *corallina*, is quite erect and well displayed above the fine foliage. Owing to the bright coral colour of the flowers it ought to be included amongst select Bromeliads. The same hybridiser has just exhibited at a recent meeting of the Royal Horticultural Society in Paris a new cross somewhat in the same way as regards habit and colour, and called *Pitcairnia Darblayana*. The parents are *P. corallina* as pollen plant, crossed with another variety of vigorous growth. The new one has gigantic leaves reaching 5 feet to 6 feet in length and drooping; the stem is also erect, the plant being in every way larger than *P. Maroni*, but of not quite so dense a habit.—J. SALLIER, *St. Germain-en Laye*.

Anthurium Chamberlaini has made quite a small flutter in the horticultural circle. It is from descriptions a very fine Aroid, quite distinct, and with a spathe of rich crimson. The plant was found in the garden of the Rt. Hon. J. Chamberlain, M.P., at Birmingham, amongst some imported clumps of Cattleya Gaskelliana.

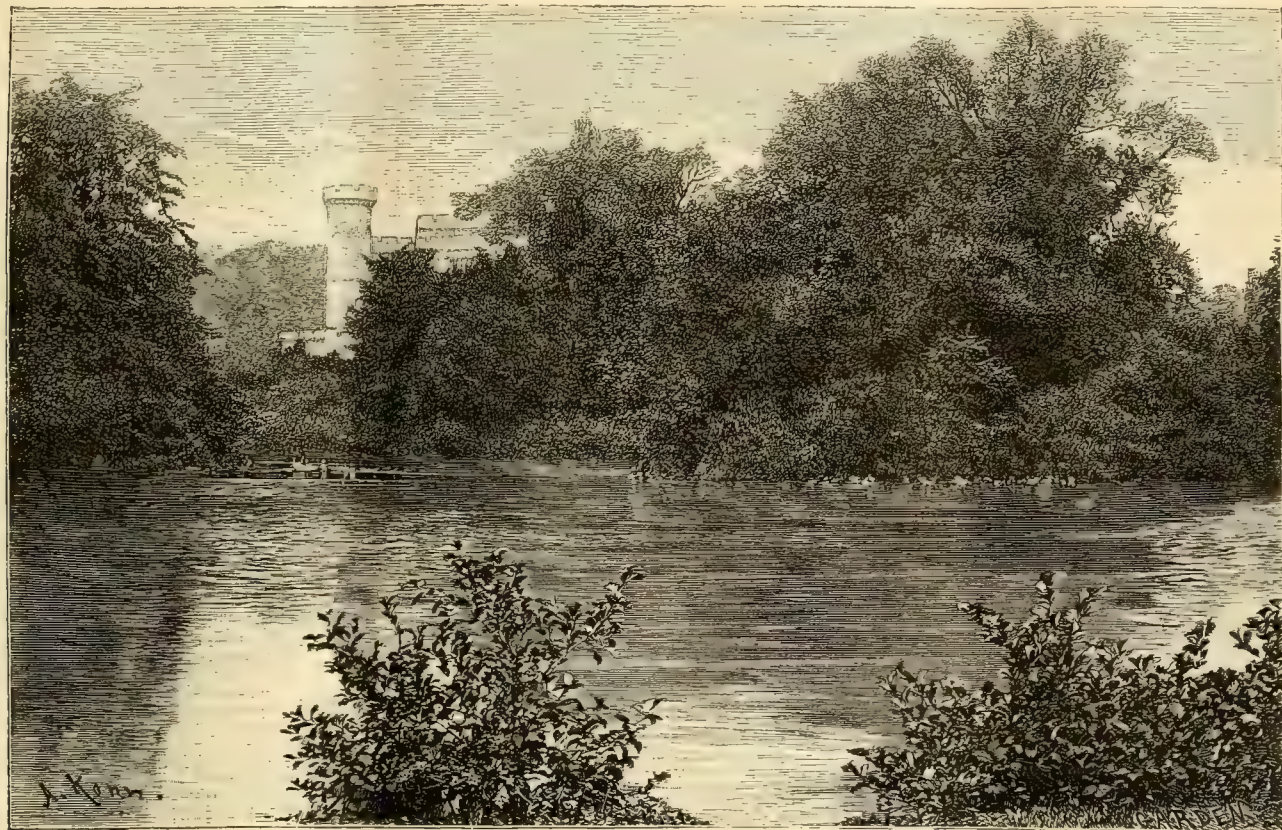
EASTNOR CASTLE.

EASTNOR CASTLE, in Herefordshire, the residence of Lady Henry Somerset, is three miles from the town of Ledbury and eight from Great Malvern. A drive or walk from the latter place to Eastnor is, to lovers of Nature, one of the most enjoyable. After leaving the high road we traverse a long drive called "The Ridgeway," where, at all seasons of the year, some features of great beauty are to be found, whether in spring, when large tracts are yellow with our native Daffodil, which here grows in the greatest profusion, and is an irresistible temptation to those who despoil Nature by pulling off or tearing up her choicest gems; or in the summer time, when a tropical aspect is imparted to the vegetation by luxuriant masses of Traveller's Joy and Black Bryony, which scramble over the trees and shrubs, hanging in

lower part of the park across the lake, the margins of which are planted with crimson Dogwood, which imparts a glow of colour to the surroundings during the duldest months of the year. The castle is situated in a valley formed by the well-known Malvern Hills on one side and a smaller range opposite, and was built in the year 1812 by John, first Earl Somers, from designs by Sir Robert Smirke. It is built of stone in the Norman style with towers and battlements.

The main part of the building is in the form of a square, with a tower at each corner and a keep in the centre, and presents a very massive and imposing appearance. A broad gravelled terrace runs along the north-east and south-western sides, with a retaining wall built in character with the castle. At a depth of 24 feet is the terrace garden, which in turn is supported

eye at every turn is a source of surprise to all who are strangers to the place. Plants which are familiar only as single specimens or in small patches are here represented by large masses. One comes suddenly upon half an acre of St. John's Wort, presenting, if at the right time of the year, a sheet of golden yellow, from which rise specimens of Thujopsis, Cypressess, &c. The Periwinkles will be found in equal quantities in another place; whilst Cotoneasters, Pernettyas, Ericas, and such like low-growing shrubs occupy prominent positions, where plenty of room is allowed them to grow naturally. A remarkable feature in these grounds is the distinctive individuality of character imparted to each of the many beautiful walks. In one long walk Hollies have prominence—all the best kinds, both green and variegated, not in rows or dotted about at equal distances, but grouped



View in the grounds at Eastnor Castle. Engraved for THE GARDEN.

wreaths and festoons, and associated with rampant Brambles and Dog Roses. This wealth of summer is succeeded in autumn by the Hips and Haws of many varieties of Thorns, the Service Tree, Arbutus, berries of Viburnums, and ripening foliage of every hue. An Oak with several large pieces of Mistletoe growing upon it is also an interesting object in this drive. Emerging into the open, we are at once in the midst of English park scenery of the greatest beauty and grandeur. The surface is undulating and partially covered with Bracken. Majestic Oaks, Beech and Ash stand singly or form groups many acres in extent. One could spend whole days in this beautiful park admiring the picturesque scenery and exploring the woods and dells where Ferns luxuriate; while in the open glades, Foxgloves, Mulleins, Teazles, &c., rise several feet in height. A splendid view of the castle is obtained from the

by a similar wall. This garden is over 100 feet wide, and extends along the two sides of the castle above mentioned. The greater part of it is a level greensward, with beds of hardy Azaleas, Ericas, and other American plants occupying suitable positions upon it, while a few beds are devoted to summer-flowering plants. The recesses are furnished during the summer with large Palms, Agaves, Myrtles, standard Bays, Araucarias, and other rare and tender Conifers.

The pleasure grounds at Eastnor are of considerable extent, and are alike remarkable for natural form and beauty as well as for the choice and representative collections of trees and shrubs with which they abound. The bold, unassuming style in which the planting and embellishment of these beautiful grounds have been carried out is everywhere apparent, and the diversity of arrangement which meets the

together and growing vigorously. Next a shady woodland walk, with Ferns and wild flowers; another, where the many different forms of Yew, red, yellow, and golden-fruited, are the leading features; while long walks and glades abound with flowering shrubs, both evergreen and deciduous, shrubby Spireas, Viburnums, Berberis stenophylla, Darwini, and Jamesoni, Mahonias, Honeysuckles, Arbutuses, Laurustinus, Japanese Privet, and many others, all combining to produce a lovely floral feast.

But the wealth of Eastnor is in its Conifers. The collection of these noble trees is almost unique in this country, and many have attained considerable height, with a dense habit of growth and well furnished to the ground. I cannot in this short notice give particulars as to the sizes of some of these trees, but anyone interested in their culture will be well repaid by a journey to Eastnor, and Mr. Coleman, with his usual well-

known courtesy, is ever willing to give facilities for inspection. In simply mentioning a few of the best, the Piceas claim the first place. Many fine specimens of *P. nobilis*, *Nordmanniana*, *cephalonica*, *P. insapo*, *grandis*, *magnifica*, and *lasiocarpa* are to be seen from 40 feet to 50 feet in height; also *Webbiana*, with its large purple cones; while the newer and beautiful *bracteata*, *amabilis*, and *Veitchi* are making rapid strides to catch the older species. *Abies Douglasi*, *taxifolia*, *Pattoniana* and *Menziesi* are amongst the best of this section. *Pinus insignis* occupies the position of honour amongst Pines, the deep green of its foliage being conspicuous everywhere. Several remarkable specimens of the Stone Pine (*P. pinea*) are growing on a sloping piece of Grass by the side of the carriage drive. *P. pyrenaica*, *Jeffreyi*, *excelsa*, *ponderosa*, *Montezumae*, *Benthiana*, *Lambertiana*, *leiophylla*, and many others are represented by large and handsome trees. Many *Wellingtonias* (*Sequoia gigantea*) are assuming the proportions of those of their native forests, and the curious red furrowed trunks of *Sequoia sempervirens* are also of exceptional size. The above names will give some idea of the magnitude of the collection in which all the families down to the smallest Juniper find a place.

There are several features amongst so many that are good which deserve a little special notice. The first is the lake. Whether viewed from the terrace or the gardens, this beautiful sheet of water of 22 acres always presents a charming picture. From no point can its full extent be seen. No trouble nor expense have been spared in bringing the surroundings into harmony with the water. From a walk skirting the lower side some charming peeps of the castle are obtained, one of which is the subject of the accompanying illustration.

The rock garden is in a sheltered corner, where many choice things find a home. The first to meet our gaze as we climb a steep walk from the terrace is a group of *Yucca gloriosa* on a grassy bank. A little further on our attention is attracted by a blaze of brilliant crimson, which turns out to be a bush of *Acer polymorphum* of great size and beauty, the largest plant in Europe. *Aralia Sieboldi*, near by, is hardly recognisable from its size. *Arbutus Andrachne* and *A. procera*, with their red stems contrasting so well with the dense green heads, are worthy of notice, besides many other shrubs and plants growing in this favoured spot. Passing a very unique plant of the Lebanon Cedar, its lower branches resting on the ground, we climb another steep walk—on the way admiring some aged Ash trees draped with *Virginian Creeper*—to Summer House Hill, where we find ourselves in the midst of Conifers of all kinds and of exceptional size—Pines, Cedars, Spruce and Silver Firs well furnished to the Grass, for the mowing machine is never allowed near them, and game, that terrible destroyer of trees and shrubs, is rigorously excluded. This is the highest point in the gardens, and splendid views of the surrounding country are obtained from it. But I must not longer dwell on this part of the gardens, or the fruit will receive scant notice.

Mr. Coleman's reputation as a fruit grower is well and widely known. Eastnor Grapes and Peaches were the admiration of all who saw them in the days when they appeared upon the exhibition table, and for the information of those who miss them and note their absence at the present time, I may say the old Vine is as vigorous as ever. This Vine—a Black Hamburgh—occupies a span-roofed house 72 feet by 20 feet; the main stem is carried along under

the ridge of the house and the radiating rods are trained down the side. Some of the roots are inside, but the majority are outside, and walks and borders have been removed to make room for them, and in order to render them every assistance. There are larger Vines of this variety in existence, but none that I am aware of can compare with it for size and quality of the fruit. Several other houses are devoted to Hamburghs, two for Muscats, others to Lady Downe's, Gros Maroc, and other approved kinds. Of all fruits the Peach appears most at home at Eastnor, both under glass and upon the open walls. Veteran trees with stems as thick as a man's thigh, and young ones a few years from the maiden can be seen growing in all sorts and sizes of houses, from the well-appointed structure with movable roof down to the simple wooden shed with a glass covering, and yearly carrying heavy crops of first-class fruit. The secret of Mr. Coleman's success is frequent renovation of the borders and fresh supplies of calcareous loam, plenty of water, and an absence of insects. On the open wall, with the same judicious culture and with the aid of protection at blooming time, equally fine crops are secured. Other houses are devoted to Pines, Melons, Cherries, Figs, and other fruits. A Brown Turkey Fig tree in one of the houses is as unique in its way as the old Vine; it is trained in the same manner, viz., up the back wall to the ridge, and thence to the front of the house, a three-quarter span, instead of in the orthodox way from the front to the ridge. The fruits from this tree are always of exceptional size and quality.

Passing to hardy fruits, the same evidences of liberal treatment are seen to prevail. Several walls are occupied with horizontal and fan-trained Pears, and many fine pyramids of the best kinds also bear witness, by their fruitful condition, that the best of culture is bestowed upon them. Pitmaston Duchess, which is often considered only second-rate in quality, is here of good flavour, and stands high in Mr. Coleman's estimation. Other kinds largely grown are Winter Nelis, Marie Louise, Louise Bonne, Doyenné du Comice, Josephine de Malines, and Bergamotte d'Esperen. Amongst Apples, Ribston Pippin is honoured with one of the best positions in the garden. On high ground is a row of bush trees, which have been allowed to grow much at their will, the side branches being trained out espalier fashion until they meet each other. Canker is unknown to these trees, and what fine fruit they produce! Cox's Orange Pippin is similarly treated, and large, healthy, fruitful trees of Claygate Pearmain, Hubbard's, Adam's, and Golden Winter Pearmain, Kerry Pippin, and other kinds noted for high-class flavour line the walks. Near to Mr. Coleman's house are some fine standard trees of Blenheim Orange, which seldom fail to fill a good space in the fruit room with typical fruits of this grand variety.

A few years ago some much-neglected orchards—alas! there are many such—fell to Mr. Coleman's charge. Better hands they could not have come to. The saw and the knife were set to work at the proper time, many of the worst trees were grubbed out, and after thorough preparation of the ground, were replaced by young trees of good kinds. Others were cut over and re-grafted, and now, in the place of small, scabby fruit, which could not pay for gathering, heavy crops of clean Apples and Pears are secured. Plums, Cherries, and Apricots are equally well cared for, a high south wall being filled with fine trees of the latter fruit. Nor are the humble smaller fruits forgotten. The Strawberry has a large share of attention,

Oxonian being a great favourite for late crops. Large quantities of fine berries of this variety are gathered from north borders during the month of August. Special measures are taken not only to produce good crops of Gooseberries, Currants, and Raspberries, but also to secure them when ripening.

While so large a share of attention is given to fruit, flowers are not forgotten. One cannot but notice the special treatment of many hardy plants. Small beds and borders have been prepared to suit their requirements, in many of which one kind enjoys undisputed possession, and is there seen at its best. The same system of culture is carried out with flowers under glass. Good, useful things, such as *Stephanotis*, *Eucharis*, *Lilies*, and a few *Orchids*, receive the attention they deserve instead of attempting to grow a little of everything without the requisite space for the purpose. I cannot omit to notice the Palm house, because, besides the fine Palms, Tree Ferns, Cycads, &c., it contains many interesting plants which are not quite hardy enough to stand the winter outside. *Clethra arborea* is one of these. Large trees covered with its Lily-of-the-Valley-like blossoms are a sight not easily forgotten. *Griselinia latifolia* is a striking plant. So also is the Umbrella Pine (*Sciadopitys verticillata*) and the Guava, bearing a fruit similar to a small Medlar, with the flavour of Strawberries. From the roof of this house the shoots of *Tacsonia exoniensis*, resembling hundreds of long garlands, hang down nearly to the ground a distance of 20 feet, the elegant growth and foliage, the profusion of its brilliant flowers, with the noble plants growing beneath, producing a scene we are loth to leave.

A. BARKER.

Planting.—I notice that some writers of gardening calendars are found recommending that planting be done until quite late in the spring. Such advice should be cautiously followed. Perhaps they intend their remarks to apply only to evergreen trees and shrubs, but they do not always say so. It is true that planting may still be performed, but every day's delay increases the risk, for the buds of all deciduous trees are beginning to swell, and it is positive injury to move trees after they reach this stage of activity, unless it is done with the greatest care and in moist weather. Those who have planting to do should place in the ground all deciduous subjects first, and especially Roses, for they are among the foremost subjects to exhibit signs of growth, and in planting Roses it is especially necessary to place some fine soil about the fibrous roots, that they may lay hold of the soil as soon as possible and establish themselves. Evergreens can wait; they will do planted next month during the traditional showery weather. But let anyone who goes to a nursery to buy plants stipulate that they be those that were transplanted within a year or two. The great value of frequent transplantation is that it causes plants to put forth fibrous roots, and those furnished with these establish themselves more quickly than those without them.—R. D.

Burnt earth for gardens.—The early practice of manufacturing charcoal in the days when forests were abundant left fertile spots of ground wherever the piles or pits had been made. These spots were noted for their luxuriant crops of wheat and corn for many years afterwards; and the European practice of paring and burning has been quite successful in the few instances where it has been adopted in this country, especially on heavy or clayey soils. We have found in past years much benefit in its use to garden crops—dry sods, during a season of drought, mixed with brush and other rubbish, answering the purpose after slow combustion. We observe a statement of Dr. Voelcker, who made the analyses, that the amount of soluble

matter in the soil was increased from 3 to 10 per cent. by the burning, with an increase of available potash and phosphoric acid. Some other favourable changes were made.—*Country Gentleman*.

FERNS.

THE LATE MR. CARBONELL'S FERNS AT KEW.

My attention has been drawn to a paragraph which appeared some time since in your paper signed "W. G.," and which had reference to the generous bequest to Kew Gardens by the late Mr. W. C. Carbonell of the whole of his fine collection of British Ferns, the value of which perhaps is only exceeded by the public spirit of the gift. In conveying, however, the impression that the collection was the work of a lifetime, the writer has done but very imperfect justice to the extraordinary energy and sagacity which enabled Mr. Carbonell at an advanced period of life to take up a subject practically new to him and of no slight complexity, and to achieve results never before attained under similar circumstances. As the writer of the paragraph in question has evidently not written from direct information, and as it may not be without interest to some of your readers to know a little of the history of a collection destined, no doubt, to receive considerable attention during the ensuing summer, I will venture to make a few remarks on it.

The collection was practically the work of the last nine or ten years. I speak from personal knowledge on this point, having quite by accident been the means of giving Mr. Carbonell the impulse that led to the collection being formed. At the time when I made Mr. Carbonell's acquaintance—in the autumn of 1878 or 1879—his collection of British Ferns was of the conventional kind, consisting of the ordinary varieties then procurable from nurserymen, and apparently his interest in them had waned. They had been planted, however, with all the ingenuity, eye to neat effect, and thoroughness which characterised everything Mr. Carbonell did, but their limits also had been very clearly defined. How irresistibly they burst those bounds when Mr. Carbonell really threw himself into the study of British Ferns is sufficiently known.

Certainly, at the time I refer to, British Ferns held a subsidiary place among the many attractions of the garden of Rhieu Castel—a garden of no ordinary interest, for it would be difficult to say what was most remarkable in it; the picturesqueness of the situation, the originality of the design, the skill, labour and expense with which the design had been carried out, the judgment and liberality with which it had been stocked with everything best calculated to give varied effect to it, or the perfect order with which everything was kept up; the whole conveying an impression of great originality, a keen appreciation of beauty, and, above all, a love of order. The house and all its surroundings had been the work of Mr. Carbonell, and everything bore the unmistakable stamp of affluence and taste.

When, in compliance with his request, I showed Mr. Carbonell some impressions of the choicer varieties of Ferns, such as are to be seen in private collections, the effect on him was not a little remarkable. It was (as he himself described it) "as if a new world had opened before him." He explained that latterly the resources of hunting and fishing had gradually failed him, and that he had often felt the want of a new subject of interest, and here was the very thing

he wanted. "Where were such things to be found, and how could he get them?" "Could I help him?"

It was not long before Mr. Carbonell had, either in plants or spores, the pick not only of my collection, but also that of Mr. E. J. Lowe (who about that time came to reside in the neighbourhood), and he was soon hard at work raising from spores, in which he exhibited singular skill. I know no one so uniformly successful in that way. No doubt he had exceptional advantages, but to his own energy and skill the results were very largely due. Gradually he was introduced to nearly all the principal cultivators, and more or less their collections were laid under contribution, and partly through their kindness, but still more by his own most liberal expenditure and untiring exertions, his collection grew and grew as never a collection grew before.

It was natural for Mr. Carbonell to wish to excel. Had he commenced ten years earlier (with the same advantages), there can be no doubt that he would have had the best collection in England. Even as it is, there are not many better. What really made his collection so good was that it was good all round. Generally, collections of British Ferns are strong in certain directions and weak in others. It was Mr. Carbonell's ambition that every species of British Fern should be well represented, better than in other collections if possible. No doubt there are collections that surpass his with regard to certain species, but with the exception of that of Mr. Wollaston, of Chislehurst, I know none that, as a general collection, is better.

But it was quite as much as a raiser as a collector of Ferns that Mr. Carbonell was distinguished. He was fortunate, certainly, in beginning with the choicest spores, but he had a happy knack of turning them to the best account. Of course, as is inevitable in all such cases, his first results were little more than reproductions of forms found or raised by others, but it was impossible that such energy and skill as Mr. Carbonell's should not have been soon rewarded with original results, and more especially so as he had been early initiated in all the newest secrets of the crossing of Ferns.

It was with *Athyrium filix-femina*, and more especially with *Polystichum angulare*, that Mr. Carbonell worked most. Among his happiest results with the latter species, the following deserve to be permanently recorded: *P. angulare divisilobum grandiceps*, *grandidens* (Carbonell), *cuneato-cristatum* (Carbonell), *laxo-latis*, *pendens cristatum*, and *stipulatum*. He also raised some fine forms of the *divisilobe* and *frondose* classes, all the best of which I believe are, or will be, catalogued by the enterprising firm of Messrs. Stansfield, of the Sale nurseries, Manchester. Mr. Carbonell raised also many good *Athyriums* and some *Scolopendriums*.

It is fortunate that so fine a collection has fallen into such good hands, and that it has gone where the public can have easy access to it. It is in every way right that at first the collection should be kept distinct; but after a time, and when subjected to careful selection, it will serve a much more useful purpose, as part—and a very important part—of a national collection of the finer and choicer varieties of British Ferns which is now being formed at Kew.

It is not generally known that a few years since a memorial to the Board of Works was signed by some of the leading British Fern lovers, advocating the formation of such a national

collection, and suggesting a money grant in aid of it. The grant was made, and operations were without delay commenced, Mr. E. J. Lowe, Mr. E. F. Fox, and others contributing some of their choicer varieties. Mr. Carbonell's handsome bequest has come just in time to give a spurt to the undertaking. Hitherto it has been too often the case that collections accumulated with infinite pains and skill, and containing unique things, have on the death of the collectors been dispersed, and thus valuable things have been lost for ever. All honour, therefore, to Mr. Carbonell for showing how to prevent this. Nor can it be doubted that when it is generally known that a permanent home for Ferns exists, in which any rare thing will be safe and at the same time of public use, finders and raisers will feel a pride in giving of their best, feeling sure that, under the present progressive and discriminating management at Kew, anything really good will be appreciated, and that nothing accepted will be neglected.

The time has happily passed when all botanists were content to regard the varieties of Ferns as only "monsters," mere "garden varieties," &c. It has long been recognised that, with very few exceptions, all the more marked forms have been found wild, Nature being entirely responsible for them. It is also beginning to be recognised that varieties do not appear altogether at haphazard, but in conformity with certain fixed laws of development or deviation to which all species are more or less subject.

The varieties of Ferns, therefore, cannot any longer be dismissed without attention, even if the extreme beauty of many of them did not render this impossible. He must indeed be wanting in some quality of sense or in knowledge who can regard all the varieties of British Ferns only as degradations. Can it be maintained that many of them are not in every sense higher developments, possessing with all the symmetry of the normal form greater delicacy of division and of texture, more freshness and variety of colour, more grace of habit, often larger size, and at times an intricacy of detail or novelty of structure which interests the mind not less than it attracts the eye.

Such a collection—as it may be hoped will now be formed at Kew—containing all that is most beautiful, rare, and strange amongst the varieties of British Ferns would not only be an additional attraction to any garden, but in the not uninteresting study of the morphology of plants a very practical aid. Nor should such a collection fail to excite a special interest in this country as being illustrative of, and at the same time a record of, a branch of botany exclusively British, and likely to remain pre-eminently so, for whatever discoveries in other parts of the world may be in store for the future, it is at present the fact that in no country of any considerable size has the natural tendency of Ferns to vary been developed in anything like the same extent as in the British Isles.

It has been well remarked that it would seem as if Nature had compensated for the small number of species she has allowed us by gifting them with an unlimited power of deviation. No doubt this power varies very much in different districts. No one who has really given attention to the subject can have failed to recognise how marked are the distinctions in this respect in our own country, some districts being hopelessly barren of any varieties of note, while other parts more favoured positively teem with them. How far this may be due to soil, how far to climate, or to a combination of the two, or to any other material agency, or whether the

fairies may not have a word or two to say about the matter, I leave to others to determine. The fact, however, cannot be disputed, and, being so, why should not the principle have larger application? Let us, therefore, while we can enjoy the idea that in this respect we are a favoured country.

Mr. Carbonell's place among collectors will not be easily filled, but it is not only, nor mostly, as a Fern collector that he will be remembered. Naturally of a very generous disposition, he took an active interest in all around him, particularly in the poor and the young. At Usk his loss will be widely and deeply felt.

A. M. J.

PROPAGATING.

GLOXINIAS.—Where these are raised from seeds, the young plants will in most cases by now have passed their earlier stages, for they are usually sown by the early part of February, but where the named varieties have to be propagated other means must be resorted to. For these the usual mode of increase is by leaf cuttings, and as the object is to get the plants as large as possible the first season, the sooner the cuttings are put in the longer will be their growing season. Propagation by leaf cuttings is carried out in the following manner: By this time the established plants will be growing freely, and if examined, it will in many cases be found that two or three leaves can be spared from the base of the plant without injuring it in any way. These leaves should be taken off with a sharp knife as near the stem as possible, but care must be taken not to injure it. The pots prepared for their reception may be either of small size, when a single cutting only will be put in each pot, or they may be 4 inches or 5 inches in diameter, in which case there will be room for several cuttings to be inserted together. A light, finely-sifted, sandy soil is best for the cuttings, and the pots being filled moderately firm with it, the cuttings may be inserted therein. They must be so dibbled in that the base of the leaf-blade rests on the surface of the soil, or is just buried. The leaf-stalk will serve to hold the cuttings in position, and when the pots are finished and watered through a fine rose, all that then remains is to place them in a close propagating case. After a fortnight they may be plunged in a gentle bottom-heat, as this will hasten the formation of roots, but it is not absolutely necessary in order to ensure success in striking these plants. The leaf cuttings commence to grow by forming a callus at their base, from whence young shoots are pushed up. As soon as sufficiently rooted they must be inured to the ordinary atmosphere of the house, and after that potted off. They soon become established in their small pots, when they may be shifted on and receive the same treatment as the larger specimens. Most of the other Gesneraceous plants, such as *Achimenes*, *Tydas*, *Gesneras*, &c., can be increased by cuttings, and also by division of the rhizomes. This last can only be carried out when the plants are dormant, while the best time to take the cuttings is just as the freshly-started plants are but a few inches high. The top of the plant may then be utilised as a cutting, taking care, however, to leave at least a couple of good buds undisturbed on the plant to form a base from whence future shoots will spring. The cuttings may be put into the same kind of soil and subjected to the same treatment as recommended for *Gloxinias*.

ILEX CRENATA.—This pretty little Holly differs widely from the other members of the genus, not only in appearance, but also in the readiness with which it can be struck from cuttings. While the ordinary Holly and all its numerous varieties are not at all easy to strike, this little Japanese species will root freely from cuttings put in at almost any season of the year, provided the shelter of a cold frame is given. The present is a very good time to put in the cuttings, as growth has not yet commenced. If the cuttings are not put in at once the best time will be when the summer's growth is completed—that is, about August. Pots about 5

inches in diameter are of a suitable size for the cuttings, and having some drainage material placed in the bottom they may be filled with light sandy soil pressed firmly. A length of 4 inches to 6 inches is a very suitable one for the cuttings, and having had their leaves removed for a couple of inches at the base they may be dibbled fairly thickly into their pots. A thorough watering having been given, the pots must be placed in a cold frame which is kept close, and if properly attended to the cuttings will root during the summer. Of course they will require to be shaded during bright sunshine, and also examined occasionally to see if any are in need of water. They make more rapid progress after they are rooted if put singly into small pots than they do if planted out directly from the cutting pots.

DIPLADENIAS.—This is the best time of the year to propagate these beautiful stove climbing plants, as not only do they strike root better at this season than at any other, but those struck thus early in the year can be kept over the following winter with less trouble than if they are rooted later on. The best cuttings are furnished by the young growing shoots, as if treated properly they take but a short time to root. The best cuttings are those made from shoots of medium stoutness, as the very succulent ones are liable to decay. The most useful cuttings are furnished by shoots from the upper part of a specimen, as where they are exposed to the fullest amount of light possible the growth is as a matter of course less elongated than where partially shaded. A soil consisting of sandy peat with a dash of loam will suit the cuttings perfectly, and if inserted in well-drained pots filled with this material and finished off with a layer of sand on the top they soon root. Put a single cutting into a small pot, and when rooted the young plants can be shifted on into larger pots without disturbing them. After the cuttings are inserted in the pots and watered they should be placed in a close propagating case in the stove, when if they are plunged in a gentle bottom-heat after a week or two it will greatly assist the formation of roots. Insect pests should be removed from the cuttings, as even a few aphides (which quickly increase in a close atmosphere) will soon injure the point of the young growing shoot.

CORREAS.—The showiest member of this genus in bloom is *C. cardinalis*, and though it can be struck from cuttings after the usual manner of hard-wooded plants, the mode of increase commonly employed is to graft it on a strong-growing stock, as the young plants make more rapid progress than those on their own roots. The stock usually selected is *Correa alba*, a vigorous-growing kind with by no means showy blossoms. This can be struck readily from cuttings, and after being potted off the young plants grow away freely. For grafting purposes they are best established in small pots, as space is economised thereby, for it is necessary to keep them in a close propagating case until a union is complete. The scions may consist of the current year's shoots taken when they are moderately woody. Side-grafting is a very good method for this purpose, the head of the stock being allowed to remain entire (or at all events but partially shortened in) until a union takes place. The point of union should be as near the ground as possible in order to ensure a bushy specimen.

DROSER A LUNATA.—This Australian Sundew, known also in gardens under the name of *D. dichotoma*, is readily increased by means of cuttings of the roots, and in this respect differs from the other members of the genus. Like most of them, it succeeds best in a mixture of peat and Sphagnum, and the same compost may be employed for the cuttings. All that is necessary is to take an established specimen, and after shaking the soil from the roots cut off any of the more vigorous ones that can be spared. They may be divided up into lengths of a couple of inches or thereabouts, and laid in well-drained pans filled with soil such as is used for potting, covering them with about half an inch of the same compost. If kept in a suitable temperature and the soil in a slightly moist condition, young leaves will, after a time, be pushed up,

which will be found to have their origin at the upper part of the divided root, the lower having at the same time pushed out some fibres. When this takes place the young plants can be potted singly in small pots and shifted on afterwards as required. By this method a far greater number of plants can be raised than would be the case if division of the crowns alone was carried out.

MEXICAN ORANGE FLOWER (*Choisya ternata*).—Where this pretty flowering shrub has been assisted with a little heat, for the purpose of inducing it to flower at this season, the young shoots will be in a forward condition, in fact nearly, if not quite, enough advanced for cuttings. There is an advantage in putting in cuttings thus early, for they strike root at this season in less time than at any other, while there is a long growing season before them yet. Shoots about 4 inches or 5 inches long make suitable cuttings, all that is necessary being to sever them with a sharp knife just at the base. Remove a leaf or two at the bottom if necessary, and then dibble the cuttings in light sandy soil. They must be put in a close case in a temperature rather above that in which they have been growing and they will then soon root. Of course all delicate cuttings require careful attention in the matter of shading and more particularly as the sun gains in strength. In the case of the *Choisya* care must be taken that the cuttings are not allowed to flag before putting them in, as they take a very long time to recover if that takes place. Sometimes when the plants are forced into bloom the foliage is liable to the attacks of red spider, and when this happens it is necessary to see that they are removed before putting them in the close propagating case, as in a confined atmosphere they make rapid progress.

NEPENTHES.—This is a good time to put in cuttings of these interesting plants. The minor shoots strike root more readily than the very stout ones, and they should be cut off at a joint and put into small pots filled with sandy fibrous peat. A stick must be used to secure the cuttings in position, and after being watered they should be plunged in a gentle bottom-heat in a stove propagating case. In a warm, moist atmosphere they quickly root. By some the cuttings are put into pots filled with live Sphagnum into which they also root well. T.

GARDENS IN THE SOUTH OF FRANCE.

LATELY, in the course of a visit to some of the more beautiful gardens in the south of France, we had an opportunity of seeing the results of the planting of exotic plants in that region. Generally in our country we prefer home experience, and, in pointing out to our readers what they have lost by neglecting the vegetation of our own and like countries, we have taken English examples; but we found the fair Riviera quite as instructive. Finding that Palms and things tropical would grow there, the whole population have planted them everywhere. We wish we could say with a good result. Many things are beautiful there, but there is a general sameness through the gardens that becomes quite monotonous. We think they have made a mistake in neglecting native vegetation and the vegetation of similar climates, such as Italy and California, for the purely tropical. The coast, though fair and sunny, is not the tropics. It is very near the Alps, and the cold flows down from them in the evenings. This year there has been very severe cold, and hundreds of tropical plants have perished or have been injured. In the garden of the Villa Thuret, a richly-stored garden at Antibes, we found the director grieving over the loss of many of his best things. It is well that experiments should be made to test what does best, but it is not at all pleasant some day to find half one's plants lost. There is not only the loss of the plants, but the consequent ugliness and the loss of time. These Palms, which everybody plants, are really not at home

in the country; they never look quite so free and picturesque as Palms do in a warm country.

The only garden in which we saw any delight taken in the native vegetation was that of the Comte de Paris, at Cannes, where the beautiful Heaths and other wild plants of the region are carefully preserved. The beautiful Stone Pine is seen only here and there, whereas we cannot imagine anything better from the tropics. The artistic error of neglecting the natural vegetation of the beautiful coast is committed everywhere.

Even things not grown for their beauty, like the Loquat, have perished this year. We saw many dead Orange trees and Lemons. There is not a more beautiful thing in the world than an old Olive tree, but none of the planters would care to keep it in a garden for its beauty; they would rather seek to get the effect of the tropical Palm everywhere. A stony bank clad with the Lavender, Myrtle, or Rosemary, and other wild plants of the region would certainly be as pretty as many things from other countries. Plants that seemed to us thoroughly at home and worthy of cultivation were the Bamboos of Japan. In the garden of the Comte de Paris, and especially that of the Comte de Vigier and the Princesse Kotschoubey, at Nice; of the Duc de Valombrosa, of M. Dignon, at Cannes, one saw evidence of the lovely character of these Bamboos—not starved, not suffering from the cold, or in any way oppressed by the climate after the hard winter, their grace and beauty were charming to see. In some cases—that of the Comte de Vigier among others—they were trees.—*Field*.

Growing Polyanthus Narcissus in water.—The ancient Chinese custom of growing the Polyanthus Narcissus in water to bloom at the advent of their New Year was brought to San Francisco by emigrants from the Celestial Empire more than a quarter of a century ago. The fashion has now reached the east, and it is not very uncommon to see this plant growing in this way in the houses of Boston and its suburbs. The cultivation of the Narcissus in water is very simple. The bulb is placed in a shallow bowl or deep plate about six weeks before it is wanted in flower, and, according to the Chinese custom, is surrounded with small bright-coloured stones, probably to prevent it from tipping in the plate; this is filled with water, and should be placed in the dark until root-growth is made. When the roots appear the plant should be placed in a sunny window, and will require no fur-

ther care beyond a daily addition of fresh water. The variety of Narcissus brought by the Chinese to this country, and from here introduced into England, is known as the Grand Emperor.—*Garden and Forest*.

STOVE AND GREENHOUSE.

AMARYLLIDS AT CHELSEA.

HYBRID Amaryllids are once again the centre of attraction in the Chelsea Nursery of Messrs.

skill and patience, given to the world a flower, from his point of view, perfect in finish, colour, and other ideal qualities. Great would be the surprise of the late Dean Herbert, who made a life study of the Amaryllis, if he could only see the progress of his favourite flower, and what the next advance will be time alone will reveal. One of the great things to obliterate now is the green tint seen more or less in almost every variety, and to substitute a clear white, which gives the flower a bolder expres-



New types of Amaryllis; one-third natural size.

Veitch, and each year brings with it some new forms that show an improvement either in symmetry, colour, or general quality on existing varieties. It may be truthfully asked, Where are we to stop in the perfecting and developing of this glorious flower? But we are assured that the great aim is not yet accomplished, as there are certain blemishes that have to be removed from the Amaryllis before the florist can rest satisfied that he has, through his ardent

sion and more vivid and sharply defined colour. As regards white forms, we may mention that the variety *Finette*, certificated at the last meeting of the Royal Horticultural Society, is a decided break away from the crimsons, maroons, and shades of the same, which, to say the least, seem to have become a trifle monotonous by reason of their redundancy. The lighter varieties, feathered with cheerful colours, are useful by way of contrast, as by the mingling of these and the beautifully reticulated and almost self coloured forms effective combinations are obtained. Now that we have approached so closely to a pure white, we hope that a true self will be one of the surprises in Amaryllis hybridisation of the future, and such a flower must be exceedingly chaste and pure.

It is unnecessary to describe the house in which the plants are grown, as it was figured in THE GARDEN for March 22, 1884, but it may be interesting to note that it contains some 3000 plants in various stages of growth, and about

1200 flowering bulbs. Of course, in a nursery the display is always changing, but a walk round at any time during the flowering season will be full of interest, and it is surprising to see the great variation both in the form, size, quality, and tints of the flowers—from the variety *Dr. Masters*, an example of exquisite symmetry, though small, to the huge-flowered and robust *Conqueror*, the latest triumph of all at present, though, judging from the vigour of some of the other seedlings now expanding, even this will be superseded.

The weather this winter and spring has sorely tried vegetation in general, and *Amaryllids* have been especially affected by the biting winds and almost total absence of sun. The cultural details as carried out are exceedingly simple, and here the *Amaryllis* has an advantage over the *Orchid*, inasmuch as it is an amateur's flower, growing in a house almost without fire-heat. About the middle of January is the time for potting the bulbs, which are buried about half their depth in a substantial soil composed of good turfy loam, well-decayed cow manure, and silver sand, the pots after this operation being plunged in a bed of tan. At the end of February, when it is seen that growth is commencing, water is given, and at this time a gentle bottom heat is afforded, the temperature in the house being kept at about 55°. This has been especially essential this season, owing to the winds and comparatively little sun-heat, but there is nothing like the natural warmth of the sun for obtaining full development of leaf and flower. When the blooming period is over, the growth of the plants is promoted in every way, and during the summer and autumn abundance of air is given, but they are screened from the very hottest sunshine. Water is entirely withheld from the middle of August till growth begins, and by this method thorough ripening of the bulbs is ensured, a most important particular in the culture of the *Amaryllis*.

A few remarks may well be made on some of the more striking of the varieties noted recently. All these have distinctive merits that entitle them to be placed amongst the finest of this group of greenhouse flowers. *Finette* has already been described, and another light form of bold expression and clear, decisive colouring is *Miss Roberts*, the rich netting of scarlet giving great beauty to the flower. A rich contrast to this is *Lustrous*, a neat bloom, the colour lustrous crimson. *Rodney* is a variety that illustrates how strong a growth has been infused into the race by one of the first parents, the *Empress of India* variety: the colour is particularly bright, the mottlings and central band of white on the segments showing well. In *Hazledon* we have a peculiar reddish purple tinge, and *Hylton* is brick-red, with white markings. The brilliant scarlet and purple veining of *Chieftain* are very effective, and the flower is also of excellent proportions and outline. *Acquisition* is bright velvety scarlet, with white central bands, and in *Amanda* we have a nice shade of scarlet, besides a finely proportioned bloom. One seedling just expanding shows what varied tints of crimson are obtained. It has a thick, firm petal and the richest colour. *Terentian* is one of those bright, cheerfully-coloured sorts that are being improved upon and encouraged; and *Gowned* shows an advance on others, inasmuch as the markings are well defined, the colour bold and pure. *Diomedes* is rich purplish crimson, and a good one of its class; and *Juilette* will be valued for the very distinct tint, white, feathered with crimson in the upper segments; the others almost wholly white. A very brilliant self scarlet is *Aztec*, and the form of the flower is neat

and shapely, reminding one of the variety *Dr. Masters* in this respect. Fielding is of the type of the last-mentioned variety; in truth, a gem both for its velvety crimson colour and exquisite form. A glance at the accompanying illustration of *Amaryllids* shows what has been accomplished so far. We have here a symmetrical form, finish, and proportion, which, though some consider formal, are yet of a type of beauty admired by many, as evidenced by the great number of cultivators who prize the *Amaryllis* not only for its brilliant and diversified colouring, but also for its bold and stately character. E. C.

Boronia heterophylla.—This gem amongst greenhouse plants, and of which a coloured plate appeared in *THE GARDEN*, November 12, 1887, is now flowering in great profusion in the Messrs. Veitch's nursery at Chelsea. The plants are quite small, so that there cannot be any doubt regarding its free-flowering character. In the same house were also quantities of the Violet-scented *B. megastigma*, one little spray being equally as fragrant as a large bunch of *Violets*. These two plants alone should awaken the old love for New Holland plants, which I am pleased to see returning. Our greenhouses at this season of the year lack much of that beauty they presented forty years ago.—W. H. G.

Azalea rosæflora.—Those who want a choice and distinct *Azalea* will find this useful, as it differs in a marked manner from any of the numerous varieties of the Indian race. It naturally forms a dense, much-branched, globular-shaped bush, which is now profusely laden with bright salmon-pink blossoms. These are very double, the petals being beautifully imbricated, and when partially expanded the blooms much resemble little *Rosebuds*. They do not drop so quickly as those of the single *Azaleas*, and owing to their size make very useful button-hole flowers. It is by no means a novelty, for it is now eleven years since Messrs. Rollisson, of Tooting, were awarded a first-class certificate for this *Azalea* at Kensington, under the name of *A. Rollissoni*. Besides this, it is known as *A. balsamiflora*. A coloured plate of it was given in *THE GARDEN* for September 11, 1880. Though introduced so many years, this *Azalea* is still far from common—indeed, it may still be called a rare plant. The reason of this is, no doubt, its extremely slow growth, for it takes years to form a fair-sized specimen, that is to say, on its own roots, for when grafted the rate of progress is more rapid, but even then it is very slow compared with the others. In order to get as much growth as possible directly the flowers are over, the plant should be placed in a warm, moist atmosphere for a time, as if this is not done the young shoots are very weak. Owing to the dense fogs that prevailed during the winter round London, the foliage of many of the Indian *Azaleas* suffered greatly, but none to the same extent as that of this little Japanese one.—H. P.

Planting out Camellias.—I shall be much obliged if you will give me your advice as to planting two large *Camellia* trees (a white and a red one) in my greenhouse. They are 10 feet high, or a little over, and their shape has been spoiled on one side. My gardener wishes to train them against the back wall of the greenhouse. Should *Camellias* be trained or grown as standards?—FREDERICA STEWART.

* * * The two plants named and described as defective in shape on one side will be none the worse on that account for planting out, as the bare sides can be put next to the wall. *Camellias* are among the best of all plants for covering a wall in a greenhouse, provided they are not too much shaded by other things. The plants in question being 10 feet high, they may be supposed to be in correspondingly large pots or tubs; consequently the border in which they are planted will require to be deep, so as to allow for sufficient drainage and the requisite depth of soil. Good turfy loam is the best material to put them in, adding as much sand as will keep it sweet and porous. The plants may be put in the border at once. Disturb the roots as little as possible in removing the old drainage material from the bottom

of the balls. To assist the water to pass through the balls after planting it will be best to perforate them with a strong piece of iron wire from the top down to the bottom in say a score of places, and to still further make sure of the water penetrating the old soil instead of passing off through the border, the soil immediately around the plants must be rammed to make it as solid as the balls. If left an inch or so higher than the surface of the old balls for two or three months, it will be an additional safeguard against the roots becoming dry.—T. B.

FLOWER GROWING IN THE UNITED STATES.

At the beginning of the present century, it is not probable that there were 100 florists in the United States, and their combined greenhouse structures could not have exceeded 50,000 square feet of glass. There are now more than 10,000 florists distributed through every State and Territory in the Union, and estimating 5000 square feet of glass to each, the total area would be 50,000,000 feet, or about 1000 acres of greenhouses. The value of the bare structures, with heating apparatus, at 2s. 6d. per square foot would be about £6,000,000, while the stock of plants grown in them would not be less than twice that sum. The present rate of growth in the business is about 25 per cent. per annum, which proves that it is keeping well abreast of our most flourishing industries.

The business, too, is conducted by a better class of men. No longer than thirty years ago it was rare to find any other than a foreigner engaged in commercial floriculture. These men had usually been private gardeners, who were mostly uneducated and without business habits, but to-day the men of this calling compare favourably in intelligence and business capacity with any mercantile class.

Floriculture has attained such importance, that it has taken its place as a regular branch of study in some of our agricultural colleges. Of late years, too, scores of young men in all parts of the country have been apprenticing themselves to the large establishments near the cities, and already some of these have achieved a high standing, for the training so received by a lad from sixteen to twenty better fits him for the business here than ten years of European experience, because much of what is learned there would prove worse than useless here. The English or German florist has here to contend with unfamiliar conditions of climate and a manner of doing business that is novel to him. Again, he has been trained to more deliberate methods of working. As a matter of fact, a workman of mine potted 11,500 plants in ten hours, and since then several other workmen have potted plants at the rate of 1000 per hour all day long.

Old-world conservatism is slow to adopt improvements. The practice of heating by low-pressure steam will save in labour, coal, and construction one-fifth of the expense by old methods, and nearly all the large greenhouse establishments in this country, whether private or commercial, have been for some years furnished with the best apparatus. But when visiting London, Edinburgh, and Paris in 1885, I neither saw nor heard of a single case where steam had been used for greenhouse heating. The stress of competition here has developed enterprise, encouraged invention, and driven us to rapid and prudent practice, so that while labour costs at least twice as much as it does in Europe, our prices, both wholesale and retail, are lower. And yet I am not aware that American florists complain that their profits compare unfavourably with those of their brethren over the sea.

Commercial floriculture includes two distinct branches—one for the production of flowers, and the other for the production of plants. During the past twenty years the growth in the flower department of the business has outstripped the growth of the plant department. The increase in the sale of *Rosebuds* in winter is especially noteworthy. At the present time it is safe to say that one-third of the entire glass structures in the United States is used for this purpose, many large growers having from

2 acres to 3 acres in houses devoted to Roses alone, such erections costing from £10,000 to £20,000 each.

More cut flowers are used for decoration in the United States than in any other country, and it is probable that there are more flowers sold in New York than in London with a population four times as great. In London and Paris, however, nearly every door-yard and window of city and suburb show the householder's love for plants, while with us, particularly in the vicinity of New York (Philadelphia and Boston are better), the use of living plants for home decoration is far less general.

There are fashions in flowers, and they continually change. Thirty years ago thousands of Camellia flowers were retailed in the holiday season for 4s. each, while Rose-buds would not bring $\frac{1}{4}$ d. Now, many of the fancy Roses sell at 4s. each, while Camellia flowers go begging at 5d. The Chrysanthemum is now rivaling the Rose, as well it may, and no doubt every decade will see the rise and fall of some floral favourite. But beneath these fitting fancies is the substantial and unchanging love of flowers that seems to be an original instinct in man, and one that grows in strength with growing refinement. Fashion may now and again condemn one flower or another, but the fashion of neglecting flowers altogether will never prevail, and we may safely look forward in the expectation of an ever-increasing interest and demand, steady improvement in methods of cultivation, and to new and attractive developments in form, colour, and fragrance.—PETER HENDERSON, in *Garden and Forest*.

THE CAMELLIA HOUSE.

THIS structure is now very bright with flowers, and the Camellia season of 1888, although considerably later than usual, will be remembered for the production of exceptionally fine blooms. Camellias in their several varieties are very erratic as to their blooming season; indeed, it is almost impossible to pick out any one sort that can be relied on to expand on or about a given time, that is, naturally, if the structure devoted to them is only kept just above the freezing point in severe weather. Jeffersoni, for instance, a variety that we are sometimes cutting at Christmas, has only just (April 1) expanded, and Edouard Guillion, generally very early and an invaluable sort for cutting, is this season later than the old alba plena. I do not think that, unless for the special purpose of show flowers, the old varieties have been much improved, and certainly they cannot be beaten for freedom of growth and flower, and if large plants with plenty of bloom are required, there are some of the old sorts that would be found essential. They vary, too, greatly in shape of flower, lacking, in many cases, the extreme formality of the newer sorts, and meeting in their individual merits nearly all the requirements of the florist. Thus, the old alba plena and fimbriata are still about the best for wreaths, crosses, &c., where purity of colour is an essential feature; for general cutting for vases, table decorations, and ordinary bouquets, Edouard Guillion, Marchioness of Exeter, and the various forms of Chandleri and Donckelaeri are most serviceable, whilst for button-holes there are few better than Cup of Beauty, Lady Hume's Blush, and eximia. Where vigour is one of the first considerations, and it is necessary the plant should furnish a given space as soon as possible, I should recommend the old French white and Marchioness of Exeter.

It is advisable at this time before the flower season is too far advanced to go carefully over the plants to ascertain if there are any gaps that require filling, and to make a final disbudbing where this may be required, that such plants might be induced to make a more vigorous early growth than they would if all buds are allowed to remain. Care must also be taken during the flowering season to see that black fly on no account gets the upper hand, as if this is the case, it will be found very difficult to stamp it out. As the season advances, the ventilation is an important feature in the Camellia house, and when it is not possible to leave air during the night, a little should be given in the very early morning to dry up any moisture

on the leaves before the house is exposed to the full blaze of the sun. This is especially necessary later in the spring when copious afternoon washings succeed the last cut flowers, and when the cutting back necessary with strong-growing varieties brings into the full light back and partially ripened shoots. Amongst other old varieties well worth growing besides those already enumerated are Woodsi, very similar to Marchioness of Exeter; Eclipse, a vigorous grower and a bold, Anemone-shaped flower; conspicua, a very large semi-double flower; and Rubens, a fine dark flower of large size and great substance.

Claremont.

E. BURRELL.

BROWNEAS.

THESE beautiful stove shrubs are rarely met with outside botanic or public gardens. The flowers are very brilliant, in some species the young leaf growths being prettily marked, so that the Browneas are handsome decorative plants even when not in flower, and well suited for a conservatory containing tropical subjects. Some of the species, as *B. grandiceps* and *princeps*, although they may be successfully grown in pots, are seen in their best form when planted out. The large feather-like, nearly erect, light flesh or fawn-coloured plumes of young leaves of *B. princeps* are singularly striking. The same may be said of *B. grandiceps*, only in this species the young growths are flaccid or pendulous, and they are exquisitely marked and marbled with reddish brown, the ground colour being darker than in *princeps*. *B. grandiceps*, as the specific name implies, produces enormous heads of flowers of an orange-scarlet colour. If from large plants the trusses of flowers will often measure nearly a foot across. This is probably the largest flowered species, but it requires a fair amount of head room to develop to the flowering stage. Possibly *B. coccinea* might in many cases be more suitable, as it usually grows about 7 feet or 8 feet high, and, moreover, it begins flowering when in a very small state, and although the bunches of flowers are much smaller than in *grandiceps*, they are more freely produced, and are of a much deeper scarlet colour. There are also several hybrid forms of *coccinea*, which, while the flowers retain their scarlet colour, are larger in size both as regards the individual flowers and the aggregated clusters. In Sir George Macleay's garden at Pendell Court, Bletchingley, *B. grandiceps*, *coccinea*, and several hybrids have been flowering for some time. Sir George takes a great interest in this family of plants, and has planted out a portion of a house with them. The treatment suits them admirably, good loam, with plenty of sharp sand, being the best. A stove temperature, with copious syringing during summer, reducing the watering and syringing in autumn to ripen the wood, completes the routine of their cultivation.

F. R.

Lachenalia rubida.—None of your correspondents seem to remember that *Lachenalia rubida* is an autumn-flowering variety. It was kindly sent to me last August by Mr. Ware as a present, and after being potted and left in the sun for three weeks the leaves came up, and it gave its spike of coral-rose flowers in the end of September. It is figured in the *Botanical Magazine*, 25, 993, where it is also mentioned as flowering in autumn. In the "Gardener's Dictionary," published in 1868, amongst a list of forty *Lachenalias*, *L. rubida* and *L. carulescens* are noted as flowering in September. A short article on *Lachenalias* has just appeared in a Portuguese paper, the *Jornal de Horticultura Pratica*. The following varieties are mentioned as under cultivation, *L. pendula flava*, *L. pallida*, *L. tricolor*.—F. G. S., Oporto.

Camellias for cutting from.—A few weeks ago I noticed remarks on the above by "R. D." in "Notes from Sion House Gardens." To those kinds named therein, I would add with every confidence two

others, both of which I have proved good for the purpose. Chandler's Elegans, another well-known old variety, is one of the finest of its colour (a pleasing rosy pink). Countess of Orkney is also one of the very best of its class; in fact, one of the finest striped Camellias grown, with bold and handsome flowers. I find both of these varieties to have excellent lasting properties in a cut state; they are also of free growth and vigorous constitution; and last, but far from least, they are two of the most reliable kinds with which I am acquainted, and never cast their buds just prior to opening.—J. H.

A note from Adelaide.—My continual absence from Adelaide and the long distance between us is the cause of my not replying to "W." in THE GARDEN, Sept. 3, 1887 (p. 200), before this. I have carefully read the numbers and works he referred me to, but that does not alter the fact that the flowers of the Crinum which I saw were yellow. On February 26 there was one in the Botanic Gardens with three stout spikes of flowers, each $2\frac{1}{2}$ inches across, and of a distinct clear yellow or lemon tint. Dr. Schomburgh informs me that it is only a variety. I shall be leaving here on March 28, and shall, if my time is not too much taken up, bring some of the bulbs back with me, and will forward some to "W." if he will send me his address. I brought several down with me some months ago. They have not done well so far, but I think they will do better next season. I sent several hundred seeds to a firm on the Continent, and I have no doubt but that young plants will soon be in the market.—W. B. WEGER, Adelaide.

Cinerarias at Farnham Royal.—The collection of Cinerarias at Woodside, Farnham Royal, is again this year full of beauty and wonderful quality. Larger flowers than many of the plants produce have never been seen, and to size is allied that fine quality which always marks Mr. James's strain. The long span-roofed houses in which the plants make such a brilliant show are kept as cool as possible, the doors being kept wide open to admit the bees. A marked feature of the entire stock of Cinerarias is their robust dwarfness, whilst carrying fine rounded heads of large flowers. The strain was once strongly marked by the rich selfs—blue, purple, cerise, red, crimson, &c.—and now there is a big batch of white self-flowered plants. But, further, one long house is devoted entirely to light or edged flowers of various colours, and these make a wonderfully gay show, being in strong contrast to the more sombre, but still exceedingly rich, selfs. How far the splendid quality found in the strain as grown at Woodside is due to excellence of cultivation it would be hard to say, but it is obvious that the culture is of the most simple and matter-of-fact sort, such as would be given by most ordinary growers. The houses are light and very clean, and are specially adapted to the culture of Cinerarias, Calceolarias, Chinese Primulas, and Cyclamens, Mr. James's favoured florists' flowers. Primulas have been wonderfully fine, and Calceolarias will make a rich display a month or so hence. Of Cyclamens it can be said that out of a fine strain of reds there may be seen the very finest crimson-flowered variety yet raised.—A. D.

SHORT NOTES.—STOVE AND GREENHOUSE.

Steam-heating.—What do your readers say to Mr. Peter Henderson's remarks about this in this week's issue?

Single white Camellia is the most beautiful of all the single varieties, as it is quite white, save the central cluster of golden stamens, which only serve to intensify the other. It is in bloom in the Epom Nursery.

Cineraria cruen'a.—The type of the florist's varieties is a plant of truly wild aspect. It has a head of comparatively insignificant lilac flowers. There is a great difference, from an ornamental point of view, between this and the kind grown by Mr. Cannell as *crucata*.

The Be'ladonna Lily.—In the article on the Be'ladonna Lily in THE GARDEN of March 21, "W. W." says that the south-west part of the Cape is the only part of the world in which this Lily is found really wild. But this is a mistake, as it grows in thousands here in Madeira, and the woods in autumn are a waving mass of these beautiful flowers, which are indigenous.—F. B., Madeira.

Rhododendron balsaminæflorum album.—This beautiful and useful form is flowering with Messrs. Veitch at Chelsea, and is certainly of especial interest. The flowers appear to me more like those of

a very large double Tuberosa than a Balsam, and quite small plants were in bloom, the flowers being perfectly double and pure white. In growth the plant appears to be free, and not materially different to that of other varieties.—W.

WORK IN PLANT HOUSES.

STOVE.—WINTER-FLOWERING PLANTS.—The different kinds of winter-flowering plants that are usually propagated annually, cuttings of which were put in a short time back, will now be ready for potting off. From 4-inch to 5-inch pots will be the size to give them. The soil should consist of good turfy loam, with some sifted rotten manure and sand. If the loam is of a heavy nature, mix a little leaf-mould with it. Quick-growing plants like these, especially such things as *Eranthemums*, *Serico-graphis Ghiesbreghtii*, and *Thysacanthus rutilans*, should be kept well up to the glass, or they are sure to get weakly. Pinch out the tops as soon as a little growth has been made, and when the shoots that are afterwards formed have got sufficiently long, they should be tied well out, so as to furnish the plants properly at the bottom.

HARD-WOODED FLOWERING PLANTS.—POTTING-OFF CUTTINGS.—Cuttings of the different kinds of flowering stove plants that were put in to strike some weeks back, such as *Ixoras*, *Dipladenias*, *Clerodendrons*, *Bougainvilleas*, *Allamandas*, *Gardenias*, *Rondeletias*, *Tabernaemontanas*, and *Apelandras*, should be potted off as soon as they are well rooted and have been removed for a time out of the confined atmosphere of a striking frame or under propagating glasses. Cuttings of quick-growing things like the plants named should never be allowed to stand in the pots or pans in which they have been struck, for not only does it entail a loss of time in delaying their growth, but the roots get matted together in a way that causes them to suffer when they are separated. Most of the plants named are fast growers, that consequently from the first will bear more root-room than things that make less progress. One of the chief points in their cultivation is to grow them on without delay, as the freer the growth in the early stages of their existence the better specimens they make. With this object some rotten manure should be added to the soil, and this ought to be passed through a fine sieve, so that if it contains worms these may be destroyed. Sand should be mixed with it, but it is not necessary to use so much for stove plants that have more or less of the old soil removed periodically as it is for fine-rooted greenhouse subjects. In all cases see that the soil is warmed sufficiently before putting the newly-struck plants in it. Pot moderately firm, and give no water for some days after potting, as the daily syringing overhead that will be required will suffice to keep them moist enough. Keep the atmosphere damp and close until the roots begin to move freely. Give shade in bright weather, but let the plants have as much light as possible, also attend to the stopping in good time.

FINE-LEAVED PLANTS.—Cuttings of *Crotons*, *Dracenas*, *Sphærogynes*, *Cyanophyllums*, *Rhopalas*, *Cupanias*, and the like should as soon as they have made enough roots be potted. Some of them, as the *Cyanophyllums* and *Sphærogynes*, should have an abundance of pot room, as without this the first leaves they make will be small. Young plants of these and other fine-leaved kinds that were struck in autumn and have been kept singly in suitable sized pots through the winter will now require a shift. These, like the newly struck stock, must not be cramped for room.

BERTOLONIAS.—Some of the most beautiful of all fine-leaved plants are small growers, and are often lost sight of through the preference given to things that attain a greater size. Amongst the kinds that are remarkable for the charming colours of their leaves are the *Bertolonias*, several of which are almost equal to the *Anæctochilus*, whilst they possess the advantage of being much quicker growers and easier to manage than the delicate little *Orchids*. To have these *Bertolonias* in good condition, it is necessary to keep up the stock by frequent propagation, as if the plants are allowed

to go on too long they are apt to become straggling. The present is a good time for striking cuttings, and these should consist of the tops of the shoots with about three joints to each. Remove the bottom leaf and sever the stem at the joint. Put the cuttings singly in small pots filled with sand and stand them in a brisk growing temperature under propagating glasses, but do not keep them too close or too moist, as the succulent nature of their stems is such that if much confined the plants are liable to damp off. For a like reason they should be kept where more light can reach them than cuttings that contain more woody fibre will bear. When well rooted put them singly in small pots. After trying these *Bertolonias* in different kinds of soil, I have found that they do best in fibrous brown peat mixed with some chopped *Sphagnum*, sand, and small crocks. Where several plants are plunged closely together in small pots or pans sufficiently large to hold them, they are the most effective. *Bertolonias* are more robust when grown with a greater amount of light than is generally given them, but they must be constantly shaded in sunny weather, and should always be placed on a moist bottom and in a house where there is enough moisture in the atmosphere. The delicate colour tracing in the leaves is brighter when the plants are covered with bell-glasses, but the latter should be kept tilted, as if allowed to remain close over them it produces weakness. Plants that have had their tops removed to furnish cuttings in the way advised will soon break into growth, and when the young shoots are large enough these also should be taken off and struck. A small collection, consisting of half a dozen of the best sorts, when well managed is always attractive, and as they can be dispersed amongst larger growing plants in the stove they occupy little room.

ARISTOLOCHIA ELEGANS.—This beautifully-marked species is well worth the attention of everyone who has a warm stove. It is a less rampant grower than some of the kinds, and occupies less room. The flowers are produced freely and are devoid of that objectionable smell that many of the better known sorts possess. Plants that were struck from cuttings last spring, or early enough in the summer to allow them to gain sufficient strength, will bloom well the present season. They should now be put into good-sized pots. A shift from a 6-inch to a 12-inch pot will not be too much, and turfy loam with some rotten manure and sand is the best material to use, though, in common with the other kinds, this *Aristolochia* is not very particular in the matter of soil. It is better adapted than the others for growing as a pot specimen trained round sticks inserted inside the rim of the pot or to an ordinary wire trellis. Cuttings put in now will make good flowering examples next year, and it is in most cases better to use young plants than to keep old stock that has been several times headed back. Cuttings strike readily, and if composed of young shoots these should be taken off with a heel when about 6 inches or 7 inches long. Put them singly in 3-inch or 4-inch pots, and when well rooted, pot them in soil such as recommended for the larger plants. Shade is necessary for the plant in bright weather through all the stages of growth. Syringe freely overhead once a day, as this will assist the growth and keep down red spider, which sometimes affects it in hot, dry weather.

BOUVARDIAS.—Cuttings of these most useful of flowering subjects should be potted off as soon as they are well rooted. Give them soil well enriched, for it is necessary to push them on without delay, otherwise the plants will be small in size at the end of the growing season. For the same reason they must be kept in a brisk growing temperature until the nights become sufficiently warm. Pinch out the points of the shoots as soon as an inch or two of growth has been made. Keep the atmosphere moist and give shade in bright weather, and stand the pots on a moist bottom. This is one of the first essentials for newly-struck plants of all free-growing things that like warmth, as when so treated in the early stages of their growth they will make double the progress that is possible when placed on dry shelves. Old plants that were cut close in some

time back, with a view to their being grown on for blooming again, should, when they have made an inch or two of growth, be turned out of the pots and have part of the old soil removed. Put them in pots two sizes larger than those in which they were grown last season. A compost consisting of about three parts loam to one of leaf-mould with some sifted rotten manure and sand will suit them. If any of the young shoots show signs of taking too great a lead of the rest, pinch out the tops. Keep them in a growing temperature, and syringe overhead in the afternoons at the time the shading is taken off.

GREENHOUSE.—PRIMULAS.—A little more *Primula* seed may now be sown, the plants raised from which will bloom in succession to those produced from that sown at the beginning of March. Where a lengthened succession of these plants is required, it is advisable to make three sowings. As before advised, it is well not to cover the seeds with soil, but before sowing, to water the surface of the soil so as to make it moderately moist; then scatter the seeds on the top and gently press them down, covering the pot with a sheet of glass or a piece of thin white tissue paper to keep the surface from becoming dry. The seed sown some weeks ago will now have germinated, so remove the covering, but the young plants must be carefully shaded from the sun. The pans should be stood close to the glass, or the seedlings will be wanting in that sturdy growth which is so essential to their doing well later on.

DOUBLE PRIMULAS.—Crowns or suckers of the double kinds that were put in at the time advised will by now have got sufficiently rooted to bear full exposure to the light, but they also must be shaded, or the leaves will turn a sickly colour.

TUBEROUS BEGONIAS.—Young plants that were raised from seed sown at the beginning of the year will now require pricking out a second time, as if left unmoved as long as seedlings of most things will bear, they receive a check that is injurious. Shallow boxes are the best to keep them in for a time yet. Give them at this shift about double the room that they had when pricked out the first time. See that the soil they are put in is light, as unless it is the roots will get broken when the plants are lifted. Let the plants have a light position with a warm, moderately moist atmosphere, and shade with thin material when the sun is bright. T. B.

GARDEN FLORA.

PLATE 645.

THE BLUE AND WHITE LEADWORKS. (*PLUMBAGO CAPENSIS* AND *P. C. ALBA*.)

THE plants which we here figure belong to the Leadwort family (*Plumbaginæ*), and are supposed to have derived their name from their efficacy in curing a disease of the eyes resembling cataract, and which the ancients called *plumbum*. It is a somewhat small Order of plants, but the majority of its members are remarkable for the extreme beauty of their flowers. Take, for example, the Sea Lavender (*Statice*), many of which are extremely ornamental border plants; the same may also be said of the common Thrift (*Armeria*) and the Prickly Thrift (*Acantholimon*). *Plumbago* gives its name to the Order, and the genus comprises several handsome greenhouse plants, the two represented in the coloured plate being notable examples, whilst *P. rosea* is useful for the stove. Beautiful as are the blossoms of *P. capensis*, the plant has not found much favour at the hands of the artist, and of late years it has been to a great extent ignored by the gardener, and yet, as far as I am aware, the peculiar steel-grey colour of its blooms is peculiar to this kind. When the bedding-out mania was strong,

* Drawn for THE GARDEN in Mr. Williams' nursery, Upper Holloway, by H. G. Moon, November 1, 1887, and printed by G. Severeys.



THE CAPE LEAD-WORT. (PLUMBAGO CAPENSIS AND P.C. ALBA)

I grew some large plants of this species and planted them in the open air, pegging the long shoots down on the surface of the soil; they succeeded very well and flowered abundantly, the peculiar shade of blue producing a charming effect, but the following season being cold and wet did not suit the plants and the experiment was considered a failure. I understand that Mr. Barron at Chiswick uses *P. capensis* largely for bedding out during the summer months and finds it very useful, as it blooms very freely and the colour of the flowers affords a change from that commonly seen. The plants are lifted in the autumn previous to the appearance of frost, and having been cut down are placed in as small pots as they can be got into, and kept moderately dry in a frame with *Pelargoniums* and other bedding plants until required the following summer. Plants treated in this way may be used in the flower garden for many years. This plant appears to have been introduced to our gardens from the Cape of Good Hope as long ago as the year 1818, but by whom I have no record; the white form also comes from the Cape, and was introduced by Mr. Williams, of the Holloway Nurseries, some few years ago, and is now tolerably plentiful. Both the species and its variety if allowed to grow without pinching back make very long shoots, and when thus treated rapidly form large plants, which when trained upon the pillars or rafters of a cool greenhouse produce a charming effect. As it stands pruning well and flowers in quite a small state, it can easily be kept within whatever bounds are most suitable. Thus plants which were struck from cuttings last season should now be potted into, say, 6-inch pots, and will during the summer produce an abundance of flower. When the blooming is over, the plants, having been cut back and a portion of the old soil removed, may be placed in smaller pots. If it is desirable to increase the size of the plants, they may be potted into larger ones. I prefer planting out for those that are required to train over rafters and pillars. The soil for *Plumbagos* should consist of about two parts sandy loam and one part peat made firm. When growing, *Plumbagos* are much benefited by a weekly application of manure water, but during the winter months water must be given somewhat sparingly. Other species of *Plumbago* are *zeylanica*, which, although it produces white flowers, is far inferior to the white variety of *capensis*, and, moreover, it requires stove-heat. Another stove kind is *rosea*; the variety *coccinea*, introduced by the Messrs. Veitch from the Madras hills, is the most desirable. *P. Larpentæ* (also called *Valoradia plumbaginoides*) is a hardy species, which thrives well as a rock plant, producing quantities of its rich blue flowers, and although discarded to a great extent as a border plant, is yet very effective. During the past season I observed it in very fine condition in the pleasure grounds at Hampton Court Palace. W. H. G.

Plants for the dinner-table and other uses in the house.—Young stock of the best selections for these purposes will in most cases have already received a shift this spring, and will now fast be becoming established. In order that such plants should, when required for use, be as effective as possible, I find it a good plan to prick in a few patches of *Selaginella denticulata* upon the surface of each pot. In a few weeks' time this Moss will have become established, adding much to the beauty of each individual plant when placed in any receptacle for which it may be chosen. In performing this operation it will be as well to have some silver sand at hand, in order to apply a little to the surface of each pot before inserting the *Selaginella* to aid it in becoming established quickly.

Plants thus treated have a finished appearance about them which others have not, even when common green Moss is used to cover the soil. We, who are not sufficiently removed from the deleterious influences that pervade the atmosphere around our large towns are forced to resort to means which one would hardly think of if far away in the country. This is one of great importance, and one even that might be adopted anywhere if plants for the mansion are required and the standard aimed at be above the ordinary rut and run of every-day material. Later on in the season rather more water will be needed as a natural sequence to this addition to each plant, and should a shift be found necessary in any given case it will not be at all requisite to remove the *Selaginella* to perform that operation. Where there is a plentiful supply of seedling Ferns these can be used in a similar way.—JAS. HUDSON.

FLOWER GARDEN.

SPRING FLOWERS.

I AM afraid this is a misnomer this year, and that early flowers would be a better title, for the flowers have come, but not the spring, and I have been perfectly astonished at the remarkable way in which they have withstood the frightful weather we have had in this south-eastern part of England. On March 20 and 21 we had so heavy a fall of snow, accompanied by a fierce driving gale from the north-east, that it drifted in some places to the depth of 7 feet or 8 feet. All our roads were blocked up and locomotion impossible, and yet all this the spring flowers withstood wonderfully.

CYCLAMENS.—I have some roots of the varieties of *vernum* and *Atkinsi* on a front rockery in front of some trees whose roots spread underneath it, and here, baked most thoroughly in the summer months, these *Cyclamens* have flourished. They have shed their seeds in all directions and are coming up freely about where the bulbs were planted originally, and flower well. These were in bloom in February, and since then have had a tremendous buffeting by wind and snow, yet they have flowered all through it, and when the snow melted away they were bright and cheerful. Earlier than the *Snowdrop*, they certainly are deserving of a place in our gardens. On such situations as I have described they do especially well.

CROCUSES.—I have been perfectly astonished at these. All my beds near the house have a border of about 9 inches wide of the large yellow *Crocus*. They were in full flower when our last fall came, and the snow drifted in one border just in front of my dining-room window to the depth of 3 feet. When it cleared away I expected to find that they had all succumbed, but lo! they held up their heads boldly, and, when the sun shone, expanded beautifully. I may say the same of some species I had on the rockery, of which the following were, I think, the most successful: *Alatavicus*, white, outer segments veined with black; *Aucheri*, deep orange flowers; *Imperati*, blush-white, purple stripes; *pusillus*, pure white, striped on outside petals; *Sieberi*, dwarf, pure violet, earliest of all; *suaveolens*, lilac inside, striped outside.

CHIONODOXA LUCILLÆ.—Can any words be too laudatory in writing of this lovely gem as I have it now in bloom! The border in front of my greenhouse is 40 feet in length, and some years ago I planted it with clumps of *Chionodoxa*, about a foot apart, throughout its entire length. So well has it prospered, that it is now almost a continuous border of 40 feet by 1 foot wide, filled with thousands of spikes of the lovely cerulean blue that this flower affects. It seeds in the most profuse manner; the seeds

germinate freely, so that not only do the original clumps spread, but the spaces between them are being rapidly filled up with the seedling plants, which are also coming up on the other part of the border and amongst the stones by which it is edged. It has had a hard time, weighted down at times by snow, and of a morning all its beautiful flowers flat on the ground by frost, but no sooner is that gone off than up they raise their heads, and it makes me feel that if I have nothing else to look at in my garden for the year, I should not have spent my time for naught. I had just written this, when my friend, Mr. Ewbank, of Ryde, called. "Of course you have nothing to show me," alluding to the lateness of the season. "I think I have;" and he was delighted with my border of *Chionodoxa*.

CHIONODOXA SARDENSIS.—This is also very beautiful, but I do not think it is to be compared to *C. Lucillæ*; the absence of the white detracts a little from its lightness. By-the-by, I may say that, amongst the thousands of bulbs that I have flowered, I have never yet discovered a pure white form of *C. Lucillæ*; some near to it, but none absolutely white.

SCILLA SIBIRICA.—There are many who from one cause or another profess to prefer this to its congener, *Chionodoxa*; but, beautiful as it is, I cannot agree with this; there is a want of lightness in it which detracts from its beauty, but it is still very delightful, and has also braved this severe weather well.

SCILLA BIFOLIA.—I received amongst the bulbs of *Chionodoxa* some which turned out to be this *Squill*. It seems to me an earlier and stronger growing variety than the one usually grown, and is certainly a very pleasing flower.

IRIS RETICULATA.—Lovely in its intense purplish blue, this charming *Iris* has had a rough time of it, but it has gone through the ordeal well, and the good clump of it on my rockery has flowered freely, and is none the worse for "hard times."

SAXIFRAGA OPPOSITIFOLIA AND ALBA.—I had tried these in various places, but had always failed, although I believe they are very easily grown plants, but sometimes one finds such things capricious, so it was with this at any rate. At last I placed it on one of my small rockeries, and there it has done well, falling over the stones, growing well, and flowering freely. It is a charming spring flower, and well worthy of a place on any rockery.

OMPHALODES VERNA.—This has become quite a weed on my front rockery, where it is exposed to the sun, but it has crept all along amongst the stones, and is now (April 9) full of flower, and very pretty indeed it is, with its bright green foliage and blue Forget-me-not-like flowers. I do not care very much for the white variety, but the type is very pretty, although small.

SAXIFRAGA BURSERIANA.—This has not done very well with me this year; whether the frost and sun have been too much for it, or whether I have not got it in a sufficiently shady place, I hardly know, but its flowers have been few and its growth not good. I must give it a change; perhaps, like *oppositifolia*, I may get it into some place that it likes better, although this may be a matter of mere chance.

PULMONARIA ARVERNENSIS.—This very pretty form I got on the recommendation of Mr. Wilks, and I have every hope that when it gets established it will prove itself a valuable addition to our spring-flowering plants.

Such, then, are the flowers which have been good enough to survive this bitter weather and

to display their beauties in such unfavourable circumstances. I need not say that in other years there were many others open at this season, but we are thankful to have these, and we must remember that in the old times of bedding out no place would have been found for such weeds, and that the garden would have been as bare as a billiard table. Happily, times are changed, and we can each day look forward for some fresh beauty to develop itself. DELTA.

Soldanella minima.—This species can be readily separated from the more common *S. alpina* at any season of the year, but the difference is more marked now that they are in flower. In *minima* the leaves are only half the size of those of *S. alpina*, the flowers produced singly on a stem, somewhat tubular, and although fringed, as in the others, are never spreading; lilac outside, with red lines inside, and in some cases entirely red from the middle to the base of the flower, and always drooping. In *S. alpina* there are three or four, and even more, flowers on each stem, bell-shaped, spreading at the mouth, of a pretty purple-lilac tint. In our climate it seems quite impossible to grow them satisfactorily in the open air without some protection from spring frosts. As soon as the flower buds appear they are nipped, and as this happens year after year the grower soon loses heart. The only safe way seems to be to grow them in pots in cold frames. *Soldanellas* require nothing but the simple protection of the glass, and never fail to produce an abundance of their lovely flowers.—K.

Drabas.—The *Drabas* are just now very pretty, supplying us with a colour much needed to counteract in a way the vivid patches of *Scilla sibirica* and *bifolia*, *Anemone blanda*, &c. Most of these plants, though strictly alpine, do not necessarily require a rockery on which to grow, and although our mode is a somewhat troublesome one at first, it is soon repaid with masses of yellow of innumerable tints. Old stones or pieces of brickwork are procured and half buried in the bed or border, small holes scooped out, filled with rather stiff soil, into which the seedlings are pricked out; two or three waterings are all they require before they become established, and the results, even of the first year, we found astonishing. Even old-established pot plants we have transferred in this way, and the lovely effects that may be produced in the open air now remind one of these plants in their native homes. *D. aizoon*, *aizoides*, *olympica*, *Haynoldi*, *Mawi*, *lasiocarpa*, and one we have seen under the name of *bœtica*, are all worth a trial in this way.—K.

Iris reticulata Mrs. M. Foster.—In the list of our best spring-flowering plants *I. reticulata* takes a foremost place. I will not now write on its geographical variations, but wish to state what has been accomplished by horticulturists. The typical form was introduced into cultivation about 1865, to which in 1868 the variety *Krelagei* was added, and it is only about five years since another variety called *cyanea* was introduced. All these are spontaneous varieties. The late Rev. T. G. Nelson, a thorough amateur horticulturist with a keen discerning eye, tried to improve the type, and within a comparatively short period he was successful. He had no knowledge of *I. Krelagei*, but he raised from the typical form two very good garden varieties, viz., *reticulata major* and *reticulata cœrulea*. The former is larger and better in form than the type, and the latter has flowers of a bright blue colour, resembling ultramarine, but not bigger than those of the type. I myself began to sow in 1869, and I now have before me a very good result. A few of the latest raised bulbs have flowers more than double the size in breadth of segments, and the colours range from almost black to the brightest blue. Mrs. M. Foster, which I have called the best, is a rich full flower of the brightest blue with orange markings, the colours somewhat resembling those of Rev. Nelson's *cœrulea*. It flowers, however, from a fortnight to three weeks earlier. Now *I. reticulata cyanea*, with its sky-blue flowers, by natural or artificial impregnation, is to produce another strain, and I am convinced that within a few years we shall have, yellow and scarlet excepted,

every possible shade of colour in the blooms of these lovely spring flowers, and also a great gain in form.—MAX LEICHTLIN, *Baden-Baden*.

THE PARMA VIOLET.

"E. H. W." in THE GARDEN, March 31 (p. 281), clears up what has long been a mystery to me. I could never understand why a Violet, ranking so high in the estimation of Continental growers as does the *Parma*, should apparently be almost unknown in this country. I do not remember to have seen it mentioned in any gardening paper during the last few years, neither have I found it in any trade list. The fact that it has been considered identical with the Neapolitan would account for this neglect, but I certainly do wonder that it has never made its appearance in the novelty list of some energetic trade grower. That such has not been the case is the best proof that the peculiar merits of this Violet are practically unknown in this country. Not only in the south, but in the colder districts of France, also in Germany and Switzerland, the *Parma* is head and shoulders above all other Violets for pot and frame culture. I grew it myself, and thought it quite distinct from, and superior to, all other Violets, at least for culture under glass, but not seeing it grown in this country, where Violets are so much appreciated, I at length came to the conclusion that I must, in some way, have been mistaken, or that the depth of colour, size, and exceptional fragrance were due to climatal influences. Now, however, all the distinctive traits of this Violet are recalled to my mind, its compactness, exceptional quality of the blooms, the freedom with which they are produced, and its effectiveness when in full flower. I have a vivid recollection of a row of plants on the shelf of a cool house, and that in the depth of winter they were full of fine bloom, the fragrance from them being almost overpowering. This Violet is doubtless growing in some few warm gardens without perhaps the owners being aware of the treasure they possess, for one may reasonably assume that "E. H. W." is not the only one who has brought home plants of it. Some few years ago a cottager possessed a Violet that was described to me as something quite out of the common. The description left me in no doubt as to its identity with the *Parma*, and a little investigation enabled me to account for its presence in an out-of-the-way cottage garden. The ladies of a wealthy family in the neighbourhood were in the habit of frequently visiting the cottager, and having resided in the south of France had probably brought home plants of the *Violette de Parme*, one of which found its way into the cottage garden. As "E. H. W." says that he once obtained this Violet under the name of New York, his surmise that the Americans may know more of it than we do is therefore probably correct. I should not be surprised to hear that the American flower markets are well supplied with this Violet. It is some years since I saw the *Parma* Violet, and I should not now like to say how many shades darker it is than the Neapolitan. It seemed to me much darker than would be inferred from "E. H. W.'s" remarks. I should have described it as closely resembling a *Heliotrope*, that is, midway in colour between the pale mauve and the deep-hued varieties. It must, however, always be borne in mind that soil and climate will exercise an influence on colour. The intense light of the south of France, and perhaps the pure air from the Mediterranean, may tinge the blossoms more deeply than with us. Still, the difference between the *Parma* and the Neapolitan will always be well accentuated, and, independent of colour, I consider the former to be the finer flower. As to perfume, a couple of good potfuls will scent a moderate-sized greenhouse. Only on light soils and in a sheltered garden, however, can there be any hope of its doing well with us in the open. It is as a pot and frame Violet that it will be found of the greatest value; but the same may be said of the Neapolitan, *Marie Louise*, *Comte de Brazza*, and other fine double kinds. J. CORNHILL

Byfleet.

The Apennine Windflower in the house.—As a cut flower this is, when properly treated, most

charming, but a little care is required to prevent the blooms flagging before being placed in water. The best way to keep them fresh is to wrap the stems in wet Moss directly they are cut, and lose no time in placing them in water. I have kept them for nearly a month by simply changing the water occasionally. Placed loosely in a glass by themselves, both flowers and foliage keep fresh for days, until one might think that it is a thriving plant. The flowers become paler and paler, but not less beautiful, passing through all the shades from their natural lovely blue to pure white. I have had them with stems 3 inches or 4 inches in length.—JOHN C. TALLACK, *Livermere*.

NOTES ON PRIMROSES.

THE season for these favourite alpine has commenced, and although the past winter has been somewhat severe in various parts of the country the show of flowers promises to be equal at least to that of the two preceding years. The number of so-called hybrids seems to be still on the increase, promising sooner or later to give our *Primula* growers considerable trouble in order to distinguish them. The species chiefly concerned are *Auricula*, *viscosa*, *Clusiana*, *minima*, *hirsuta*, *spectabilis*, and several other leading types; indeed, it appears as if every *Primula* that differs from another in some small particular is given a name and sent out as a new plant without ever having been tested. The testing, which is a very important matter, seems to me easy, considering how freely seeds are ripened, and how readily they germinate if proper care is taken to sow as soon as gathered and the pots are kept in a cool frame. Their nomenclature seems to be arrived at in somewhat the following way: leaves small, resembling those of *minima*. Then *minima* is one of the parents. They are covered with small punctures, which is characteristic of *spectabilis*. Therefore our plant, which in this case happens to be *P. Dumoulini*, is a hybrid, and a cross between *minima* and *spectabilis*. In Continental lists this is not even considered enough, but trouble is taken to distinguish some by sub and super. *P. Muretiana* is styled sub-*integrifolia* × *viscosa*, while *P. Dinyana* is super-*integrifolia* × *viscosa*, and it is not at all unlikely that in a batch of seedlings no fewer than a dozen, and in some cases even more, variations will be found to result. We thought we were able at one time to distinguish between *viscosa* and *pubescens*, but the links are fast disappearing, and only extreme forms of these types can be relied on. The plant long known in gardens under the name of *nivea*, *nivalis*, &c., we have raised from seed of *P. pubescens*, and a gentleman brought us a specimen the other day resembling almost typical *pubescens*, and which was raised from seed saved from the white *P. nivea*. The plant given us had rosy purple flowers, large, not viscous leaves, and in habit, &c., corresponding with *pubescens* in every detail. I made minute inquiry, although the result was not in the least surprising, and found that the only *Primula* that seeded and the only seed sown was obtained from this *P. nivea*, which we consider more properly *P. pubescens alba*. The *marginata* set are the first to flower with us amongst the genuine species. Old plants of *P. marginata* itself make handsome specimens and never fail to give a profusion of their variously shaded flowers, produced in unusually large loose bunches. Among the varieties at present in the trade, none are more pleasing than *cœrulea*; its large rosettes of mealy, crenated leaves, surmounted with bunches of pretty blue flowers, leave little to be desired in the way of a hardy rock plant. The variety *grandiflora* and others, though good, are somewhat defective in colour. *P. Clusiana* when well flowered is a handsome plant, and by far the best of the group *Arthritica*, to which it be-

longs. The flowers are twice the size of those of the common Primrose, rosy purple, with white eye, borne three and four together on short stalks, which barely clear the leaves. *P. Facchini* is a pretty dwarf species, but seems rather shy with us so far. The Himalayan *P. rosea* should find a place in every collection of these plants. It is one of the few Primulas that succeed in a bog; indeed, we have been told that in its native country the most robust and healthy pieces are always found bordering running streams, with the roots in the water. It promises in a very short time to monopolise the whole of our little bog, the ground within a yard of the plant being thickly strewn with self-sown seedlings. *P. Parryi* will do well in a similar situation; the colder the water the greater the chance of success. It is a native of America, and fairly plentiful in the trade. The rarer species *Rusbyi*, from the same country, is also a charming Primrose, useful for succession, as it flowers later than most of the above-mentioned. *P. verticillata*, unfortunately, not hardy with us, is a very useful plant for cutting, the flowers lasting a long time in water. It may be wintered safely with the protection of a cold frame, and coming into bloom now its fragrant flowers are most welcome. K.

FLOWER GARDEN NOTES.

CALCEOLARIAS AND VERBENAS.—The weather continuing so cold, these plants have had to be more constantly covered up than their comparative hardiness would seem to justify, and as they were beginning to grow weakly the covering is now entirely removed during the day, and all that is put on at night is a double ply of tiffany. The beds to which they are to be finally transplanted are quite ready for them, and as soon as there is a decided change to warmer weather this will be done. Early planting in respect of both kinds is of the utmost importance, as both are impatient of a dry soil, and by early planting the roots get a firm grip of the soil before dry or hot weather sets in, at which time a mulching of Cocoa fibre should be given, and this, combined with depth of soil, will prevent the necessity for artificial watering. Rich soil, a good depth of it, and the mulching just mentioned never fail to keep the plants in a vigorous-growing and free-flowering condition during the entire season.

VIOLAS AND PANSIES.—The plants struck and wintered in frames have, in spite of the cold, been constantly exposed to the atmosphere for several weeks past, and are consequently in good condition for transferring to the open borders. Some of the varieties are full of flower, and by careful removal effect will be had at once. Mrs. Grey (pure white), Archie Grant (dark purple), Blue Bell (light blue), and Hardwick (yellow) are full of bloom now, and from the experience of former years, not excepting the drought of last year, they will continue to flower until severe frost cuts them down. The wonder is that such plants, that give but little trouble and virtually take up no house room, are not grown in larger numbers in preference to Pelargoniums and things of that description. I have occasionally expressed such an opinion to friends, and, as a rule, find that they are not so grown, owing to a mistaken notion that they are liable, in the south, to collapse on the advent of hot, dry weather. My reply in such cases invariably is, Trench deeply and manure highly. Local conditions as to weather and soil may have some slight influence on growth and flowering, but it is only slight, for I have seen Violas and Pansies as good here in the south as in the moister and less sunny north.

CHINA ASTERS, STOCKS, &c.—Perfect development of plants is, I think, more largely influenced by the treatment they receive from the very commencement of growth than is generally thought to be the case. In respect of the plants in question, having sown and raised them in heat as well as by the more natural means, namely, in cold frames, I can honestly aver that the superiority of plants

raised under the last-mentioned conditions is simply marvellous, although seedlings raised in heat are given the self-same treatment after removal from the seed-bed. We raise the plants by placing some 4 inches or 5 inches of fine soil—sandy loam and leaf-soil—on the hard gravel and cover the same with any spare lights or frames. The seeds are sown in drills and covered in with the fingers. A slight watering is given to settle the soil, the lights are then put on and remain closed until the seedlings appear, when air is freely given until they are strong enough to have the glass entirely removed. I ought to add that the seeds are sown so thinly that pricking out is never required, preference being given to transplanting to permanent positions as soon as the plants are large enough to handle, and always before the roots get entangled together.

SUMMER-FLOWERING CHRYSANTHEMUMS AND TUBEROUS BEGONIAS.—I have to confess that these are my latest craze in the flower-gardening line, but I think they are worthy of the attention. In a former note I gave the names of the best Chrysanthemums for August and September flowering, and also said that young plants produced the best effects. I have only now to add that the plants are being planted out in irregular fashion of three in a group amongst herbaceous perennials, and they will brighten the borders by their free flowering at a time when the flowers of perennial plants are getting scarce. Begonias are intended for planting in the bedded-out garden, the mode of arrangement best suited to them being in small beds by themselves, and planted so thinly that each plant when fully grown shall stand clear of its neighbour. Of course such thin planting suggests the need of using some other dwarf-growing plant as undergrowth, and there is none better than *Sedum glaucum* for the light-coloured flowers, and variegated *Mesembryanthemum* for the dark-coloured. Our plants are now in cold frames, where they are gradually being inured to bear full exposure.

SOW ANNUALS IN THE OPEN GROUND.—If slugs abound, this will be labour lost, but if such pests are not troublesome, the labour will be well repaid. Mignonette, Virginian Stock, Clarkia, Nemophila, Candytuft, Saponaria, and some few others do better thus treated than if sown in frames and transplanted. They can be sown in any sized patches desired, according to space that has to be furnished, though, as a rule, circular patches about 15 inches across will be found ample. Early thinning out is of great importance, and it may not be generally known that nearly all annual flowers are amenable to pinching or stopping to induce a branching habit, the only drawback to the practice (and it may sometimes be an advantage) being that the flowering period is retarded, and it certainly is greatly prolonged by picking off bad flowers and seed vessels as regularly as possible. W. W.

HERBACEOUS PLANTS.

HAVING here a cold, heavy retentive soil to deal with in which Roses and many kinds of herbaceous plants thrive very well, for the information of "A. H., Suffolk," I give the names of those that do really well. Although some varieties may be considered common, nevertheless they flower freely and make a good show in the borders annually, where they are much appreciated. A few notes on the best method of dealing with such a soil may also be of service.

I find early in the spring the best time to plant small roots or offsets, as then they more quickly start into growth than if planted in the autumn. In the case of dividing large roots of most things where they are simply cut in two and replanted, I find autumn the best time, for the reason that if a dry summer follows, the plants do not suffer so much as when planted in spring.

In making a new border or replanting an old one, the soil should be trenched quite 2 feet deep, thoroughly breaking up the bottom spit, so that the water will the more quickly run away. In the bottom of the trench place a layer of long straw horse manure, which tends to keep the soil open. With the top spit mix a good quantity of thoroughly

decayed vegetable refuse, leaf soil and old potting soil, adding to this a liberal quantity of wood ashes. Thoroughly break up the soil and mix the compost as the work proceeds. After planting add a mulching 1 inch to 2 inches thick of wood ashes, leaf mould and old potting soil. By occasionally stirring the ground with the hoe the mulching gradually becomes mixed with the soil, thus encouraging the formation of surface roots. I find manure from the cow yard of too close a nature and not to be encouraged for close, heavy soils. As a guide in planting I give the heights of each kind so that more uniformity may be gained in the arrangement of the varieties.

The following kinds grow—

5 FEET HIGH.	Gnaphalium margaritaceum
Bocconia cordata	Helenium pumilum
Campanula pyramidalis	Hemerocallis flava
Delphiniums in var.	Inula glandulosa
Pyrethrum uliginosum	Lobelia fulgens
Rudbeckia californica	Lychnis Flos-Jovis
Solidago canadensis	Malva moschata alba
Spiraea Aruncus	Matricaria inodora fl.-pl.
venusta	Pentstemon
	Pyrethrum, single and double-flowered
4 FEET HIGH.	Ranunculus acris fl.-pl.
Achillea filipendula	Rudbeckia Newmanni
Echinops Ritro	Sidalcea malvaeflora
Galega officinalis	Solomon's Seal
o. alba	Spiraea filipendula
Harpalium rigidum	Statice latifolia
Helianthus multiflorus fl.-pl.	Stenactis speciosa
Lythrum roseum superbum	Tradescantia virginica
Verbascum Chaixi	
3 FEET HIGH.	1 FOOT HIGH.
Achillea Millefolium rosea	Anemone fulgens
Actæa spicata	Armeria cephalotes rubra
Anemone japonica alba	Caltha palustris fl.-pl.
Campanula persicifolia	Campanula Raineri
Francoa appendiculata	Dianthus chinensis hybridus
Hemerocallis disticha	Epimedium pinnatum
Leucanthemum maximum	Erigeron glabellus
Lychnis chalcidonica	Fritillaria Meleagris
Monarda didyma purpurea	Hesperis matronalis fl.-pl.
Pæonies	Hieracium aurantiacum
Scabious	Linum alpinum
	Lychnis Viscaria splendens plena
2 FEET HIGH.	Enothera taraxacifolia alba
Achillea Ptarmica fl.-pl.	Papaver nudicaule
Aconitum Napellus bicolor	n. album
Anemone japonica	Ranunculus aconitifolius fl.-pl.
Astrantia major	Spiraea japonica
Buphthalmum salicifolium	Veronica gentianoides spicata
Campanula glomerata persicifolia alba p. plena	
Catananche cærulea	3 TO 6 INCHES HIGH.
Carnations	Anemone apennina
Centaurea montana m. alba	Aster alpinus
Centranthus albus ruber	Aubrietia Campbelli
Chelone barbata	Campanula muralis m. alba
Coreopsis lanceolata	Cheiranthus alpinus
Doronicum Pardalianches	Iberis gibraltaria
Eryngium amethystinum	Phlox frondosa setacea
Geranium armenium	subulata
Geum coccineum fl.-pl.	Primula altaica
Glaucium ramosus	Scilla bifolia
Hants.	Veronica prostrata
	E. M.

Delphinium Zalil.—This plant is a native of Afghanistan, but its character, whether a biennial or perennial, is not yet ascertained. The Afghans call it Zalil, and the plant or root is used for dyeing purposes. Some years ago we only knew blue, white, and purple Larkspurs, and then California added two species with scarlet flowers. The above is of a beautiful sulphur yellow, and, all in all, it is a plant of remarkable beauty. From a rosette of much and deeply-divided leaves rises a branched flower-stem to about 2 feet, each branch and branchlet ending in a beautiful spike of flowers each of about an inch across, and the whole spike showing all its flowers open at once. It is likely to become a first-rate standard plant of our gardens.

To have it in flower the very first year it must be sown very early, say in January, in seed-pans, and transplanted later, when it will flower from the end of May until the end of July. Moreover, it can be sown during spring and summer in the open air to flower the following year. It is quite hardy here.—**MAX LEICHTLIN**, *Baden-Baden, in Garden and Forest.*

POMPON DAHLIAS.

THOSE who dislike the large formal show flowers should grow the pompon varieties, as they are well suited for decorations, and are also highly attractive through the late summer and autumn months when planted in flower beds and borders, especially when grown together in fairly large numbers. An isolated bed on Grass, for instance, that is large enough to contain three or four dozen plants will make an attractive feature, or a couple of lines of plants in a border are quite as attractive. When grown as single plants in mixed borders they are not so effective. Like all other sections of Dahlias, if they have a fault it is that the different varieties vary considerably in height, so that one requires to be fairly well acquainted with the characters of the sorts grown to make the most pleasing arrangements where formality is necessary. The flowers vary in size, so much so, in fact, that I think the pompons should be divided into two classes, large and small-flowered, as there is no doubt but that the last mentioned is the most admired.

Pompon Dahlias require a rich deep soil and a sunny position, and as many of the sorts do not make strong growth, it is necessary to have sturdy plants ready to go out by the first week in June. This can only be done by striking the cuttings or by dividing the old stools early in March and to grow on the plants in a warm house, so that they get strong by the time they are wanted for planting out. If the plants have to be purchased they ought to be obtained by the middle of April and immediately placed into larger pots, so that they may have time to increase their number of roots and allow of an interval of a week to harden them off before planting. With regard to the best varieties to grow, I had an opportunity last autumn of looking over a large collection, from which I made a selection of eighteen varieties, which I feel sure anyone may grow without fear of disappointment. The quilled-flowered varieties are favourites, and the best of these are *Lady Blanche*, white; *Alwine*, pink; *Raphael*, crimson; *Deegen*, yellow; *Hercules*, lilac; *Sensation*, yellow; and *Dr. Rauch*, orange-red. J. C. C.

SHORT NOTES.—FLOWER.

Petunias, from the experience of last year, seem to be essentially plants for the hot weather. Grow them more largely this season, as they are bright and beautiful flowers.

Old double yellow Wallflower is not often seen, but those who admire a flower of the most intense orange will appreciate this old border plant. I saw it blooming a few days ago in the Epsom Nursery.—X.

Spring flowers are appearing with the welcome change in the weather. Kew Gardens and nurseries where hardy things are a speciality will present many interesting features in a few days.

The blue Squill (*Scilla bifolia*) is brighter when in a mass than even *Chionodoxa Luciliae* or *C. sardensis*. All three are flowering near each other in the Epsom Nursery. The *Glory of the Snow* is of more cheerful blue, and has larger, showier flowers than in the case of *C. sardensis*. These are three lovely spring flowers for the garden.

White Dog's-tooth Violet (*Erythronium dens-canis*) is an exquisite early flower, snow white with violet stamens of great richness. It is very free and most useful for cut flowers. The rosy pink-flowered type shows bolder mottlings on the leaf. There are large masses of both now in bloom in the nursery of Mr. Morse, of Epsom.

Poet's Narciss (*Narcissus poeticus ornatus*) will be a feature in the Epsom nursery of Mr. Morse in a few days. There are several large beds of this useful Narciss, which comes in before the type, and has its purity of colour and delightful fragrance. It is one of the best to grow for cut flowers.

Orchis pauciflora and **Ophrys scolopax**, as exhibited by Mr. Ware at the Royal Horticultural Society's meeting on April 10, were most interesting. Both species I have cultivated out of doors for many years, and their curious, distinct, and interesting flowers render them well worthy of attention by growers of hardy plants. The former has large and conspicuous golden yellow flowers, while the latter re-

sembles in no small degree our native Bee Orchis (*Ophrys apifera*).—A. D. WEBSTER.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Berberis (Barberry).—This is a very numerous genus in botanical collections, but there are many kinds quite worthless as ornamental



Flowering branch of *Berberis Darwini*.

Darwini and the small-growing *B. empetrifolia*, also an interesting, though not showy trailing shrub. *B. stenophylla* grows as high as 8 feet or 10 feet, and has long shoots, which gracefully recurve on all sides of the bush. In early summer it is a mass of golden yellow—"a fountain of gold" it has been described. It is, moreover, very hardy, and thrives in almost all soils. Two or three specimens of this *Barberry* rising out of a mass of *B. Darwini* make a most effective evergreen shrub-group on a lawn. *B. dulcis*, an engraving of which is here



Berberis dulcis. Showing flowering branch and detached flower.



Berberis buxifolia. Showing flowering branch and detached flower.

given, is a very pretty *Barberry*, whose slender shoots are elegantly and profusely hung with tiny yellow flowers. It grows from 6 feet to 8 feet high, and has small partially evergreen leaves. Though it comes from South America, it is perfectly hardy. *B. buxifolia*, a pretty South American species with evergreen foliage like the *Box*, also has yellow flowers. The common *Barberry* (*B. vulgaris*) is good enough for our selection, being so ornamental when in fruit in autumn. There are several varieties of it, some of which differ considerably in habit of growth and colour of the berries. One sort has berries of a deep crimson, others have violet, yellow, and white fruits. A beautiful shrub-group could be formed of the fruiting *Barberries* alone, using *B. vulgaris*, *B. aristata* (which has berries covered with white powder

shrubs, and the number that can be selected as good flowering shrubs is few. In the chief nurseries about half a dozen species only are grown extensively besides the *Mahonias* or pinnate-leaved evergreen *Barberries*. One of the most beautiful, and certainly the most popular, is *Darwin's Barberry* (*B. Darwini*)—see illustration—now one of the commonest of garden shrubs. This *Chilian Evergreen*, clothed all the year round with glossy prickly foliage, is in spring and early summer, and often in winter, laden with a profusion of its rich orange-yellow blossoms, which last for weeks in beauty, and in autumn is beautiful with purple berries. It is perfectly hardy in all but the coldest parts of these islands, is a rapid grower, making dense bushes from 3 feet to 5 feet high, and much higher if planted against a wall. It is most satisfactory on stiff, loamy soils in sheltered spots, though it grows fairly well in sandy soils and on chalk.

When the bushes reach their full height they become thin in growth and lose their vigour; they should then be cut down to the ground in spring, when they will again shoot up strongly. The next best flowering *Barberry* is *B. stenophylla* (here illustrated), a hybrid between *B.*



Berberis stenophylla. Showing habit and flower-spike.

like *Plums*), and the small-growing *B. sinensis* (*Thunbergi*), also remarkable for the profusion of its scarlet berries, which remain on the bush throughout autumn. The purple-leaved variety of the common *Barberry* (*B. vulgaris* fol. *purpureis*) is a valuable ornamental shrub. *B.*

Wallichiana, called also *B. Jamesoni* and *B. Hookeriana*, has handsome flowers and foliage, and is worthy of cultivation in the best selections. The evergreen Barberries or Mahonias



The Blue Apple Berry (*Billardiera longiflora*); spray with fruit.

were so recently illustrated and described in *THE GARDEN*, that we need but mention them here.

Billardiera longiflora (Blue Apple Berry).—An elegant climbing evergreen shrub from Van Diemen's Land. Its slender, twining stems have small, narrow leaves, and its purplish flowers, which are inconspicuous, are succeeded in autumn by berries of a rich indigo-blue as large as Hazel-nuts. It is quite hardy enough for wall culture in



The Orange Ball Tree (*Buddleia globosa*).

the climate of London, and is an interesting and pretty climber for clothing the buttress of a wall. Pittosporaceæ.

Buddleia globosa (Orange Ball Tree).—A common and favourite shrub from Chili (see illustration) often seen in cottage gardens in

the southern counties, where it is quite hardy, and also in many parts of the northern districts as a standard or against walls. Fully grown, it is a wide-spreading, rounded, evergreen bush rising 10 feet to 15 feet high, with long sage-green leaves, which are whitish beneath. The flowers are globular balls of bright yellow, and being borne plentifully, are very showy in early summer. It is of rapid growth, and if it is badly cut down during a severe winter it generally breaks again into a vigorous growth the following summer. Other species of *Buddleia* less satisfactory for open-air culture are *B. crispa*, from the Himalayas, and *B. Lindleyana*, from China. These are both beautiful shrubs, having long racemes of flowers terminating the branches, those of the former being lilac with white centres, while the bloom of the latter is purple. They can only be con-



Flowering branch of *Berberis vulgaris*.

sidered half hardy, as a hard winter kills them down, though a wall is sufficient to protect them.

Hydrangea rosea.—This is a comparatively recent introduction from Japan, and is in flower and foliage distinct from the older *Hydrangeas* of our gardens. It is equally available for outside and inside work, and with a mulching in winter will live out of doors. If the bushes are killed down to the snow line the shoots from the bottom will grow up in quantity and bloom in summer. This is not always the case with the common *Hydrangea*, for north of New York, if it be killed to the ground in winter, the young shoots from the bottom, although they grow large and vigorous enough, seldom bloom well, often not at all. *Hydrangea rosea* blooms some two or three weeks earlier than does the va-

riety known as *Thomas Hogg*, and this is more marked when it is forced than when grown out of doors. Cuttings of the young wood strike with the greatest freedom. Although the proper colour of the flowers is a pretty rose, they often assume a bluish tinge.—*Garden and Forest*.

The Chinese Barberry (*Berberis sinensis*).—When I wrote a note about this at p. 155, I remarked that the shrub does not berry so freely in this country as Mr. Falconer in the *American Florist* said it does in America. As proof of what he said about the fruitfulness of the shrub, Mr. Falconer has just sent me from Glen Cove, N.Y., some fruiting twigs profusely hung with scarlet-red berries as bright and as big as Holly berries, but oblong in shape. This is sufficient to show that the berries hang on the bush all the winter till spring. The bushes so thickly hung with berries must have a very pretty appearance. Mr. Falconer says in his note:—

It is the only hardy shrub we possess that retains its fruit so late and in such quantity. Of course the berries are shrivelled. What would it be after undergoing such a winter as we have just had? The fruit hangs on the bushes till the swelling of the wood and eyes preparatory to again bursting into new growth dislodges it.

Mr. Falconer suggested that it would make a capital pot shrub for Christmas decorations, but I doubted if it would thrive in a pot on account of the large straggling roots that most of the deciduous Barberries have. He says:—

As a pot plant do not be afraid of its roots; it makes a capital pot plant, provided you give it something good to eat—rich loam and fine rotted manure, and it grows well, has plenty of foliage, flowers and berries freely, and retains its fruit for a long time.

Those to whom I have shown the specimens think it a very pretty shrub, and one that would prove of value in this country, and it is a pity that it cannot be bought in nurseries. This Barberry at Kew makes a dwarf spreading bush of dense growth, but does not retain its berries all the winter, but perhaps the birds are fond of them. I have never, however, seen the Kew bushes so full of berries as the specimen sent from America.—W. GOLDRING.

SHORT NOTES.—TREES AND SHRUBS.

Copper Beech or coloured tree.—Will you kindly explain in your next number the origin of colour in trees, and the discovery? I cannot find in any book I have on British trees any mention of this colour in Beech, Hazel, or Birch, &c. If there is any work on the subject I should be glad to be referred to it.—W. CHAPLIN.

Sequoia sempervirens.—There is a fine and well furnished specimen of this ornamental Conifer growing in the pleasure grounds at Fox Ghyll, near Ambleside. This tree measures over 70 feet high, and the trunk 11 feet in circumference 4 feet above the ground. Fox Ghyll nestles in a romantic and picturesque corner at the foot of the hills, and is well sheltered from the full force of prevailing winds, so that if this *Sequoia* is left undisturbed it will ultimately become a giant.—W. B., *Windermere*.

Trees and shrubs for Berwickshire.—I should be glad of advice as to what trees and shrubs would stand cutting winds in Lauderdale. The garden lies in a hollow open to the south-west, and the westerly winds, after sweeping over the Lowther Hills, seem to acquire the cutting and scorching properties of the east wind. The soil is light, with gravel subsoil, and severe frosts are more destructive in the basin in which the garden lies than upon the higher land around. Hollies were, a few years ago, cut down or killed.—RHO.

Spiræa confusa.—This pretty and distinct plant seemed to take many of the visitors to the Royal Horticultural Society's rooms on Tuesday, the 10th inst., by surprise. The wealth of bloom was quite astonishing. What about the *Laburnum albidum* sent for exhibition? It is surely a rare plant, but so lovely with its wealth of pendulous yellow flowers (not white, as the name would indicate) and easy, graceful habit.—A. D. WEBSTER.

Spiræa Reevesiana, or *cantonensis*, as it is more correctly called, is one of the prettiest shrubs that can be grown for forcing into early bloom for the greenhouse in April. It is a slender bush, with coarsely toothed leaves of pale green. The flowers are borne in

compact clusters, about 2 inches across, and snow-white. There is a double variety whose flowers are even of greater purity than those of the single form, and, of course, last longer on the plant. Both the single and double varieties may be seen at the present time in the greenhouse at Kew. It is even more satisfactorily grown as a pot shrub than out of doors unprotected, for, being a Japanese species, it is not so hardy and vigorous as most other hardy shrubby *Spiræas*.—W. G.

KITCHEN GARDEN.

SCARCITY OF WINTER VEGETABLES.

NOT merely those who have to purchase the principal portion or the whole of the vegetables required for daily consumption, but even the majority who are supposed to raise their own supplies have had good cause to complain of a scarcity of good green food. The former section cannot help themselves in the matter and must perforce be content with what is forthcoming. In some seasons they are well and cheaply, too cheaply, supplied, many will add, and in times of scarcity they will always have to pay comparatively higher prices for inferior produce. To a certain extent the owners of good gardens are also at the mercy of a very uncertain climate, but in their case there ought to be much less cause for complaint, especially if those responsible were constantly in the habit of preparing for a severe winter. It is only by anticipation that we can be well prepared for any great emergency, and only the most careless or improvident will fail to learn a lesson from the trying season we have hardly yet passed through.

What we have first to consider are the causes, the effect being evident enough; after which, remedies may be discussed, my aim being to suggest how others may best guard against a repetition of the much-to-be-regretted scarcity of green vegetables in the next or following winters. Last summer being exceptionally hot and dry, the greatest difficulty was experienced in getting the requisite number of plants of Broccoli, Brussels Sprouts, Savoys, Borecoles, Chou de Burghley, and Coleworts, as well as salading to grow very strongly, nor was the autumn so favourable to late growth as usual, severe frosts intervening very early in the season. Those who delayed planting much later than usual were the greatest sufferers, as their plants, standing so long in the seed-beds, naturally became very leggy, failed to start well, and besides were the first to suffer from frosts and cold winds. In the end, I believe much about the same number of plants was put out as usual, but the bulk of them never attained a useful size; hence the early scarcity. Here there are two lessons, viz., the necessity for taking more pains with the preparation of the plants, crowded seed-beds being a great and common evil; and, secondly, to get them into their final quarters as soon as these are ready for them, no matter how hot and dry the season may be. Nor ought there to be any great difficulty about this. Raise sturdy plants on poor ground, and they may be transplanted easily in the hottest weather. As far as we are concerned, I hope we shall be favoured with another hot summer, but for the sake of others shall not be sorry to see more rain than during last season. Heavy land requires plenty of sunshine, and where the soil is naturally much warmer and drier, a timely mulching will prevent the too rapid loss of moisture.

Another important point to be observed is the necessity for putting out an abundance of everything most in request. Not, however, so thickly as to spoil all by overcrowding, but

rather by giving up more space to those most to be relied upon during a trying winter. For instance, Brussels Sprouts are simply invaluable, these, if planted in quantity, yielding abundance of sprouts throughout the winter, and during April and May both sprouts and greens. A few short rows are soon exhausted, and it is far better to grow a good breadth, even if it should exclude a number of less reliable and much less profitable Broccoli. Savoys, again, rarely fail, and these are even more delicately flavoured than Brussels Sprouts. Not half enough of these are grown, and the same may be said of the hardy little Coleworts. Chou de Burghley was never previously so well appreciated here as during February, March, and up to the present time (April 9), and all the Borecoles are hardy and serviceable. Where Spinach will thrive during the winter, it is found perfectly hardy, and a large breadth is of great value where a good variety of choice green vegetables has to be sent to the table daily. The next best substitute for the latter is Spinach Beet, which never fails and is perfectly hardy. Much larger quantities of Endive ought generally to be grown, the bulk of this being wintered in frames and cool fruit houses, and if not all wanted for salads will be very acceptable when cooked and served as a vegetable.

To make matters worse, the root crops, with which I may be allowed to include Leeks, Celery, and Celeriac, as well as Onions, Carrots, Turnips, Beet, Salsafy, and Jerusalem Artichokes, were almost failures, in many instances, perhaps, unavoidably so. In most gardens they were much smaller than usual, though if more had been grown this would have been an advantage rather than otherwise. Leeks, Celery, and Celeriac are admitted on many tables as vegetables, and rightly so, I think, and the sooner Salsafy, Scorzonera, and Artichokes are included in the list of generally appreciated vegetables the better it will be for all concerned. In large establishments they are largely used, and why should they not be eaten by the owners of smaller gardens? Turnips have been much missed this season, really good roots being very scarce. Sown in the open and in close succession to other crops, they failed to make any progress in the hot weather, and a change came too late to benefit them. We grow the bulk of ours on a cool, late border, sowing the seed in July, and have had plenty of good roots, notably of the Chirk Castle Black Stone, up to the present time. Late-sown Carrots grew steadily through the winter, and are already available in quantity. Plenty of sweet and tender roots of these are of great service just now, and during the early part of the winter we were drawing from a bed sown late in June.

Let the season be what it may, plenty of forced vegetables, notably Asparagus and Sea-kale, are always acceptable, and never more so than during a time of scarcity of green vegetables. If plenty of roots are available, a continuous supply of forced growth can easily be maintained, and it is now when this fact should be borne in mind. Asparagus is easily raised from seed, and the plants required for forcing may be prepared in various positions in about two seasons. Newly-planted fruit quarters, or newly-formed Asparagus plantations, might well be utilised for the preparation of Asparagus for forcing, in addition to the roots obtained by any old beds it may be intended to break up. Sea-kale may be prepared more quickly, every little piece of young root, if planted on good ground, forming a crown large enough for forcing during the coming winter.

There is one difficulty always to be re-

membered by those advocating the growth of an increased number of winter vegetables, and that is, want of space. Where there is a large garden and a plot of open ground for Potatoes, there is little or no excuse for a failure at any time. It is those in charge of smaller places, and who perhaps are expected to grow a great quantity of Potatoes with the other vegetables, that have to exercise the greatest amount of judgment in their arrangements, and it is these who will find it no easy matter to grow more winter vegetables. If more of the latter are wanted either fewer summer vegetables or fewer Potatoes must be grown. It is not for me to decide which can best be spared, but I cannot help thinking that it is often a mistake to grow so many Potatoes, especially of late varieties, in a comparatively small garden. The latter can now always be bought at exceptionally cheap rates, those from Scotland being, as a rule, of the best quality and supplied more cheaply and better than they can be grown. Spend a few pounds on these, and reserve the garden ground for the winter green vegetables. The value of a good supply of wholesome Potatoes and fresh vegetables cannot well be over-estimated, the saving in doctors' bills alone being an important consideration. Early maturing Potatoes ought at any rate to be largely substituted for the heavy-topped later varieties, these in the mid-land and southern counties coming off the ground in time for winter vegetables to be sown or planted. In less favoured localities they can be disposed wider apart and planted between, and in either case, unless disease be very prevalent, the Ashleaf and Second Early varieties will yield heavy crops and generally are the best for small gardens.—W. IGGULDEN.

— March and April are the months in which there is usually a dearth of vegetables, and with the cold, late springs we have experienced of late years, May has not contributed to greatly increase our supply. By the month of March the Brussels Sprouts and other green crops are nearly used up; there remains only the hardy Kales to fall back upon, and the stock of roots, such as Asparagus and Sea-kale, for forcing is often nearly exhausted unless a great quantity has been prepared. These roots require a large piece of ground if a continuous supply is to be maintained through the winter far more than can often be spared when so many other things have to be grown. How best to provide a daily supply of fresh vegetables from the time when the previous season's stocks are becoming exhausted until outdoor Asparagus, Broccoli, and Cabbage are plentiful, is a problem which often taxes the resources of the gardener. At the present time the prospects of gathering vegetables outside in any quantity seem a long way off. There are no signs of growth on the Asparagus beds; Broccoli have not been killed outright, as in some winters, but they have been badly hit, and only a few small ones are obtainable; and the Cabbages have been reduced to very small proportions. What, then, are we to fall back upon?

FRENCH BEANS are one of the best vegetables to fill the gap, but warmth is requisite to produce them, although no special house is needed, as French Beans will bear well grown in pots or boxes on shelves, side stages, and other positions in Pine stoves and Cucumber houses; in fact, any available space in houses where forcing is carried on cannot be occupied at this time of the year with a more useful crop. French Beans, if sown in January or the beginning of February, will now be in full bearing. The pods should be gathered before they are fully grown, for what is gained in size by allowing them to grow large before picking is lost in quantity, as the plants cease bearing sooner. They should be gathered young, and as near as possible all of one size, as then they can be cooked whole, and have a much nicer appearance on the table, as well as being superior in flavour. It is a dish which

is always acceptable on the dinner-table, coming next to Asparagus as a forced vegetable.

SEAKALE lends itself readily to forcing, and if a sufficient quantity of roots can be prepared, it is an easy matter to have this vegetable from the beginning of November to June, but where only a limited stock can be grown it is better not to use it too freely at first, but to husband it until the present time of scarcity. The most economical method of forcing it as regards labour is to lift the roots and bring them on in the Mushroom house, but for obtaining a supply at the present time of the year, the roots are best left in the ground and covered over. For this purpose the sets should be planted in the following manner: Two rows 15 inches apart, then a space of 3 feet, and another double row as before, and so on. Wooden frames, 3 feet long, with movable tops, and wide enough to cover both rows, are provided for covering the crowns before the litter is placed over them, and a great quantity of this is not required now to bring the crowns on. The latest batch is simply covered with a ridge of soil or ashes. The stems produced in this way are stout, crisp, and far superior to those which are forced earlier. These plantations will last several years with an annual dressing of manure.

THE LEEK is generally used in soups and stews, not often as a separate vegetable; the reason of this may be attributed to the manner in which it is cooked. If placed upon the table properly prepared and nicely served, it forms an excellent dish, and is relished even by those whose ideas of a Leek are associated with something very disagreeable to the sense of smell. The plant, moreover, is very hardy, remaining green and fresh all through the most severe weather.

PARSNIPS, although not considered a high-class vegetable, are very useful at this time of the year, and are very wholesome and nutritious. In order to preserve their full flavour, they should be cooked in the least possible quantity of water.

SALADS are even more difficult to produce crisp and fresh at this season. We depend mainly upon the Broad-leaved Batavian Endive, which is equal to Lettuce if nicely blanched. Before the advent of very sharp frosts in the autumn we lift all the large Lettuces and a quantity of Endive and plant them close together in the late Peach house in a layer of light soil which has previously been spread upon the border. The Lettuces are used first, the Endive following, and continuing the supply until spring-grown Lettuces can be obtained from the pits. These we raise in warmth and transplant into the pits as soon as we can. Paris Market is a good sort to grow for this purpose, being quick growing and very tender; or the best plants can be lifted from the open ground and forwarded under protection.

The sudden alternating frosts and thaws we have experienced this year have killed nearly all the Lettuces in the open, even the hardy Cabbage kinds. Hicks' Hardy has stood best with us.—*A. BARKER, Hindlip.*

KITCHEN GARDEN NOTES.

VEGETABLE MARROWS.—If handlights or a frame can be afforded to give a good start to a few plants of these, the seed may well be sown at once, singly in 4-inch pots, and set in gentle heat. In about three weeks the seedlings will be ready for hardening off and planting out. We find Muir's Pen-y-bydd a very prolific variety of excellent quality, and an equal number of plants of the Long White is grown. For these early crops it is advisable to form a large hotbed of old and fresh heaps of stable manure and leaves, these being well mixed, watered if at all dry, and built up firmly and squarely to a height of 30 inches. If hand-lights are used set these 3 feet apart on mounds of good loamy soil, each to hold two plants placed in a sloping direction. A double light frame should be about half filled with soil and would hold six plants. In either case if they are kept properly attended to, including a night covering of mats, the plants soon grow away strongly, and may, early in June, be allowed to ramble at leisure over the bed. A

depth of about 15 inches of good loamy soil distributed early round the smaller mounds will serve to keep the roots from wholly going down into the rich bed underneath, and encourage a more fruitful growth. If these beds are formed in a sunny spot they will, without much further trouble, produce a large quantity of Marrows during the season. As a rule, Marrows grow too strongly for frame culture, but large rough frames used for forwarding Potatoes and other vegetables are suitable for their culture, the plants being put out before the earlier occupants are wholly cleared off. One plant to a light is ample in such cases. In warm localities the most productive plants are those grown in an open and fairly sheltered spot, but the first week in May is quite early enough to sow the seed, any plants raised earlier being apt to spoil before they can be trusted in the open.

RIDGE CUCUMBERS.—Much that has been just written concerning Vegetable Marrows is also applicable to these. It is useless to attempt their culture in cold districts, and they frequently fail in more favoured parts of the country, especially if a wet and cold summer is experienced. Those known as Ridge Cucumbers only are suitable for open-air culture, and of these the best are Stockwood and Long Prickly, and for pickling purposes sow the Gherkin, or Short Prickly.

TOMATOES IN POTS.—At least one good cluster of fruit ought now to be set on these, and a top-dressing of turfy loam and horse droppings may well be given. The old soil ought to be well moistened before the fresh compost is firmly packed on the top of it. Subsequent waterings for a time must be regulated by the condition of the former, as this may be in a much too dry a state and the top-dressing quite moist. Liquid manure should be freely given after the fresh soil is well occupied by the roots, and it is at that stage that the plants may be set against the back walls of vineries only partially filled with Vines, or between Peach and Nectarine trees, or wherever there is space for a plant or two. The roots soon find their way into the borders, but the plants, being kept in pots, do not grow too strong to be fruitful. If there is plenty of head-room they may be allowed to form several leading growths, these being trained about 9 inches apart and fruited to their fullest extent. No lateral shoots should be permitted to form on either those trained to a single stem or cordon fashion, nor on the spreading leading growths, until they are needed to furnish the lower trellis space with fruiting growth. It is quite useless to put out weakly plants in any partially shaded places, and even in much more favourable positions plants kept in fairly large pots and allowed to root through into a rich border are the most productive. In all instances where strong bunches of bloom are formed, the central or most forward flower is apt to be extra strong or fasciated. These are followed by correspondingly large and ugly fruits, which quite spoil the rest of the cluster. Remove the flowers as soon as they can safely be pinched out, and all the rest will be greatly improved thereby.

SALSIFY AND SCORZONERA.—We find one fairly large sowing of these ample, and make this late in April. When sown much earlier, a considerable number of the plants run to seed prematurely, and the roots are of no use. Clean, straight, and moderately thick roots are preferred, those in our case being most surely produced on ground previously well manured for Cauliflowers, Beans, Peas, or any other except root crops. This being deeply dug early in the winter breaks up finely at the present time, and favours a quick and early growth. When the roots come into contact with fresh manure they fork badly, and where, therefore, owing to the pooriness of the ground, it has to be manured, it ought to be dug in deeply. The seed should be sown thinly in shallow drills drawn 1 foot apart, and it ought to be covered with a little fine soil. For the benefit of the inexperienced, I may add that Salsify is the least liable to "bolt" or flower prematurely, and is usually preferred on the dining-table. If, therefore, space is limited, grow Salsify, two or three rows 18 yards in length being ample for all but the largest establishments.

CHICORY.—Well-blanching Chicory leaves may easily be had any time during the winter and spring months and these improve the appearance of a salad, their slightly bitter taste in some people's estimation also improving the flavour. As it is important that large Carrot-like roots should be grown for forcing next winter, it is advisable to sow the seed now or early in May. One or more rows equal to a length of 18 yards will be sufficient in most instances, and as nearly every new seed will germinate, it should be sown thinly where the plants are to grow, or say by the side of the Salsify, and in common with the latter be thinned out early to a distance of about 6 inches apart. The large-rooted or Witloof is the best variety.

BEEF.—The roots of these ought to be of medium size, clean and straight. More often than not they nearly approach Mangold Wurtzel in size, and when this happens the colour and quality are very inferior. Early sowing on rich ground is principally responsible for this grossness, but in all fairness it should be stated that the choice of varieties is frequently very unfortunate. Dell's Crimson or any very similar selection is the best, especially for strong or rich soils, and if Nutting's Dwarf Red and Pine-apple Short-top could be obtained true to name, these also are of moderate growth, good form and colour. Pragnell's Exhibition is excellent on poor light soils, but on good ground the seed must not be sown before the first week in May. On some shallow soils nothing but the Egyptian or Turnip-rooted will attain a useful size, and this keeps as well as the long-rooted varieties. On good ground, however, this and the improved form Crimson Ball grow to a great size, and in this case are principally to be recommended for the earliest supplies, one or two rows only being sown. Much that has just been advised concerning Salsify and Scorzonera is also applicable to Beet; in fact, ours are all grown on the same quarter and sown at the same time. The drills may be 15 inches apart for Dell's and other short-topped varieties, and 18 inches for the stronger growers. They should be drawn about 2 inches deep, the seed sown thinly and covered with fine soil brought, if need be, from the frame ground. Birds, notably sparrows, and slugs are fond of the young Beet leaves, and as soon as the seedlings show above ground they ought to be coated over, while yet the dew is on them, with soot and lime, the application being renewed as often as necessary.

PRICKING OUT FRAME-RAISED PLANTS.—The bulk of Brussels Sprouts, the earliest Broccoli, summer and autumn Cauliflowers, Cabbage, and Lettuces are usually raised under glass. As a rule, the seed is sown rather thickly in boxes, pans, or patches in frames, and unless the seedlings are well hardened off and pricked out when about 3 inches or rather more in height, they quickly spoil each other. If possible, a warm border should be given up to these plants for a few weeks. Ours succeed on a fruit border sloping to the east, but well sheltered by a garden wall from easterly winds. Plenty of light sifted mould or leaf soil ought always to be mixed with the ordinary soil whenever this is found to be at all lumpy or stiff, and after the surface has been moistened the plants should be pricked out 4 inches apart each way and deeply—that is to say, planted up to the seed leaves. They require to be watered in, and if moistened overhead occasionally and protected from frosts for a few days with the aid of branches of trees or Evergreens, or mats and blinds, they are not long before they commence growing strongly. When they are strong enough to move, or the site is ready for them, a good watering should be given, the transplanting being effected with a trowel, so as to preserve a ball of soil about the roots. If drawn and planted with a dibber, or similarly to any raised in the open and not pricked out, they are usually a long time in recovering from the check received. *W. I. M.*

Mushrooms.—Many punnets of Mushrooms taken from beds made up in the open air are now being sent to market from the western and other suburbs of London. Those who are mainly fruit growers find Mushrooms very useful indeed at that season of the year when fruit is over, and they have to wait until early spring for cut flowers, which, like their Mush-

rooms, they grow under their fruit trees. The Mushroom-rooms are packed into deep punnets that hold about a quart or a little more. Each is tied over with a piece of paper; they are then laid upon their sides in deep baskets with layers of straw between them, and in this way sent to market.—R. D.

NOTES ON VEGETABLES.

MAY we not reasonably hope that the frost has gone—that is, frost sufficiently severe to seriously interfere with outdoor gardening operations. Happily, a day or two of sun or drying winds soon get the soil into good working order. Directly the fine weather comes, advantage should be taken of it to get in seeds with all despatch. Many working men who have allotment gardens can get to work on them only in the short evenings, and, therefore, it is necessary they avail themselves of every favourable opportunity for sowing. Some Cabbage, Savoy, Carrot, Spinach, Radish, and such-like seeds, with succession crops of Beans and Peas should be sown at the earliest possible time. There are two good garden Cabbages—the Early York and the Non-pareil—that are well adapted for spring sowing. Some seed of the Enfield Market Cabbage and the Green Colewort should be sown early in August for early spring use. Some persons prefer the Rosette to the Early Green Colewort, but it is only a variety of the latter, having a flat rather than a conical heart, and the leaves take the form of a rosette. A good many plants of this character will come among the ordinary Green Colewort. One of the best Savoy Cabbages is the Drumhead; it is large, economical and hardy. The Early Dwarf Ulm is a capital Savoy for small gardens, and the plants can be placed close together, and it is very sweet and tender when cooked. It has several synonyms; one of them is known as the Dwarf Mar-cillan.

As for Carrots, the best for shallow soils are the Early French Horn and the Scarlet Nantes, a fine selection from the ordinary Horn Carrot, made in France; it is early and quick, and in good soil grows to a large size. Then there is the Intermediate, or James's Scarlet, a most useful variety, and one of the best for ordinary garden culture and a good keeper also. A good one for exhibition purposes will be found in the St. Valery. Those who prefer long Carrots and have a deep and rather light soil can grow the Long Red Surry or Long Oranges; there is a capital selection from this known as the Studley, famous for its rich colour. This originated in the village of Studley, near Calne, and during the summer there can be seen in many cottage gardens a piece of this Carrot being grown for seed. Carrots should be sown thinly in shallow drills, and when the young plants come through the soil they can be dusted over with some very fine cinder ashes and powdered lime mixed together, and then the slugs will give the plants a wide berth.

A little round-leaved or summer Spinach can be sown between the lines of Peas if they are 4 feet or so apart, or a piece of ground can be sown in drills in another part of the garden. I find that as a rule cottage gardeners do not appear to care much about Spinach, but amateurs do generally, and it is regarded as a very wholesome vegetable. In the market gardens round London Radishes have already been largely sown, and successional sowings are being made. Long beds about 4 feet in width are made up, the seeds are sown broadcast and not too thickly, and a little fine soil thrown over them; then some straw that has been used as litter, or that shaken out of the fresh stable manure, is laid lightly over the beds, and there remains until the plants come through the soil, when it is removed on fine days and placed on again at night. It assists the quicker germination of the seeds and also helps to reduce the ravages of birds. Long Radishes,

such as Wood's Frame, &c., are invariably sown by the market gardeners, but many persons prefer the crisp-eating Turnip varieties.

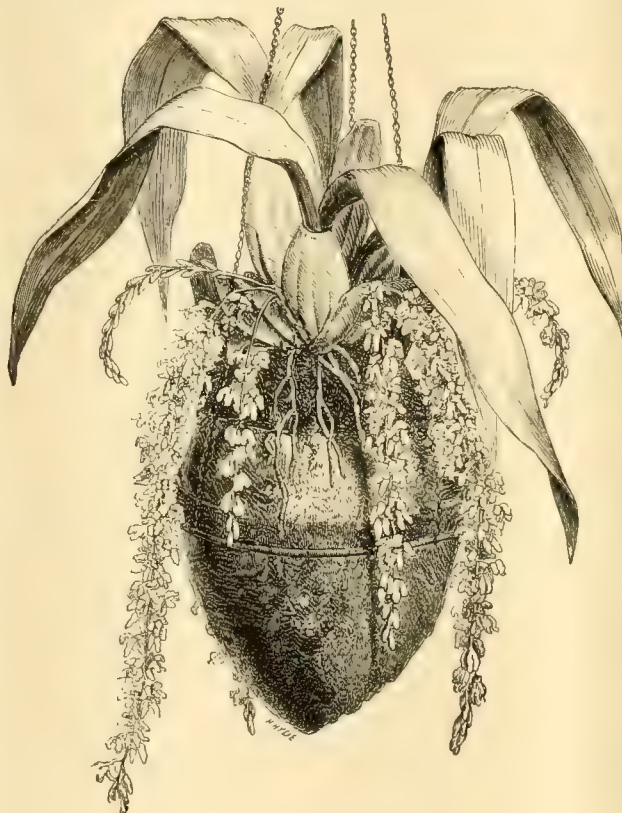
Some dwarf Scotch Kale, some Cottagers' Kale, Brussels Sprouts, and Celery can also be sown as soon as convenient. For small gardens, and, indeed, for many large ones, one of the best varieties of Celery is the Incomparable Dwarf White. Though of dwarf growth, it forms good, solid sticks, and when of a good stock, it eats crisp and sweet. R D.

ORCHIDS.

W. H. GOWER.

ORCHIDS IN MR. SEAGER'S NURSERY AT DULWICH.

THE increasing love for Orchids which is daily gaining ground, not only in England, but also in America and on the continent of Europe, is



Rodriguezia recurva.

causing the opening of fresh nurseries for the sale of these plants, and I was somewhat surprised to find in the course of my rambles a new establishment of this kind in Lordship Lane, Dulwich. This, although only established a few months ago, contains a goodly number of plants, some of them rarities, and also many things in flower. At the time of my visit some of these were being packed for the Continent. Amongst plants in flower were numerous forms of that general favourite, Dendrobium Wardianum, also D. crassinode, which, although the flowers are smaller, is little inferior to D. Wardianum. There was also blooming the darkest variety of the long-tailed Lady's Slipper (Cypripedium caudatum) I have ever seen, together with numerous other forms of this now popular genus, including a beautiful variety of the hybrid C. vernixium, bearing more spotted flowers than usual, and an abundance of promising-looking seedlings. A fine batch of Rodriguezia secunda, recently imported, and many of them blooming,

also disclosed the fact that Ionopsis paniculata grows naturally with the Rodriguezia, as the two plants appeared to be so interlaced as to be almost inseparable. Rodriguezia recurva, of which we give an illustration, is another very pretty, but much neglected species. Here, also, were large quantities of Cattleya bicolor, some of them flowering, and from the brilliancy of the lip in some forms they were a good selection, and likely to further the increasing love for this old species, which, by the way, appears to enjoy a greater amount of heat than the majority of Cattleyas.

Another old favourite blooming here is Bletia verecunda, a terrestrial genus of Orchids, which is likely to again come into favour. This is a genus upon which I recently made a few remarks, and this species was inadvertently omitted by me in that enumeration. A very fine form of Masdevallia Veitchi superba was also flowering, and was remarkable for the great amount of colour in the upper sepals. This species appears to thrive best in a somewhat warmer temperature than the majority of the other kinds. Here also were many plants of Odontoglossum Alexandræ, which have been grown very cool, and which are remarkable for their sturdy vigour. Another extremely rare plant which I noted was Lælia Stelzneriana. It belongs to the elegans section, having a very rich purple lip; the plants appear to have been recently received, and are somewhat shrivelled. Good-ye-ara pubescens is another old favourite, now much neglected, but a beautiful ornamental-leaved Orchid, which thrives well with the Odontoglossums, its green leaves, reticulated with white, rendering it no mean ornament to a cool stove.

Odontoglossum madrense.—A distinct and charming species, and one which is seldom seen in good condition. It appears to have been found by M. Roezl during the last journey he ever made in Mexico. It is a free-growing plant when placed in an intermediate house, as it cannot withstand so low a temperature as such kinds as O. crispum. The scape is erect, bearing a raceme of numerous large flowers, which are delicately fragrant, 3 inches to 4 inches across, pure white, marked near the base of the sepals and petals with reddish purple; lip shorter than the sepals and petals, yellow at the base, white in front. An excellent variety of this plant I observed recently in the Messrs. Veitch's establishment.—W. H. G.

The Mexican Tulip (Cattleya citrina).—This remarkable species is just now making a grand show with Mr. Measures, at Camberwell, some masses bearing as many as nine of the large and fleshy, rich yellow flowers, which yield a delicate and grateful odour. It appears to be the only Mexican species of this genus, and was first introduced by the Horticultural Society upwards of sixty years ago. It is said to grow in the cool regions of Mexico, at from 6000 feet to 7500 feet elevation, and there it exists in almost a dry state from November until April. I used to grow it well on the back wall of a north house in which plants of Odontoglossum crispum were kept, although in Mr. Measures' collection it does not appear to be kept so cool, as all the plants hang over the path of an intermediate house, but I believe the plants will maintain their vigour for the greatest length of time under the cooler system. It should be grown upon blocks of wood and suspended head downwards, as in no other position can it be induced to grow. Although it requires so

little water during the winter months, it enjoys an abundant supply when flowering and growing.—W. H. G.

THE ORCHID ALBUM.

THE March number of this work is just to hand and contains excellent plates of the following:—

PHALÉNOPSIS ESMERALDA.—The original of this I saw last season flowering in the fine collection of these plants grown in the garden of Mr. Measures at Camberwell. The scape is erect, and bears a raceme of twenty flowers and buds; the sepals and petals are of a uniform amethyst colour, the lip being a deeper shade of the same hue. Mr. Williams says "it should be grown in a light place, not too far from the glass, always keeping good and sweet material about the roots, but not too much of it." It blooms during the late summer and autumn months, and is a native of Cochin China.

DENDROBIUM LUTEOLUM CHLOROCENTRUM is a very fine form of the species, and requires the same treatment. It was introduced by Mr. Williams from Burmah, a district which appears to abound in Dendrobies.

CATTLEYA BOWRINGIANA.—This is an excellent figure of this new species introduced by the Messrs. Veitch some four years ago from Honduras. In habit it somewhat resembles Cattleya Skinneri. The blooms, which are produced in the autumn, are of a different colour to those of the last-named plant. The blossoms are borne some six or ten together, and are in the sepals and petals rosy purple, the lip being of a rich maroon-purple, the throat white. It is said to grow on the sides of streams, in the neighbourhood of waterfalls, which evidently points to its requiring a very moist atmosphere.

VANDA SUAVIS (Chatsworth variety).—This is a bold plate of a very handsome form of this lovely species, which was first introduced by the Messrs. Veitch from Java, and differs from other varieties in the density of its rich purple spots and bars. It, like all this section of the genus, yields a delicious perfume. This particular variety appears to have long graced the collection at Chatsworth; hence its name. The forms of *Vanda suavis* are numerous, and although all are beautiful, without varietal names one could not be sure of obtaining a particular form when the plant is not in bloom, and therefore I welcome good illustrations of these varieties when the characters are fixed. W. H. G.

SHORT NOTES.—ORCHIDS.

Dendrobium thyrsiflorum.—I have a plant of *Dendrobium thyrsiflorum* with twelve racemes. It is not a made-up plant.—J. CALDER, Manchester.

Oncidium concolor has been brightening the Orchid house for weeks past with its pure yellow flowers. It is one of the showiest and most beautiful of its genus.

Angrecum Sanderianum is becoming widely known, and a spike of flowers from Mr. Charles J. Catt, Warrington, shows us what a beautiful Orchid it is; the flowers are of the purest white and borne freely.

Dendrobium thyrsiflorum, densiflorum, Paxtoni, and Schroederi are in full flower at the Messrs. Veitch's nursery, Chelsea. The last of the four is lighter than *densiflorum*, of which it is a variety.

Lælia flava, blooming now, is a distinct Brazilian species. The flower is self yellow and very bright, sepals and petals narrow, and the lip crisp. It is useful, as the colour is so decided.

Cœlogyne elegans, apparently of the ocellata type, is white with the lip striped inside with brown, the base yellow. It possibly obtains its name from the elegant character of the racemes. It is in bloom at Kew.

Miltonia or **Odontoglossum Roezli**, a new relative of *M. vexillarium*, is a remarkably chaste flower, pure white except the yellow stains at the apex of the lip, and the rich suffusion of crimson-purple at the base of the broad petals. It is flowering at Kew in the cool house.

Cœlogyne tomentosa.—This is growing in a pot in the cool house at Kew, and carries two pendent spikes which proceed from the base of the pseudo bulbs. The sepals and petals are pale whitish brown, and the lip inside is richly striped with the same hue, the front portion being ridged with sulphur yellow.

Odontoglossum odoratum.—Your correspondent on page 332 of THE GARDEN, in speaking of this useful *Odontoglossum*, says it is sometimes mistaken for *O. gloriosum*, but it is quite distinct. Having always considered the two synonymous, I should be glad if the writer would kindly point out the differences to me, so that I may be able to distin-

guish them. Colour, I know, has been given as a distinction, the dark forms being called *odoratum*, and the pale forms *gloriosum*, but as the writer of the above note infers there are some distinctive characters, I should like to know them.—G.

SOCIETIES AND EXHIBITIONS.

INTERNATIONAL EXHIBITION AT GHENT.

APRIL 15—22.

ONCE in five years the horticulturists throughout Belgium combine and hold a grand exhibition at Ghent, the famous city of flowers and nursery gardens and the great centre of European horticulture. During the past week, commencing on Saturday last, the fine old Flemish town has welcomed a great gathering of horticulturists from all parts of Europe. There you met famous gardeners and botanists—English, Scotch, and Irish, Russians and Austrians, French and Germans, Italians and Swiss—all assembled to see and learn, exchange ideas, and enjoy themselves.

Supported by the State, patronised by the King and Royal Family, the Société Royale d'Agriculture et de Botanique of Ghent is able to carry out an exhibition such as we can never hope to do in this country, where horticulture is not considered such an important national industry as in Belgium, where a large proportion of the population live upon horticulture directly or indirectly.

These quinquennial exhibitions are epochs in the history of Belgian horticulture, and, we might say, in that of Europe. So far as indoor plants are concerned, one is able to judge from these shows of the progress that is made in the intervening five years, and the interval is long enough to mark the rise and fall in the popularity of particular classes of plants. This was clearly seen in the present show compared with that which was held five years ago. At the last quinquennial show Orchids, for instance, were few and poorly represented, but now, as they are in the ascendant in Belgium, they were perhaps the most remarkable feature in the whole exhibition, so numerous were they and so admirably represented. Everybody now talks about Orchids, and they formed the principal texts for the speakers at the gathering. But we, in this country, have nothing to fear; the Belgians will never and can never rival us in Orchid culture. Other classes of plants that had advanced wonderfully since the last show were Anthuriums and Clivias (*Imantophyllums*). The Belgians have done more than any other country in the improvement of these plants, and they have now brought them to such perfection that it is difficult to see how it is possible to advance further. Greenhouse Rhododendrons and hardy Azaleas have been improved by the Belgians, especially the Azalea mollis, of which they have now a very beautiful new race of double varieties, which was one of the most remarkable features in the show. These are among the few classes of plants in which progress has been made by the Belgians, but they are at a standstill with the majority. Amaryllids, which have been improved by rapid strides, were at the show no better and perhaps worse than they were five years ago, though they were more numerous. One sees no Cyclamens such as are shown in London; no such pot Roses, Pelargoniums, trained stove and greenhouse plants, hardy flowers, such as Narcissi and even Hyacinths, Tulips, and other Dutch bulbs—in fact, the Dutch bulbs exhibited in Ghent by Dutch growers would be considered third and fourth-rate at our London shows. What we cannot see to such perfection in England are the Azaleas and Camellias, Palms, Cycads, Tree Ferns, Bays, which, as everyone knows, are the staple industry of the two hundred and odd nurseries in Ghent and its neighbourhood.

The exhibition was held as usual at the Casino, a handsome and capacious building belonging to the Ghent Horticultural and Botanical Society. The building is lofty and surrounded by galleries, from whence a view of the whole can be enjoyed. This great hall was filled in every part by exhibits, and in addition there was an enormous temporary

hall besides a number of glass houses in the grounds crammed full with plants. Both halls were laid out and arranged in an informal way, and the mingling of colour and foliage created most beautiful effects; in fact, viewed from the gallery the main hall was a paradise of brilliant colours and beautiful foliage. We have a great deal to learn from the Belgians in the matter of arranging flower shows; they seem to have the knack of arranging small plants so as to make them large and display themselves to the best advantage. They concentrate their brilliant colours, such as those of their monster Azaleas, and so put them in contrast to masses of foliage such as Palms, Cycads and Tree Ferns, and by these means, instead of the higgledy-piggledy arrangements common at English shows, you get decided effects, which one can enjoy. They group *en masse* their Rhododendrons, Ghent Azaleas, Clivias, Anthuriums, Orchids, Camellias, and other bright flowers, and intermingling them with foliage to act as a foil to the colours, and they know well how to get the best effects from their Tree Ferns and Palms, which are often 20 feet and even 30 feet high.

In order to appreciate the enormous extent of the exhibition it need only be mentioned that the schedule embraced no fewer than 417 classes, and these were nearly all represented. To judge the exhibits there was a jury numbering 140 members, and though we do not mean to say that the work could not have been done by a fourth of that number, it gives an idea of the way horticultural exhibitions on a large scale are carried out by this nation of gardeners.

We shall not attempt to give full details of all the exhibits, but confine our notes to those that we think may interest our readers.

NEW PLANTS being the first in the schedule are considered the most important, and no fewer than thirteen classes were set apart for them. These were nearly all represented, but there was not one exceptionally remarkable plant among them all, nothing that surprises one who is on the look out for novelties. The majority of the new plants consisted of those of the fine foliage class that seems to be of the highest importance in Belgium. The only exhibitor of twenty new plants, not in commerce, flowering or fine foliage, was M. Jacob-Makoy, of Liege, and his lot comprised *Labisea Malouana*, *Aphelandra Louisea*, *Bismarckia nobilis* (Palm), *Dieffenbachia Kerchoviana*, *Hoplophytum robustum variegatum*, *Eugenia oleoides elegans*, *Pandanus glaucescens*, *Nepenthes picturata*, *Caraguata Peacocki fol. rubris*, *Curmeria Leopoldi*, *Pandanus D'Haenei*, *Alcoccasia Leopoldi*, *Pandanus De Smetianus*, *Philodendron Corsinianum*, *Phrynium variegatum*, *Croton Emperor Alexander III*, *Encholirion roseum variegatum*, *Dieffenbachia gemmata*, and *Canistrum leopardinum*. We give the full list as a record of the new plants not in commerce at this period, though there are only half-a-dozen that can be considered first-rate and distinct. M. Jacob-Makoy also showed the only collection of six not in commerce, the finest plant among them being the noble *Bromeliad*, *Brochinia Andreana*, discovered, we believe, by M. André, of Paris, when travelling in British Guiana. There were also in the collection *Curmeria Leopoldi*, *Nidularium Makoyanum*, *Inga Glazionana*, *Amonium vittatum*, and *Dieffenbachia Kerchoviana*, nearly all fine-foliaged plants. Among the ten plants recently put in commerce, shown by MM. Desbois et Cie. were *Polygonatum multiflorum variegatum*, Solomon's Seal with variegated leaves; *Boronia heterophylla*, the beautiful New Holland plant lately exhibited by Messrs. Veitch; *Begonia Arthur Malet*, very fine foliage; *B. Louise Closson*, also good; *Phytolacca decandra variegata*, more curious than beautiful; *Epacris onosmaeflora*; *Dracæna Douceti*, and *Adiantum schizophyllum*. In the classes for single specimens of absolutely new plants, the first prize for a flowering example was awarded to M. Hye-Leyen for *Cypripedium Lawrenceanum Hyeanum*, shown last year in London, having green flowers instead of reddish brown. The second prize went to M. Van Geert for *Boronia heterophylla*, a far more important plant than the *Cypripedium*, while *Vriesia chrysostachys*

from M. Jacob-Makoy was third. The best new fine foliage plant was considered to be *Begonia Lubbersi*, a really beautiful plant, with dark emerald green leaves spotted with silver. This was from M. Pynaert Van-Geert, who also took second and third prizes in the same class for *Dichorisandra teniensis*, a creeping plant, with beautifully marked foliage, and *Alocasia Chantieri*, a handsome leaved Aroid. The finest seedling stove plant not before exhibited was *Anthurium Makoyanum*, a hybrid from A. Andreanum, sent by M. Jacob Makoy, while M. Pynaert Van-Geert was second with *Begonia President de Bourenilles*, with beautiful metallic-purple foliage and large pink flowers in the way of *B. incarnata*. The best fine-foliaged plant for a greenhouse was *Phormium tenax roseum pictum*, with bronzy red leaves, and the best flowering hardy plant from seed was the double-flowered *Azalea mollis*, with pretty rosetted flowers of a salmon-pink. The most remarkable new plant in the whole exhibition was, we considered, a variegated sport of *Vriesia tessellata*. The ordinary form of this is extremely handsome, its leaves being emerald green, transversely barred or tessellated with black; and in the variegated form there are in addition broad longitudinal bands of white and cross markings of violet. As the Bromeliad family is so popular on the Continent, one can imagine what interest is taken in this beautiful novelty. Other remarkable new plants were *Anthurium De Smetianum*, a variety of A. Andreanum, with spathe of an intensely deep crimson, *Dracæna indivisa albo-marginata* (certificated lately by the Royal Horticultural Society).

ORCHIDS, as we before remarked, were very numerous, but compared with our standard in England were not extraordinary. One saw no exceptionally fine specimens, but crowds of small plants arranged to the best advantage. Thirty-three classes were alone devoted to Orchids, and twenty-one of these were represented. There were classes for collections, limited and unlimited in numbers, for different genera, such as *Cattleya* and *Lælia*, *Cypripedium*, *Masdevallia*, *Vanda* and *Aerides*, *Odontoglossum* and *Anæctochilus*. The class for the largest display was considered the most important, as the first prize, a gold medal, was presented by the Queen of the Belgians. This was won by M. Peeters, a nurseryman at Brussels, and his collection, consisting of upwards of a hundred distinct species and varieties, certainly did him great credit. He had besides fine plants of the commoner kinds, such rarities as *Lælia grandis*, *Lælia elegans prasiata*, *Cypripedium vernixium*, *Druryi*, *Robellini*, *euryandrum*, *Schrederæ*, *Mrs. Canham*, *Sallieri*, *Wallaertianum* (new), *Measuresianum*, *Sedeni candidulum*, *Cœlogyne cristata alba*, *Odontoglossum aspersum*, *Wilckeanum*, *baphicanthum* (very fine), *Jenningsianum*, *polyanthum*, *ramosissimum*, *Dendrobium Ellianum*, *Findleyanum*, *Burlingtonia bahiensis*, the whole forming a solid bank of bloom. In the other collections we saw the following noteworthy kinds well represented: *Trixsperrum Berkeleyi*, *Cattleya Schofieldiana* (very fine), *Dendrobium Leechianum*, *Odontoglossum Pescatorei* with very large flowers, spotted and blotched with bright purple in the way of the *Veitchianum* variety, *Phalanopsis Sanderiana*, with two branched spikes carrying twenty large flowers beautifully tinted with rose, *Odontoglossum Karwinski*, *Cattleya Schilleriana*, *Masdevallia coccinea*, a specimen with three dozen flowers; *Masdevallia Shuttleworthi*, with thirteen blooms; and *Oncidium sarcodes*, with branched spikes 5 feet long. Among *Odontoglossums* the most remarkable was a yellow variety of the luteo-purpureum section (probably of *O. sceptrum*), which was provisionally named *O. Masurelli*. It is different from any other we know, and though its beauty may be a matter of opinion, it would fetch a high price if sold in London. It was shown by MM. Vervæet et Cie. *Cypripediums* being the fashionable Orchids in Belgium as well as here just now, were plentiful as regards sorts, but no fine specimens were seen. After the *Hyeanum* variety of C. Lawrenceanum, the most remarkable was that named C. Lemoinei, an extremely handsome hybrid of the C. Sedeni stamp. It has large handsomely formed flowers, larger than those of Sedeni, and of a rich violet-red colour. The growth is very strong,

the spikes tall, and the foliage long and broad. The following are among the less common kinds of *Cypripedium* shown: *C. Swanianum*, *Crossianum*, *Parishi*, *calophyllum*, *marmorophyllum*, *hirsutissimum*, *insigne*, *syhetense*, *Dauthieri*, *selligerum majus*, *Druryi*, *vernixium*, *Hinksianum* (in the way of *Roezlii*), *Harrisianum*, *superbum*, *nitens*, *tonsum*, *Amesianum*, *politum*, *meirax*, *caudatum roseum*, *grande* (from M. Hye, finer than we have ever seen it), and *Wittei*, which is apparently only a twin-flowered *C. Hookeri*. The collections of *Cypripediums* were among the most remarkable features of the show, and probably there was never before such a large assemblage of different kinds in an exhibition. It is a singular fact that the most interesting and most valuable Orchid came from England. It was a three-flowered spike of a variety of *Cattleya Trianae*, having the sepals of a pale rose, broadly banded down the centre with crimson in the way of the variety *C. Backhousiana*, but not so heavily, the markings taking more the form of splashes and freckles.

FINE-FOLIAGED PLANTS, always a great feature in Belgian shows, were, one might say, the groundwork of the display, Palms, Cycads, Tree Ferns, Aroids being shown in great numbers, the details of which would occupy too much space. The finest Tree Ferns we ever saw were in some of the groups. For example, of the beautiful *Cyathea dealbata* there were specimens with stems 20 feet high; *Dicksonia antarctica* (*Balanium* it is called there), almost as tall; gigantic specimens of *Cyathea medullaris*, *Hemetelia Smithi*, *Dicksonia fibrosa*, *Cyathea Cunninghami* (20 feet) towered above everything else, and gave that beautiful picturesque outline which everyone so much admired. But there were no such fine specimens of other Ferns several feet across as are to be seen in English exhibitions; indeed, the Ferns, with the exception of tree kinds, were poor. Palms of almost all kinds in cultivation were to be seen, and among the less common kinds were some noble examples of *Licuala grandis* (previously called *Pritchardia*), *Washingtonia robusta*, *Stevensonsonia grandifolia*, *Wax Palm* (*Ceroxylon andicola*). The magnificent collection of twenty-five Palms shown by M. de Ghillinc de Walle, and which won the gold medal given by the King of the Belgians, contained some remarkable specimens of such noble Palms as *Areca Baueri*, *Brahea dulcis*, *Pritchardia pacifica*, *Cocos Bonneti*, *Sabal Blackburniana*, as was also the collection of twenty shown by M. Van Houtte.

INDIAN AZALEAS give brightness to the whole scene, particularly the enormous Mushroom-headed plants, some quite 7 feet in diameter, from M. Ghillinc de Walle, which won the great prize; while that from the gardens of the president of the society (Comte de Kerchove) were scarcely inferior. These same plants have figured at several quinquennial shows, and it is marvellous how such old plants can be maintained in perfect health and be sent to shows perfect masses of flower. The *Azalea* being such an important plant with Belgians, the classes devoted to it numbered no fewer than twenty-three. *Rhododendrons* of the ponticum section made a grand display in themselves, but one could see that the bulk of them were English-raised varieties, it being singular the Belgians have not turned their attention seriously to raising new *Rhododendrons*. Ghent *Azaleas*, on the other hand, owe much to the Belgian nurserymen, by whom the finest sorts have been raised. We were pleased to see that an advance has been made with the *Azalea mollis*, and quite a new race of double varieties has been obtained. This, to us, was one of the most interesting classes of plants in the exhibition. The *Camellias* in small pots were exceptionally fine, being compact pyramids ranging from 2 feet to 3 feet high, and perfectly crowded with flowers—very different from the small, slender, sparsely-flowered specimens we, as a rule, see in England.

CLIVIAS, OR IMANTOPHYLLUMS, are just now very popular on the Continent, and a large number of the Ghent nurserymen have for several years been raising new varieties, but after all the range of colour is so limited that there is but little difference in the scores of so-called distinct varieties that have been named. The same mono-

tonous, and, as some think vulgar, colour, a bright orange-scarlet, prevails among them all, though it must be admitted that a few of the finest new varieties are invaluable greenhouse or room plants. The finest sort we saw was that named *Souvenir de F. Vervaene*, by far the brightest coloured and the best formed flower among the scores of varieties exhibited. The next best were those named M. Auguste Lemoinei, Joseph Spæe, M. Jules Hye, Jules Van Loo, all first-rate and superior to what are regarded here as the finest forms, such as *Martha Reimer*, *Lindeni*, and *superbum*. We have a good deal to learn also from the Belgians in the culture of these plants, some of the specimens shown being of enormous size.

ANTHURIUMS, like the *Clivias*, are to the front with the Ghent nurserymen, and a large number of fine varieties have been raised by intercrossing A. *Scherzerianum* and A. *Andreanum*, but details of these novelties must be deferred. *Amaryllis* improvement both in Belgium and Holland does not seem to have advanced in the least since the last quinquennial show. There were several groups shown, but all the sorts were antiquated and would not be tolerated here. In contrast to these was the magnificent group of 100 plants sent over from Chelsea by Messrs. Veitch, consisting of some of their finest named sorts. This group was the centre of attraction, and the prize of 200 francs along with the special prize (a work of art) given by Mme. Verschaffelt for the finest exhibit in the whole exhibition was awarded to Messrs. Veitch. Such a collection as this must surely give an impetus to Continental *Amaryllis* fanciers, and we may expect to see some improvement during the next five years.

THE CYCLAMENS from Mr. B. S. Williams, also awarded a valuable prize, were a great attraction, as the culture of these beautiful spring flowers seems to be little understood on the Continent. The *Cinerarias* from Messrs. Cannell were admired for their perfect culture, though a very fine collection was shown by Messrs. Vilmorin, of Paris; but it is evident that the standard of excellence of *Cinerarias* on the Continent is below ours. Cut flowers arranged in bouquets, wreaths, vases, and the like were not remarkable, and the fact that the chief prizes for bouquets and dinner-table stands were taken by Mr. Brown, a florist in Richmond, Surrey, shows that we have nothing to learn from the Belgians in this direction. Mr. Brown's arrangements were excellent, though we should have liked to have seen his bouquets less formal in outline; the Belgian style, *i.e.*, having the flowers arranged more loosely, is, we think, better. Such were the most prominent features of this great exhibition, but want of space this week prevents us from alluding to many points which may interest our readers, and, therefore, must be deferred.

ROYAL BOTANIC SOCIETY.

APRIL 18.

STORMY weather marred the success of the second show of this society, but the warmth and sunshine of the past few days have brought the flowers forward, so that on this occasion we had as varied a display of alpine *Primulas* and other gems of the hardy garden as we usually obtain at a miscellaneous exhibition. *Azaleas* were excellent in the winning classes, and the brilliant *Amaryllids*, *Daffodils*, and *Rhododendrons* gave richness to a show that presented many interesting features, and was, all points considered, worthy of the society under whose auspices it was held.

The most interesting class to those who make a speciality of hardy flowers was that for a collection of alpine, in which Mr. J. Douglas, gardener to Mr. F. Whitbourne, Great Gearies, Ilford, was first. There were such things as the lovely *Tecophylæa cyanocrocus* and the rich gentian-blue *T. Leichtlini*; *Primula pubescens alba*, better known as *nivalis*, as white as snow; *P. rosea*, the yellow *P. discolor*, and the clear sky-blue-flowered *P. marginata carulea*, besides an assortment of *Chionodoxas*, &c. Messrs. Paul and Son, of Cheshunt, were second, and the great features in this exhibit were

the Soldanellas, including such kinds as the exquisite minima, minima pallida, and alpina, of which several pans were shown. When these flowers are done well, nothing can rival their delicate beauty both in tint and form. For a collection of hardy herbaceous plants, Mr. T. S. Ware, of Tottenham, was first, and he had the pure white *Trillium grandiflorum*, *Primulas* of various kinds, the bell-flowered *Sisyrinchium grandiflorum*, and *Androsace carnea*. Auriculas are the flowers of the season, and Mr. Douglas made a good beginning by gaining the first prize in the class for twelve, showing well-flowered plants of several varieties. The self-purple Chas. J. Perry, the self velvety crimson Sir W. Hewett, and the green-edged Acme were worthy of note. Mr. Turner showed plants with smaller trusses and was placed second. The last-named was, however, first in this class for alpine varieties, the plants well grown, and carrying heavy trusses of finely coloured blooms. Tennyson, lilac-purple, shading to a deeper tint; and Mrs. Thomson, deep lustrous red, with bright yellow paste, were amongst the best. Polyanthus made an interesting class, and Mr. Douglas showed well, exhibiting gold-laced varieties. Azaleas made a great show, and the six specimens of greenhouse kinds put up by Mr. Turner, who was first in the class for these, were models of skilful culture. Apollo, Baron de Vriere and Roi de Hollande deserve a note for their fine colours. Azaleas of the mollis section were shown by Messrs. H. Lane and Sons, Great Berkampstead, and there are few finer flowers for the conservatory or greenhouse. Amaryllids were well exhibited, Mr. Douglas showing twelve good specimens, one of the best being Monarch; fine form, scarlet, whitish centre. Messrs. Paul and Son were second in the class, having several seedlings of promise. For Cinerarias Messrs. H. Cannell were first, the plants densely bloomed, neat, dwarf, and the flowers of rich colour; and there was also a class for Pelargoniums, which were fairly good. Roses were a pleasant break away from the above, Messrs. Paul and Son, Cheshunt, coming first with specimens evincing good culture; Mr. W. Rumsey, Waltham Cross, being second.

The miscellaneous class was well filled, as most of the leading nurserymen contributed. A group of Rhododendrons in pots came from Messrs. H. Lane and Sons, Great Berkampstead. The specimens were a mass of bloom, especially such varieties as The Queen, pink; Charles Bagley, fine purple-maroon; and Cynthia, rich pink. Messrs. Paul and Son, of Cheshunt, had a fine collection of Roses, in which were excellent specimens of The Bride, a lovely Rose; the delicate Marie Van Houtte, the shining rose-carmine Ulrich Brunner, Her Majesty, and The Puritan. In the group was a small tree of Laburnum covered with flowers. Mr. W. Rumsey also showed Roses in several varieties. Mr. B. S. Williams had an excellent arrangement, in which there were good specimens of Cattleya Skinneri, a richly coloured Orchid not so often seen as it deserves; Phajus maculatus; Arthropodium giganteum, with dense spikes of pinky rose flowers; Oncidium sarcodes, and several other interesting things. Messrs. H. Cannell and Sons, Swanley, had double Cinerarias of decided self colours; and Cyclamens were exhibited by Mr. John Odell, Hillingdon, and Mr. W. Hibbert, gardener to Mr. W. Clay, Kingston. Epacris came from Messrs. W. Outbush and Son, Highbate; and cut blooms of Tree Carnations, including the lovely salmon-pink Mrs. W. H. Grenfell, from Mr. Charles Turner. Narcissi were contributed in great numbers by Messrs. Barr and Son, Covent Garden; Mr. T. S. Ware, Tottenham; and Messrs. Collins, Gabriel and Co., Waterloo Road. A group of flowering and foliage plants was sent by Mr. W. Kemp, gardener to Mr. H. Barry, Bushill House, Winchmore Hill.

There were several floricultural certificates, which were given as under: To Mr. J. Chambers, West-lake Nursery, Isleworth, for Violet Victoria, a free, hardy, and fragrant double violet-purple variety, very useful for market; to Messrs. H. Cannell for Cinerarias Aspasia, rich purple; Rosina, rosy purple; and Faust, bright carmine, all being double. Mr.

J. Douglas showed Amaryllis Monarch, scarlet, excellent form, and A. Albert Victor, an almost rich crimson self, and was awarded a certificate in both instances. Mr. Douglas also had a certificate for the grey-edged Auricula Marmion, excellent pip, like Alexander Meiklejohn in character, the body colour black, and Emperor Frederick, an alpine variety, similar to Unique. Messrs. Veitch had certificates for Amaryllis Aspasia, white, feathered with scarlet; Exquisite, fine bright crimson self; and Thackeray, similar in colour, but richer.

Certificates were also given to Mr. H. Bennett, Shepperton, for Rosa minutifolia alba, one of the Polyantha section, an exquisite variety, the plant dwarf, vigorous, and covered with a mass of small, sweetly scented double white flowers; it is a gem for decorations, so rich in leaf and bloom; and pedigree seedling Hybrid Perpetual Rose Duchess of Rutland, which resembled a full flower of Baroness Rothschild in build and tint. To Mr. J. Odell for Cyclamens Lord Hillingdon and Dixon Hartland, both good forms; and to Messrs. Barr and Son for Narcissus bicolor J. M. Camm and Leeds Duchess of Westminster, two useful flowers.

Botanical certificates were awarded to Messrs. Barr and Sons for Puschkinia libanotica compacta, a beautiful flower, striped with blue; and to Mr. T. S. Ware for the same plant. Mr. B. S. Williams had a certificate for each of the following: Anthurium Scherzerianum atrosanguineum, crimson spathe; Cordyline australis variegata, Selaginella cuspidata crispa, certificated by the Royal Horticultural Society recently; and Oncidium undulatum, bearing long racemes of rich brown flowers, relieved with white on the petals.

A full list of the prizes is given in our advertising columns.

THE ROYAL HORTICULTURAL SOCIETY.

TO THE EDITOR OF THE GARDEN.

SIR,—Your obliging insertion of my letters continues to bring in names of candidates for fellowship. In this neighbourhood, within a walk from my house, thirty-nine owners of gardens themselves and two of their friends have added their names to the list of £1 ls. and £2 2s. Fellows, while some have not yet answered, and others have not yet been written to. I have little doubt that we shall make the number up to fifty owners of gardens. Surely this proves that if ladies and gentlemen are shown that they owe a debt to the society for the work it has done, and is doing, to improve horticulture, and that if friends of the society will take a little trouble each in her or his own district, a very large increase in the number of Fellows will result. An influential friend who feels as strongly as I do the importance of moderate subscriptions has done in his neighbourhood, Chislehurst, what we are doing here.

GEORGE F. WILSON.

Heatherbank, Weybridge.

Fruit growers and the Royal Horticultural Society.—We learn that by the kind permission of Mr. J. B. Thomas, Chairman of the Covent Garden Club, a meeting of the fruit and flower growers and commission salesmen of Covent Garden Market will be held in the Covent Garden Hotel, Southampton Street, on Monday evening, April 23, at nine o'clock precisely, to discuss the question of their co-operating with the Royal Horticultural Society in advancing the interests of horticulture in general.

Beetles destroying Ferns.—The enclosed beetles are eating the fronds of my Maiden-hair Ferns. There is not a frond on hundreds of plants fit for cutting. I should be glad to hear of any means other than hand-picking by candle-light to get rid of them. I have caught many hundreds.—JOHN HARPIN.

*** In reply to the above, the beetles you enclosed are the Black Vine weevil; they attack the fronds of certain Ferns, and the leaves of various other plants. There is no better means of catching this beetle among Ferns than hand-picking by candle-light. The task may be made easier by shaking the plants over a white sheet. The grubs of this insect are very injurious to the roots of various soft-rooted greenhouse plants.—G. S. S.

DEATH OF JOHN WOODBRIDGE.

THE announcement of the death, at the age of 57, of Mr. John Woodbridge, head gardener to the Duke of Northumberland, at Syon House, Isleworth, will cause a throb of sympathy in the hearts of many who admired him as much for his kindly disposition and personal good qualities as for his sterling capabilities in the profession which he adorned. His appointment to a seat on the council of the Royal Horticultural Society at a critical period in the history of this body was evidence of the implicit confidence reposed in him, and his loss will be keenly felt, as he was actuated with a desire to bring the society more in touch with the gardeners of England, and to retrieve its fortunes and position. Mr. Woodbridge was born at Amersham, in Buckinghamshire, and first commenced gardening life in the gardens of Mr. T. T. Drake, Shardeole, going from thence to the rectory of his native village, afterwards to the gardens of the Marquis of Londonderry at Fulham, and then to such places as Latimer Gardens, Bucks, and Hedsor, the residence of Lord Boston, Maidenhead. He was at one time at Baron Rothschild's, Gunnersbury, also in the Royal Gardens, Kew, where he had the care of the Orchids and Heaths. And now occurred the great move of his life, as from here he went to Syon House Gardens, which from 1870 he has managed with a skill and tact that have placed him among the foremost gardeners of the age. Here he not only controlled the gardening department, but was also steward and agent of the estate at Syon House, which office he received six years ago. From the time of his appointment to the position which he held at his death, Mr. Woodbridge's name has been closely connected with the Royal Horticultural Society. For years he has been a member of either the fruit or floral committees, and has further shown an interest in horticulture and the welfare of those connected with it by lending a helping hand in the Gardeners' Orphan Fund, besides taking a lively interest in the Apple and Pear Congress held at Chiswick. It will be interesting to mention that Mr. Woodbridge was the first to fruit the Vanilla, pods of which he has occasionally shown at South Kensington. His funeral took place on Wednesday last, when several friends were present to pay a last tribute to one, whom they had learned to respect, and, we might say, love. Our sympathy is with his family in the great bereavement they have sustained.

The death of Mr. W. Stacey, of the Nurseries, Dunnmow, Essex, we learn with regret occurred recently. There are few men who have done more to improve the Verbena, several of the most beautiful varieties being the result of his skill and patience.

BOOK RECEIVED.

Bulletin of Miscellaneous Information, No. 16, April: New Garden Plants.

Names of plants.—R. C.—Anthurium unhealthy. From the specimen sent we should imagine the temperature of the house was too low.—J. H.—Rose Safrano; the Begonia is B. ascotensis.—James W. Faint.—Highly coloured form of Dendrobium nobile.—W. Littleton.—Ophirys tenthrinifera.—In circular tin box.—2, Narcissus juncifolius; 4, Primula Clusiana; others next week.—H. A. Page.—Form of Odontoglossum luteo-purpureum; the small flower is an Epidendrum; please forward better specimen of the other.—W. D. S.—1, Gorgora truncata var.; 2, Cymbidium pendulum.—H. K. D.—1, Cyrtomium caryotidium; 2, Diplazium grandifolium; 3, Fadyenia prolifera; 4, a species of Vittaria, specimen insufficient.—G. J.—1, Draba verna; 2, Arabis albidia; 3, Scilla sibirica; 4, Lomaria alpina.—G. G.—1, Cyrtopodium Ashburtoniae; 2, a fine form of Odontoglossum constrictum; 3, Dendrobium Tolianum; 4, a pale form of D. nobile.—D. W. H.—1, Cattleya Leddigesi; 2, C. bicolor; 3, Leptotes serrulata; 4, Hartwegia purpurea.—T. K.—1, Adiantum velutinum; 2, Pleocnemia Leucocoma; 3, Dictyogramma japonica; 4, Lomaria fluviatilis.—N. D. H.—1, Boronia elatior; 2, Eriostemon cuspidatum; 3, Epacris odorata alba.—4, Erica melanthera.—F. F.—1, Saccolabium gemmatum; 2, Promenaea xanthina; 3, Dendrobium albo sanguineum; 4, a form of Vanda tricolor, certainly not V. suavis.—St. L.—Flowers all withered.—A. G.—1, Epidendrum bicoloratum; 2, Cyrtopodium venustum; 3, Rodriguezia secunda; 4, Phajus Wallichii.—Tobias.—1, Pleurothallis longissima; 2, Oncidium triquetrum; 3, Chysis Limmighiel; 4, Broughtonia sanguinea.—G. O., Deca.—1, Arthropodium spicatum; 2, Pilumna fragrans; 3, Cologney Parishii; 4, Cyrtopodium conchiferum.—T. H. Archer-Hood.—Nuttalia cerasiformis.—A. L.—1, Cattleya Harrisonae; 2, Dendrobium crepidatum; an excellent form of Odontoglossum Alexandre.—W. T. P.—Dendrobium fimbriatum oculatum.

Names of fruit.—Mr. Baxendale.—Winter Pearmain.

WOODS & FORESTS.

THE RHODODENDRON AS A COVERT PLANT.

THIS may be said to be the people's shrub, as it is universally known and appreciated. The great variety which the Rhododendron exhibits both in flower and foliage renders it an object of beauty and attraction all the year round. It delights in a soft peaty soil rich in organic matter, although at the same time it is by no means confined to such, as I have grown fine healthy plants in any ordinary soil, with the exception of stiff clay and calcareous soils that contained upwards of 20 per cent. of lime. By frequent transplanting in the early stages of its growth root action is accelerated, and the small fibres naturally attach themselves in such a way to the soil that a small ball of earth can be lifted with the plants, thus enabling them to be planted with success all the year round. In preparing the ground for the plants it should not only be well drained, but also trenched to a depth of some 18 inches or 20 inches, and in cases where the ground is poor and exhausted a good dressing of peat, bog earth, or leaf-mould would be beneficial in improving its texture and rendering it more fertile.

The Rhododendron is one of the best ever-green shrubs for planting in towns and places where the air is loaded with noxious and pernicious vapours inimical to the growth and healthy development of many other trees and shrubs. Amateurs use it largely for the embellishment of their gardens and grounds, and no matter how small the plot of ground may be the collection of plants is never looked upon as complete without a few plants of hybrid Rhododendrons. In places where space is limited, it is very effective when planted as a standard in the flower bed or Grass plot, and never fails to give a fresh furnished appearance to the spot, especially in winter, when anything green is always appreciated. During the dry season of the year plants in smoky districts are greatly benefited by an occasional watering overhead.

Hardy hybrids are generally propagated by sowing the seeds, and in doing so, I first had a piece of Moss ground drained and trenched in the recess of a Pine wood, where the site was sheltered from the south, west, and north, but open to the east. Before the seed was sown the surface had a dressing of thoroughly decomposed leaf-mould, which proved beneficial in adding fertility to the Moss and rendering it more active. In early spring the seeds were collected from fine named sorts that were planted in mixed groups here and there on the lawn and kept till April, when they were sown broadcast, husks and all, upon the surface, and allowed to lie exposed to the heat of the sun, which gradually opened the seed-vessels. As the seeds are quite light, the wind scattered them over the surface. In this simple way we had a fine lot of young plants, but as I found that the heat of the sun had a tendency to shrivel and blight some of the tender plants, I protected them by a screen of Fir branches. As this proved effectual, the plants were allowed to remain until they had become strong, when the Fir branches were removed and the plants left fully exposed. It was evident, from the size, shape, and colour of the leaves, that there was a great variety in the plants, and as my employer took a lively interest in the experiment, a piece of bog ground was prepared as a nursery in one of the plantations, where the site was sheltered from all quarters by trees. This ground was about an acre in extent and required no fencing. The plants

were then put in in nursery rows, and transplanted several times in order to give space for their development until they bloomed. From the time that some of the plants began to flower, several years had elapsed before many of the others bloomed. This arose principally from the size, strength, and varieties of the plants.

During the time the plants were bursting into flower it was very interesting to watch their progress, as each day revealed some fresh varieties. In this way I managed to raise a large quantity of really fine plants, which proved to be useful both for ornament and covert.

I have, however, seen it repeatedly stated that Rhododendrons made bad covert plants, inasmuch as pheasants would not go under them for shelter; but this I found to be erroneous, for there was no place on the estate that was so much frequented by these birds as this piece of nursery ground. When Rhododendrons are used for covert they should be grown in such a way as to allow open runs for the birds through the plantation, and particular attention should be paid to the plants around the margin in order to prevent the branches from resting upon the ground and thus forming a thicket that cannot be penetrated by the birds when in quest of shelter in the interior. Pheasants do not fly into the covert; they generally alight upon a piece of open ground and then run into the covert, but when they come to a group of Rhododendrons with the outside branches lying upon the ground and some of them actually rooted on the surface, they are thus prevented from entering. When these shrubs are planted in groups for covert the branches around the margin had better be cut back in such a way as to leave an open space of at least 18 inches from the ground to allow the birds to enter and find their way to the interior.

J. B. WEBSTER.

Time for timber felling.—Often the inferiority of timber, such as its tendency to decay and dry-rot, are wholly due to the timber having been felled at improper seasons, and to its subsequent injudicious treatment. To fell trees in March, April, and even in May, as is now often done, is absolute folly. Timber intended for builders, or for the use of coopers and wheelwrights, should never be cut except in December or January, when the circulation of the sap is arrested. November, even, is too early, and February too late to ensure its durability. Its subsequent treatment, too, greatly influences the quality of the wood. The tree should be freed from all branches and shoots immediately it is cut down, and sawn into planks as soon as possible, so that these may at once be seasoned by exposure to the air. In this way alone can we obtain wood that will keep well, and every purchaser of timber should insist upon its being prepared in accordance with these directions.—X.

The wood of the Larch.—There is a peculiar feature characterising the wood of the Larch, viz., its being durable and tough when only of a few years' growth. A Larch piling, put up with wood from fifteen to thirty years old, lasts from fifteen to twenty years; if of Scotch Pine of the same age, from four to six years; and if of Spruce Fir, from seven to nine years. If Larch posts are used, they will last from eight to ten years in a fair state; if of Spruce Fir, from four to five years; and if of Scotch Pine, from three to four years. The durability of Larch makes it much sought after for mining purposes, and for this purpose large quantities of it are annually used. For the purpose of sleepers there is an unlimited demand, this kind of wood being always preferred for that purpose where it can be had, as it is found to last longer than any other kind when laid on the soil. It is difficult to season, as it is almost impossible to keep it from bending and twisting, and Mackintosh mentions steaming as one resort for overcoming this tendency. Some steep it,

while in the log, in water for twelve months, then take it out and dry it twelve months before cutting up. Others prefer the practice of barking the tree while standing, and then leaving it a year before it is cut down. The "Athole" frigate, built of it in 1818, the "Larch," a fine brig, built by the Duke of Athole several years earlier, and others built since these dates have proved the Larch to be as valuable a timber for naval purposes as its most sanguine advocates could desire. The wood, containing an insoluble varnish, preserves iron nails driven into it from rust, and after a lapse of twenty-three years they have been found to be as perfect as when they first came from the forge. One of the qualities of the Larch for building merchant ships is its great lightness, a cubic foot weighing, when seasoned, only 34 lb., and although it is not so strong as many sorts of wood, it has great resilience. Cabinet-work of great beauty has been made from it; it polishes well, and when well seasoned is not found to warp or shrink.—S.

THIN V. THICK PLANTING.

No greater error can be committed than planting trees too thickly, and unless one is prepared to cut down or transplant every alternate tree, it should never be done. It, however, often happens in carrying out the thinning that the best trees are removed; while if trees be planted at certain distances it is an easy matter, should one or more fail, to replace them at once with others that would match those already planted. As a rule, Chestnuts, Limes, Sycamores, Acacias, and a few other varieties may be planted with advantage from 25 feet to 30 feet apart, and where variety is a consideration, the first three mentioned may be mixed with very good effect. I would under no consideration associate Planes and Black Italian Poplars with them, nor would I plant Planes and Poplars together, unless it was positively understood that the Poplars would be removed before the Planes were injured. Where rapid growth and dense foliage are required, nothing is more suitable than the Black Italian Poplar. The Plane, however, although slower in growth, is far more lasting as a tree, evidence of which may be seen in many parts of London. The foliage of both remains in excellent condition until very late in autumn; and this cannot be said of many trees, as, for instance, the Lime, Chestnut, and Sycamore.

IN STREET PLANTING, it is important that really good, stout, and straight trees be procured. It is painful to see the miserable material under the name of trees that is sometimes planted; and when the cost of guards, stakes, &c., is considered, it will be seen that the outlay of a few shillings more than is usually paid per tree would really be a great gain. It is surely false economy to put a guard costing £1 to a tree costing but 2s. It cannot be too widely known that, to ensure success, the planting should be done by a thoroughly practical man, as it often happens that after every preparation has been made in the best possible manner, the work is a failure, through a want of knowledge of the simplest rules of planting. The hole should in all cases be sufficiently large to allow the roots to lie in it in a natural position. The bottom of the hole should be well loosened, and all broken or otherwise damaged roots should be cut away. Some of the finest soil should then be introduced and the tree placed upon it in the centre, slightly below where it is intended to remain, in order that it may be raised to its place when some of the best soil has been placed upon its roots. This operation allows the soil to pass freely among the roots, and disposes of them in a natural manner. A tree should never be planted deeper than it has been when growing in the nursery, or wherever it may come from. Deep planting is the cause of many trees dying; whereas the loss does not exceed 1 per cent. when the planting is carried out as has just been stated. When the tree is in its proper place the soil should be made tolerably firm by treading, but great care must be taken not to tread too near the stem, as it often happens that the stem and some of the best roots are injured thereby. It is much better to make the soil firm round the outer part of the hole than close to the tree.

P.

No. 858. SATURDAY, April 28, 1888. Vol. XXXIII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

T. W. GIRDLESTONE.

NOTES ON ROSES.

ACCORDING to the *Journal des Roses*, MM. Soupert and Notting have at length succeeded in raising several varieties of the charming dwarf Polyantha Roses possessing the one quality which has hitherto been lacking in these attractive miniatures, namely, fragrance. The strange fact that the earlier varieties, although raised from two of the most fragrant Roses, are practically scentless, has often been commented upon, but now, by strengthening the Tea influence, fragrance appears to have been obtained, and of four varieties raised by the crossing of the Polyantha Mignonette and the Tea-scented Marquise de Viviers, three at least are described as sweetly scented. The four varieties are Clara Pfizer, clear carmine, with a silvery white base, plant dwarf, very free-flowering, and flowers fragrant; Hermine Madele, of dwarf habit, the little flowers very well formed, in colour creamy white, shaded yellow; Princesse Henriette de Flandre, a vigorous grower, with flowers of a salmon-yellow tint, nankeen-yellow in the centre, and possessing a fragrance resembling that of Violets; and Princesse Joséphine de Flandre, of dwarf habit, the flowers of a bright rose colour, with a salmon-yellow base, and highly fragrant.

Mr. Douglas's note on page 337 on the crimson Boursault Rose would have been less misleading to the unwary reader had the date at which the late Mr. Thomas Rivers made the remarks there quoted been given. Amadis was sent out in 1829—that is to say, it might have been budded out of doors in 1830—and, consequently, Mr. Thomas Rivers, who, of course, in those days would have had every novelty at the earliest possible moment, might have had six-year-old standards as early as 1837, and if his description thereof was written at about that time, before the glories of the modern Hybrid Perpetuals were dreamt of, before even the fine Hybrid Chinas which Mr. Douglas so justly extols were in existence, it is hardly fair to quote such a description without some intimation of the fact that since it was penned the lapse of more than half a century has sufficed absolutely to revolutionise the entire Rose world. The above year will probably not be far off the date of Mr. Thomas Rivers' remarks, as he alludes to Amadis as "perhaps the most brilliant of Roses," an epithet which, employed by a contemporary writer, could not fail to raise a smile—and, besides, Chénédollé was sent out in 1840.

Fortune's Yellow is another of these very vigorous Roses which, were it only either a little hardier or less precocious, would make a glorious tree worked on a tall standard. Sent home from China in 1845 by Fortune, who discovered it growing in the garden of a wealthy mandarin at Ningpo, and called Fortune's Yellow, it was renamed for some never clearly explained reason in 1876 by Mr. Woodthorpe, who called it Beauty of Glazenwood, a picturesque, but lengthy appellation which Rose growers generally never adopted. Where this unique and delightful Rose can be afforded ample space as a climber

in a cool house, a grand harvest of bloom may be ensured, for the main difficulty in successfully cultivating this plant out of doors lies in its own precocity. Growth invariably commences at the first sign of spring, and since the variety, not being an autumnal bloomer, cannot be pruned hard, the crop of flowers on plants out of doors is frequently damaged irretrievably by an April frost. Wherever it can be grown without getting seriously injured in the spring, there is no Rose more worthy, for the display that a fine plant makes when in bloom with its masses of mingled red and gold is quite unsurpassed and still absolutely unique among Roses. It is surprising that market growers should not have paid more attention to it, since the few flowers of it that occasionally appear in the market are always eagerly snapped up, and the perfectly-formed buds may be had early in such abundance with practically little or no forcing. Growers who are so fortunate as to have this Rose under glass might well contrive to send a bunch of its blooms to the horticultural shows and meetings now, in order to draw attention to its claims, and it may be hoped that flowers grown out of doors will presently follow.

The recent cool, showery weather has been admirably adapted for the planting out of dwarf Rose stocks, whether Brier cuttings, seedlings, multiflora, or, where they are still grown, Manetti. Carefully laid in "by the heels" since Christmas, although the tops are less forward than usual, the roots have been actively at work, and the stocks emerged from their winter seclusion with a splendid supply of white fibrous rootlets, whereby they have taken immediate hold of their new quarters, and are steadily growing on without the slightest sign of check. The great advantage of spring-planted stocks is keenly appreciated when it comes to budding time, and there is no necessity for the grubbing away of the soil from the base of the stocks (to be immediately washed back by the first shower, to the suffocation of the buds in many cases), a tedious proceeding involved by the planting of dwarf stocks in autumn.

The Tea Roses on dwarf multiflora (syn., polyantha) stocks have wintered remarkably well entirely without protection, better even in some cases, as far as can be seen at present, than those on Brier. The number of varieties, however, grown on multiflora is, of course, not nearly so great as that on Brier, so that the comparison is to some extent restricted. But while there is little doubt that the Brier in one form or another will maintain its pride of place as the best all-round stock for Teas, it appears equally probable that multiflora will prove a valuable supplement, and will facilitate the culture of these best-of-all Roses in localities where Briers are difficult to obtain or to manage. Among the varieties of which exceptionally fine plants on dwarf multiflora stocks appear unharmed by the winter that they have withstood without any sort of protection may be mentioned Etoile de Lyon, Comtesse de Nadaillac, Marie Van Houtte, Jean Ducher, and the Hon. Edith Gifford, which, with the addition of Maréchal Niel, form a selection sufficiently varied in type and habit to indicate that multiflora is not unlikely to prove generally valuable as a stock for Tea-scented Roses.

Standard Roses.—These have been gradually losing ground here, and instead of 300 plants, not one-third of that number is now to be seen alive on the place. Every winter we lost a number, more or less according to the weather, especially of the weakest of them, these being replaced by others. This season the word has been given to plant no more of them, and the dwarfs on their own roots and worked on the Manetti will be much more extensively grown in consequence.

We have long found the dwarfs suit the place better in every way. It usually takes some time to upset cherished notions, but perseverance is usually rewarded if only we have patience.—I.

ROSE NIPHETOS AT ASCOT.

ANYBODY who has got the mistaken notion into their heads that the Tea-scented Rose Niphetos is a poor, weak grower, which cannot be made to flourish, should pay a visit to Messrs. Standish's nursery beside the celebrated racecourse at Ascot in order to convince themselves that if this lovely Tea does not succeed, the fault must be with the cultivator rather than with the Rose.

For Messrs. Standish have at the present time (April 19) two large houses devoted to the cultivation of Niphetos alone, and a more magnificent exhibition of the variety can hardly be conceived. The one house is a lean-to some 50 feet long, with a raised bed along under the wall containing about a couple of dozen plants, which, however, are not planted close under, but about 3 feet from the wall, and are trained over hooped stakes, whereby the growth is allowed perfect freedom; no harbourage is afforded to insect pests, and the plants are consequently clean and healthy. A luxuriant growth completely covers the stakes, and the plants now in full flower present a most attractive appearance.

The great display, however, is in a larger span-roofed house, where a central bed fully 50 feet long is planted on both sides with Niphetos similarly grown over hooped stakes, but in this case the stakes meet over the middle of the bed, and the result is a perfect Niphetos arcade, which is simply covered both inside and out with a profusion of flowers of the greatest beauty. In fact, looking down the long arcade from whose roof the innumerable showy blossoms were hanging, the name of Niphetos appeared more exactly descriptive than it has ever seemed before, the snowflakes rather large, perhaps, as the flowers were not only so abundant, but also of exceptional size and perfection of form.

The sight of such luxuriant plants so completely free from any sign of disease and so smothered with grand bloom, accentuated at the moment by the immediate prospect outside of a snow shower more realistic, but far less picturesque, could not fail to raise the spirits of any Rose lover who was fortunate enough to have the opportunity of witnessing it and whose heart was sick at the hope deferred that the present interminable winter would ever be past.

T. W. G.

STANDARD PEARS FOR BRITAIN.

A PEAR that I have not yet seen mentioned by anyone, and which deserves a word of praise, is Clapp's Favourite, but possibly, owing to its being of comparatively recent introduction, it is not much known. It is a fine, handsome fruit and of delicious flavour, and comes in at a time when good Pears are none too plentiful, viz., about the middle of August. I feel sure this Pear will be much thought of when better known. I note your inquiries on behalf of Easter Beurré; it does well here, and is of fairly good quality. Pitmaston Duchess, though so much condemned by you as not a good-flavoured Pear, does very well here, and is really good in flavour and much appreciated.

GLOU MORCEAU I think very much of where it does well. It is of good flavour, but nearly every one who has written of it has had some fault to find, either on the score of its cracking, or being spotted with black fungus. My experience of it is pretty much the same with a large percentage of its fruits. I have noted Beurré Diel with these same faults in other places, though here it is perfection for size and finished appearance, but the flavour is very inferior. A Pear that I think should have a place in your standard list is Beurré d'Amanlis, a handsome fruit of good flavour and one of the best late September and early October Pears. Another Pear I think highly of is Louise Bonne of Jersey [We do not.—ED], a free bearer, of capital flavour, and, as Mr. Rose says, first rate in colour; it makes a good succession to the previous

named Pear. Alexandre Lambre is a Pear I have never met with, but as you consider it good enough to have a place in your first twelve, I would be glad to know something of it. Napoleon, though generally, I believe, but little thought of, also does very well here; it is grown on south and west walls, and seldom misses a crop of handsome well-flavoured fruits. I prefer it to Josephine de Malines.—H. G. GRIBBLE, *Wynyard*.

—Although rather late, I venture to forward a few notes on the best Pears suitable for this district. Before mentioning them I beg to be allowed to express my approval of the idea you have brought forward in *THE GARDEN*, viz., that far too many Pears are grown in most gardens. Here we have some thirty kinds, but as far as dessert Pears are concerned, we could do very well with, at all events, one-half that number. I speak now after having nearly sixteen years' experience in this part. Last year was, perhaps, all things considered, the most favourable one we have had in my time for giving all kinds a fair trial, in having them well matured, and yet we have not sent more than fifteen kinds to table for dessert, the rest having gone in for kitchen use. My selection is as follows for a dozen, naming them in the order of ripening: 1, Doyenné d'Été; 2, Ambrosia; 3, Jargonelle; 4, Williams' Bon Chrétien; 5, Autumn Bergamot; 6, Louise Bonne of Jersey; 7, Marie Louise; 8, Urbaniste; 9, Thompson's; 10, Winter Nelis; 11, Bergamotte d'Esperen; 12, Easter Beurré. By having trees on a south wall and also as espaliers of No. 7, we have it in use for fully five weeks. We usually allow those grown on espaliers to hang as long as they possibly will, so as to prolong the succession. Passe Colmar, Beurré Diel, Beurré Rance, Knight's Monarch, and Josephine de Malines are excellent croppers as a rule, but are very seldom really good for dessert, being always more or less gritty at the core. Our soil is a stiff, loamy one, resting on magnesian limestone, and the trees generally are very healthy.—H. J. C., *Grimston, Tadcaster*.

—I cannot understand why so little has been written in favour of Pitmaston Duchess. It certainly ought to be in the select list; although not of the first quality, it has many things in its favour such as no other Pear has. It is a constant bearer, of hardy constitution, a free grower, and in appearance no Pear can compete with it. It is also a valuable Pear for market, which, I suppose, is the best criterion to go by. A neighbouring farmer a few years ago had a Pear orchard that was quite unsatisfactory, the fruit hardly paying the gathering and sending to market. Being convinced that Pitmaston Duchess was a good profitable Pear, he grafted the greater part of the trees with it and in a few years (I am not sure how many) he gathered 130 bushels of fine Pitmaston Duchess Pears which realised 15s. per bushel. I feel quite sure that in future this Pear will be more largely grown than any other sort, especially where there is such demand for it. I have realised for the fruit this year £1 per bushel, and in some cases a higher sum has been obtained.—A. WATERMAN, *Preston Hall Gardens*.

* * * *The whole aim of our action in this matter was the selection of fruits of the highest quality only. If any fruit gets in not of the best quality, it will be taken out. We spoke to one of the best judges in the market of this very Pear. He said he had tested it from many growers, but never found it good. It good looks are to decide the value of fruit we could hardly pass by some of the handsome war models made abroad.*—ED.

I am glad to see that you have honoured one of our favourites, Bergamotte d'Esperen, with a place among the leading Pears for Britain. We have two trees on an east wall which have not failed for years to produce a large quantity of fine fruit of good quality. We have used this Pear for fully three months of the year—from the beginning of January to the early part of April. I, too, with Mr. Rose, of Lockinge, prefer Williams' Bon Chrétien to the Jargonelle, and find it has the most admirers both for flavour and good looks, although not such a sure cropper as the latter. Brown Beurré deserves, I think, more notice, as with us growing on a west wall it is very little inferior to

Marie Louise in point of flavour, and more reliable as a cropper. Fondante d'Automne I consider one of the best varieties in its season, being a handsome, medium-sized, good-flavoured Pear, and a heavy cropper with a good constitution. Louise Bonne of Jersey with us is very uncertain as to flavour. We had very fine highly-coloured fruit from this last year, but flavourless, as also were Beurré Diel, Brockworth Park, and Beurré d'Amanlis.—R. POTTER, *Sevenoaks*.

—I am surprised to see one or two Pears omitted from the lists in your paper of the 7th which, I think, are more entitled to be named than several that have been selected.

MADAME TREVE grows and bears well on the Quince or the Pear. It is a large and handsome fruit, of fine flavour, and keeps for some time in the fruit room. This year from three pyramid trees I gathered 135 from the 29th of August to the 2nd of September. They began to ripen on the 5th of October and lasted until the 20th, and were very good.

FONDANTE D'AUTOMNE.—Why this has been passed over I cannot understand. It does well on the Quince and bears abundantly. I do not grow it on the Pear. Those who have grown it know what a delicious fruit it is. Of the high-flavoured section of Pears in October, it is, I think, the best.

GREGOIRE BOURDILLON.—This is comparatively a new Pear, raised by Leroy. It grows and fruits very abundantly on the Quince. It is large and handsome, comes into use in September here, and is very melting, juicy, and deliciously flavoured. The tree is hardy and very prolific. I have grown it for many years, and have three pyramids which are all full of bloom this year, and do not appear to have suffered from our late severe weather. If people will not try a new Pear or two occasionally, we shall never improve our fruits.—EAST YORK.

Pear Comte de Lamy.—I am utterly astonished that in selecting Pears no mention has been made of this delicious fruit. It ought to be remembered that when a prize was offered some years ago by the Royal Horticultural Society for the best flavoured October Pear, Doyenné du Comice gained the first prize and Comte de Lamy the second. It is, doubtless, small, but the tree is hardy, an abundant bearer, and for the last twenty years I have had, with the exception of two years, a splendid crop, and those two years the tree, being in an exposed position, suffered from the fearful gales we had in the first week of April. There are some who think its flavour superior to that of Doyenné du Comice. It seems to me to be running to the other extreme to try and limit Pears to about a dozen varieties. Some seasons are unfavourable to some kinds, while the same season is good for others, and therefore I think, while avoiding a redundant list, one of about a dozen is insufficient.—DELTA.

NOTES FROM A MARKET GARDEN.

IN a large market garden in the neighbourhood of London Christmas Roses are grown by the acre for the supply of cut blooms. The method of obtaining good marketable flowers is so simple as to be worthy of the notice of all who grow Christmas Roses for this purpose. The plants are set out in long rows with a greater space between every third row. The culture is the same as that usually followed, deep digging and plenty of manure on a light soil, that might be termed a loamy sand, producing a not over-rank, but well-matured growth. It is the way in which the flowers are protected that calls for special comment. This is done by covering each plant with a close box, the darkness causing the blooms to come very white, and the shelter bringing them along quickly and giving them a stalk development that they do not have when allowed to come along naturally. In this simple way many thousands of spotless blooms are gathered through the dead of winter. This is a method that may be adopted in every garden. Frame room is always at a premium, and it is something to be able to ensure a good supply of fine Christmas Roses with such an insignificant outlay as that incurred in the manufacture of

wooden boxes. There is also the advantage of not having to move the plants, which is so imperative where a number of them have to be accommodated under glass. What appears to be an important detail is the time chosen for covering. This is just as the buds are well out of the crown. It is probable that were the boxes put over them at an earlier date the constitution of the plants might suffer, for it must be remembered that they are in darkness until the blooms are cut, which is not the case when protection is given in other ways.

In this establishment Seakale is grown very differently from that generally practised. The seed is sown where the plants are to remain, they being, of course, thinned out to a regular and proper distance when large enough. The ground for the Seakale is thoroughly made, and the plants grow away quickly. No pots or covering appliance of any kind are employed, for protection of such a character would involve a great outlay for a field of Seakale. The earth in which they grow is made to afford the necessary shelter, and this is how the work is carried out. A trench is taken out on each side of the plants, and the mould thus excavated is placed on the crowns and built up in a ridge, so that in outward appearance these rows of Seakale very much resemble Celery ridges. In this way the crowns are kept warm and dry, and the stalks come very white and of rare strength. In cutting them the earth is thrown down into the trenches, and this puts the soil into fine order for early Broccoli and Cauliflowers. Notwithstanding the exceptionally low temperature, Radishes have been pulled from large breadths sown in autumn and kept covered during the worst of the weather all day and always at night. For them the soil must be well worked in early autumn, and the plants got up before winter sets in. J. C. B.

ARRANGEMENT OF CUT FLOWERS.

"P. G.," in *THE GARDEN*, April 7 (p. 305), objects to my remarks as to the arrangement of the Peony flowers and the sprays of Clematis montana at p. 167. Now, while I admire that drooping spray of Clematis, because it is arranged at its natural angle just as when growing free and unrestrained from a wall or tree, "P. G." is bold enough to say that he regards it as "a blemish or something savouring of affectation." The main point to be noted in the engraving in question is that it shows both Peony and Clematis arranged naturally, that is, in the positions resembling those in which they naturally grew. "P. G." should tell us exactly why the spray I admire is "unfortunate." As a simple matter of fact, it no more looks as if it "had somehow been knocked out of the vase or glass," than it might be said to look knocked out of the plant on which it grew; and this is a main point in floral arrangement, that no cut flowers ever can look right, or be right, unless placed as they grew. This is no matter of mere personal opinion, but an actual fact. "P. G." may be a member of as many horticultural societies as there are days in the week, but that will not help him nor influence me in a question of this kind. As a matter of fact, the very best place to see bad and muddled arrangements of cut flowers is a flower show, so-called. I can quite understand that lady judges would but rarely give satisfaction in judging floral arrangements as exhibited by "florists and ordinary gardeners," because as a rule ladies are thoughtful and have good reasons for their verdicts, and canons of taste far too exquisite for the "petticoated pincushion" of hot-house flowers and its usual salad-dressing, always alike, of withered Maiden-hair Fern. Even Mr. Hemsley incidentally admitted (p. 305) that even the London florists cannot produce "their best and choicest" arrangements unless ladies order them, and this means that they not only order and pay for the flowers, but also afford the intellectual "instructions" as to the flowers and their arrangement. In a word, Mr. Hemsley (like "P. G.") admits unconsciously the very point I am fighting for, viz., that it is the bouquet-bearers who know most of the matter of cut-flower arrangement after all! Now, unless "P. G." can bring forward some proof that Clematis spray in group (p. 167) does not droop from

the vase as naturally as it originally drooped from the wall or tree on which it grew, of course he must retire, and acknowledge that he knows nothing of plant growth, and of its right, because natural, arrangement. I did not venture to praise that Pæony vase and spray until I had looked at it carefully, and had satisfied myself why it looked so right, and simple, and true. How does "P. G." know that "bouquets and table decorations" at any flower show are "generally admitted to be in good taste?" My own experience is, that those visitors best qualified to judge such matters never look twice at such things, and certainly do not express their opinion in any other way. Again, "P. G." talks of "avoiding stiffness, or undue formality," but no one who arranges cut flowers with correct taste ever tries to avoid stiffness if the flowers are naturally stiff, or rigid in their growth. The very worst of all floral arrangements is where this is attempted. If, for example, a floral decorator, who is an artist, wants grace, stiff or rigid-growing things are avoided, and plants and flowers full of soft curves and drooping lines are chosen. So, also, stiff or rigid things for their own beauty of form, but there is no muddling up of rigidity and softness of curve or line. The "stiff" American Aloe is quite as beautiful in its own way as is the Palm or Tree Fern. These are two extremes, but Nature is prolific, and we have no need to jam all sorts of things together when one or two simple things in harmony with each other will produce a better, because a more natural, effect. There is a way for "P. G." to adopt to prove that I am quite wrong. That Pæony and Clematis vase is an accomplished fact; it is a thing done, and it is represented permanently as a "thing of beauty and a joy for ever" to all who can appreciate its subtle charm. Let "P. G." now arrange a vase in more perfect manner and send a photograph of it, and he will have done more than any mere words can effect in the matter.—VERONICA.

I did not intend to again revert to "Veronica's" notions of floral arrangements for personal adornment. However, as he tells us in his last note on the subject in THE GARDEN, April 14 (p. 330), that I have departed from the truth, I feel compelled to say a word more. I have been intimately connected with the florists' trade for upwards of twenty years and have seen a good deal of the practical side of the question. With regard to the exhibition of bouquets, &c., that are made up to order, I am aware that in some cases they are exhibited, but I still believe that this is rather the exception than the rule.

Although my own experience has been mainly in growing material for the florists, I have had exceptional opportunities of seeing the ways of the leading florists in London. I have also had experience in making up floral designs, and it appears to me inconsistent with practical knowledge to accept "Veronica's" notions, either as to the florists not understanding their business, or that flowers can be made to keep fresh and nice in a warm, dry atmosphere without artificial aid.

"Veronica" tells us that he knows exactly what flowers to use and how to prepare them so that they will keep fresh in a heated room, from which I should imagine that he possesses a secret which many of us would find to be of the greatest value if he could be prevailed upon to disclose it. "Veronica" asks me to say candidly what I propose in the place of the mushroom bouquet. As I have previously stated that this has already been to some extent superseded by lighter and less formal arrangements and gave several examples, I cannot say more on that point. I could, however, give further examples in proof of "Veronica's" ideas being erroneous when he states—

As it is, every one bouquet is very much like another, and competition itself is limited to emulation as to mere size or to the money value only of the flowers of which the bouquets are made.

On one occasion I had six bouquets to make, and each one was as distinct as could possibly be. One was composed of yellow Roses, one of deep crimson Roses, not round bunches of blooms crowded up closely together, but lightly arranged with plenty of foliage and buds. Another was made of yellow

Begonias and yellow Marguerites; this was considered very effective. But neither it nor the one made of the blossoms and buds of Allamanda Hendersoni could have been made without the aid of wire. When I was first asked to make up a bouquet of these gaudy flowers, I certainly did not expect to produce a pleasing effect; however, it exceeded my expectations, and was pronounced by those who ordered it to be a great success, and in harmony with the costume of the lady who carried it.

I do not pretend to be able to produce such exquisite arrangements as I have seen from the hands of professional lady bouquetists. If "Veronica" had not told us that he has seen so much of the work of our best florists, I should have said that to see only as much as I have, he would be more fully convinced that talent and taste are not lacking among those whose business it is to arrange flowers for the fair sex.—A. HEMSLEY.

*** We do not see any good in continuing this. What is now wanting are examples of graceful nosegays, bouquets, or whatever they may be called. The arts of photography and engraving would enable us to show our readers what would be considered advances on the stiff, lumpy bouquet.—ED.*

PROPAGATING.

BEGONIAS.—There are several distinct classes of Begonia, and the cultural requirements differ widely from each other. The majority can be raised from seed, but this method is seldom carried out, except in the case of the tuberous-rooted kinds, which are sown early in the new year, and being pushed on quickly may be planted in the open ground by the time frosts are over. Besides this, tuberous Begonias can be propagated by cuttings, and this is the method followed in the increase of the numerous double and single named varieties. They will strike root readily at this season and also earlier, but it is as well not to put them in much later than this, for if they root and flower, tubers are seldom formed, and consequently the plant dies in the winter. The cuttings of tuberous Begonias are best taken off at a joint, and may then be dibbled into pots of sandy soil. They must be placed in a propagating case until rooted, but at the same time the lights should not be kept too close, as owing to the succulent nature of the cuttings they are rather apt to decay in a too moist atmosphere. Generally speaking, it will not be necessary to remove the leaf at the bottom of the cutting before insertion, as unless the leaf-stalk is exceptionally short so that the blade will be partially buried, or the stem unusually furnished with foliage, it will be better to allow the leaf to remain on. The fine-foliaged Begonias can be readily propagated by leaf cuttings, and the way to do it is as follows: The leaves chosen for the purpose should be well matured and taken off in such a way that there are about 2 inches of leaf-stalk attached to the blade. Whether pots, pans, or boxes are prepared for the cuttings, they should have a layer of broken crocks in the bottom, and then be filled with light sandy soil sifted moderately fine. The leaf-stalk should then be dibbled in the soil in such a way that the blade of the leaf lies flat on the surface, when several incisions must be made through the principal ribs. These mutilated portions form the nucleus from whence young plants will spring, and as it is necessary to keep that part of the leaf in immediate contact with the soil, a few pegs may be used to hold all in position, or some pieces of crock may be put on the upper part of the leaf to press it down. They must then be placed in a position where they are fairly close and shaded. Should there be room for them in a propagating case, they may be placed therein, or if not, a sheltered part of the stove will suit them perfectly. If necessary, a few newspapers should be laid over them during very bright sunshine. The young plants will not be long in making their appearance, and when large enough may be potted off. Some prefer to cut the leaves up into triangular-shaped pieces and dibble them into pots after the manner of other cuttings, but the greatest measure of success will be obtained

by the first-mentioned process. The mode of increase here given is available for the very choicest kinds, but where a quantity is desired and the stock plants are numerous, so that a good supply of leaves is obtainable, they may be laid between the pots on a bed of Cocoa-nut refuse or in a similar spot. In such a place the plants overhead will afford sufficient shade from the sun's rays. Sometimes it is necessary in such a position to syringe freely, and when this is done some of the leaves are liable to decay, so that it is better not to employ this rough-and-ready method for any of the choicer varieties. Though it is a mode of increase seldom resorted to, Begonias of this class grow freely from seeds, and after the earlier stages are past, make rapid progress. The seed should be treated in much the same way as that of the tuberous-rooted section, *i.e.* sown early in the year in pots or pans of light soil, and the seedlings pricked off when large enough to handle. The winter-flowering Begonias will strike from cuttings of the young shoots in the same way as Fuchsias, and almost as quickly, except the pretty and distinct *B. socotrana*, which, when growing, forms small bulbils at the base of the stem, and from these young plants can be raised.

THE GOLDEN HEATH (*Diplopappus chrysophyllus*) is a shrub by no means difficult to strike from cuttings. The latter may be put in anywhere during the summer or early autumn months, and if carefully attended to will not take long to root. The best cuttings are furnished by the good, clean half-ripened shoots, which should be taken off at a length of 4 inches to 5 inches, and having had the bottom leaves removed, inserted at once rather firmly into pots of sandy soil. After a thorough watering, they must be placed in a frame, which is kept close and shaded, and in such a spot they will not take long to root. No artificial heat is necessary, and the frame may be used for the propagation of a great number of different plants during the summer. Of course the lights should be taken off every morning, just to see how the inmates are progressing, and to water them if required. Although it is necessary to shade such cuttings entirely from the full rays of the sun, the shading should be removed as soon as possible, for light is essential to their well doing.

ARAUCARIAS.—The hardy *A. imbricata* is usually propagated by seeds, which can be sometimes obtained, while the greenhouse kinds are generally increased by means of cuttings, as when required in a young state the length of naked stem which is so conspicuous in seedlings tells very much against them. Araucarias are by no means the easiest of subjects to strike, and it must also be borne in mind that though the side-branches may root they will never form symmetrical specimens. The best cuttings are furnished by plants that have got naked at their base, but still one plant will yield only a single cutting, which is the entire head of the specimen. The weaker the cutting the greater is its chance of success; indeed the very stout succulent tops seldom strike. After this stock plant has yielded the one cutting it must not be discarded; indeed, the second crop is often larger, for the plant having been kept in the greenhouse after its mutilation will frequently push up two or three leading shoots to replace the one that was lost. As soon as these shoots are sufficiently firm they may be taken as cuttings, while the old stock plants will, under favourable conditions, continue to push forth leading shoots for years if they are removed when fit. In nurseries and such places where the Araucaria is propagated in quantity, a considerable number of these old stock plants is kept to supply the cuttings. The Araucaria that is most in demand, *viz.* *A. excelsa*, is also the easiest to strike, next to which comes its nearest relatives, *A. Cunninghamii* and *A. Cookii*, while the most difficult are *A. Bidwillii* and *A. brasiliensis*. The compost most suitable for the cuttings is a mixture of loam, peat, sand, and pounded crocks and charcoal. These last two ingredients are of great service in striking many difficult rooting subjects, as the delicate roots cling tightly to the little nodules with which they come

in contact. Crocks and charcoal, such as will when pounded up pass through a sieve with a quarter of an inch mesh, are the most suitable to mix with the soil, as if larger the compost cannot be so effectually closed in around the cutting. The latter must be prepared by a good clean cut at the base, removing at the same time any of the little branchlets that may be necessary for the purposes of insertion. The most convenient arrangement is to put each cutting singly in a small pot, and, after giving each a thorough watering, place them in a close propagating case. If this is in a structure kept at an intermediate house temperature, so much the better, and even there, after a month, during which time the cutting will have callused, it may with advantage be plunged in a gentle bottom-heat, as this will greatly assist the formation of roots. When seeds of any of the kinds are obtained they should be sown without delay, as they soon lose their vitality, and not being liable to damp, it little matters what time of the year they appear above ground, unlike many delicate seedlings which would damp off wholesale if they came up during the depth of winter. The *Araucaria* seeds may be sown in pans, in a soil consisting of loam, sand, and leaf-mould, or peat. They must be sown at such a depth as to be covered with half an inch of soil, and then in the temperature of the warmest part of the greenhouse the young plants will soon appear above the surface. When they are beginning to make headway pot them off (using for the purpose the same kind of compost as for sowing), and put the young plants at such a depth that the cotyledons are just clear of the soil. If allowed to remain too long in their seed-pots there is a probability of several of them dying when potted.

MONTBRETIAS.—The creeping shoots that are pushed out from the bulb in considerable numbers during the spring afford a ready means of propagating these beautiful subjects, as if planted in the open ground they will push forth roots and form bulbs of their own the first season. While in pots many of the shoots will grow until they reach the side of the pot, when they will root and may then be detached, potted into smaller pots, and grown on the first season.

ABUTILONS.—The young growing shoots of these will strike root in a few days if kept rather close and shaded, but it is essential that the entire cutting be of the current season's growth. Attention must also be given to see that they are not kept in a confined atmosphere any longer than is absolutely necessary, as they soon draw up and become weak.

BAUERA RUBIODES.—Like many others of its class, this New Holland shrub is propagated by cuttings of the young growing shoots. These should be taken during the summer months and dibbled firmly into pots filled to within a couple of inches from the top with broken crocks. Fill up the remaining space with fine peat and sand pressed down very firmly. After the cuttings are put in they must be covered with a bell-glass till rooted. The side-shoots make the best cuttings, as they are less liable to damp off than the stouter terminal ones.

T.

NOTES OF THE WEEK.

My attention has been called to a misprint in *THE GARDEN* (p. 317), where the date of the introduction of the Rose *Hon. Edith Gifford* is given as 1844 instead of 1884.—T. W. G.

The death is announced of M. J. M. Gonod, the Rose raiser, of Lyons, who, since the year 1863, has sent out a considerable number of seedling Roses, none of which, however, are generally cultivated in this country.

Rose May Rivers.—A lovely and delicately coloured Rose. We hope it may show such beauty in the open air as it does before us from specimens sent from Mr. Rivers. It is fine in shape, strong, and of the first size.

Daphne Blagayana. a gem in its way, was a short time since in full bloom on the Kew rockery. It is quite a dwarf plant, and each of the twiggly stems carries a cluster of the richly fragrant ivory white flowers.

A Polyantha Rose, named *minutifolia alba*, one of Mr. H. Bennett's pedicel seedling varieties, appears to be an exceptionally free-flowering, pretty, and useful dwarf Rose. It makes neat little plants, the foliage most abundant, and almost hidden by the double white flowers that are about the size of a florin.

Royal Horticultural Society.—We learn that a show of Orchids, Roses, Azaleas, &c., will be held in the gardens of the Inner Temple on Thursday, May 17, by the kind permission of the treasurer and masters of the Bench, and under the immediate patronage of the Lord Mayor.

Narcissus Sir Watkin.—We have received flowers of this bold and beautiful Daffodil from Messrs. James Dickson and Sons, Chester, who mention that it is very fine in their nursery this season. We have seen it many times, but never so fine as those sent by Messrs. Dickson. The blooms seem to be generally smaller this year than usual.

Primroses from Wantage.—Mr. William Caudwell, Wantage, sends us several small bunches of coloured Primroses, amongst which a duplex variety of a plum colour was noticeable. The orange-tinted kinds are very rich indeed; in the selection were many flowers of pleasing colours. Coloured Primroses such as these are hardy plants that might be more often seen in our gardens.

Double Cinerarias.—Enclosed I send a few blooms from some double Cinerarias, of which I should like your opinion. One seedsman in Birmingham thought them very good. I raised 15 plants from a small packet of German seed, and all came double or semi-double, the blooms sent being the best at present.—A. P. THORNLEY.

*** The flowers sent were quite double, and evidently represented a very good strain.—Ed.

The Pilewort.—I send flowers of two varieties of *Ficaria ranunculoides* which I collected on a bank here a short time ago. The double one differs from the old form in having the guard petals projecting considerably beyond the doubling part. *Anemoneflora* would probably be a suitable name for it. The other is a pale-coloured variety just intermediate between the type and the white one which has been long in cultivation.—J. M., *Charmouth*.

Hardy flowers from Devonshire.—We have received from Messrs. R. Veitch and Sons, of Exeter, a most interesting gathering of flowers. A spray of *Ceanothus rigidus* was charming with its rich blue densely packed flowers, and other good things were several forms of flowering Currants, including *sanguinea*, *sanguinea alba*, *glutinosa*, *atro-sanguinea*. There was also a beautiful *Sarracenia*, the flower of the largest size, named *S. exoniensis*, a species described as from America, and a bloom of the ordinary *S. purpurea*. These flowers are curious, rich in colour, and handsome. *Tecophylæa cyanocrocus* and the paler blue form *T. c. Leichtlini* were included in the gathering, and the wonder is such gems are so comparatively rare.

White form of common Daffodil.—I send blooms of what has been identified by Messrs. Barr as the white form of *N. pseudo-Narcissus*. These blooms have been several days in water with two exceptions, which have just been gathered, and which have withstood the last two days of continuous rain and north-east wind. This accounts for their rather dingy appearance. But I send them as they show the colour of the trumpet on first opening (i.e., canary); whereas the other blooms are nearly white from age, but are exceedingly beautiful. I venture to think that this form of *pseudo-Narcissus* compares favourably with the *moschatus* varieties we get from Spain, and in addition, of course, it is as hardy as our Lent Lily. When first gathered a bunch of these flowers is as fragrant as Violets, whose scent they much resemble. I presume this is the *N. pseudo-Narcissus albus* of Hawthorth.—GEO. H. CAMMELL.

Good things at St. Anne's, Clontarf.—First among them for excellence and rarity comes *Tecophylæa*, a group of which on a rock bed arrests and fascinates the eye. There were three varieties—*T. cyanocrocus*, *T. Leichtlini*, and one with a little white in it. The first is unsurpassable in the depth of its blue; even *Gentiana verna*, of which there are large patches, has to haul down its flag. *T. Leichtlini* has the largest flower of the three, and is white, beautifully painted with blue, or *vice versa*. It adds immensely to the value of these lovely novelties that they passed this winter with no protection on quite an exposed bed, and Lady Ardilaun tells me that the number of blooms was considerable for such small

plants, and their durability quite wonderful. A patch of *Iris susiana* has forty flower buds strong up in the sheath. It is kept well drained by the roots of a large *Magnolia exoniensis*, and never requires to be watered. A strip of *Iris persica* about 5 yards long and half a yard wide had still some blooms, but I could see by the remains that almost every plant had flowered. Contrary to ordinary experience, the same strip has flowered in the same abundance for three years, and has not been disturbed. I saw it in its prime last year, and the effect of such a mass of unique colouring was almost startling. A patch of *Sanguinaria* in the rock garden was very fine. I hardly think it is the ordinary *S. canadensis*, the flowers were so much larger, rounder, flatter, and of greater substance. There was one magnificent variety of *Tulipa Greigi* in a clump of the ordinary kind. It was bright golden yellow, with a kind of greyish carmine on the outside of the petals, and brilliant crimson blotches on the inside—a glorious thing. *Narcissus cyclamineus triandrus*, and *tenuior* were flourishing on the rockery.—F. T.

The blue Tropæolum (T. azureum), though an old plant, is so seldom seen that the fact that it is in bloom at Kew at the present time is worth noting. It is an extremely pretty and elegant plant, having long wiry branches clothed with leaves cut up into narrow strips, and flowers that look like single Violets and just the colour of Violet Marie Louise. It is a charming plant for a greenhouse, and lasts a long time in bloom, as does the bright little *T. tricolorum*. It is one of the tuberous-rooted species, and is generally considered difficult to grow well; but if anyone can grow and flower the commoner *T. tricolorum*, this blue-flowered species can be managed also under almost the same treatment. It is generally grown on balloon or pyramid-shaped trellises, but if allowed to festoon itself on some support under the roof of a greenhouse it gains much in elegance.

The scarlet Windflower (Anemone fulgens) in Scotland.—This charming hardy plant is flowering very freely this season. It is planted in beds upon a raised south border fully exposed to the sun throughout the year. The first blooms opened early in March, and in spite of the exceptionally cold weather and cutting winds it has held its own better than any other hardy flower. The genial weather in the early part of last week brought out the blooms in thousands. These rising about 6 inches above the mass of light green foliage, with the rich scarlet petals and dark centres, have a most dazzling effect in the bright sunlight. As a cut flower it has but few equals. Some vases arranged a fortnight ago and placed in a cool room are still quite fresh. If the flowers are cut when fully expanded and placed immediately in water they do not again close. It is strange that such an easily cultivated plant is not more generally met with, as it thrives well in fairly good soil in any warm, dry position.—J. DAX, *Galloway House, N.B.*

*** Fine, vigorous flowers, earlier than the same kind in the home counties, as far as we notice.—Ed.

Befaria glauca.—This very beautiful, interesting, and rare greenhouse shrub is among the most noteworthy flowers of the week in the greenhouse (No. 4) at Kew. It is closely allied to the *Rhododendron*; indeed, when not in flower it so nearly resembles such species as *R. jasminiflorum*, that one might easily mistake one plant for the other. Its evergreen leaves are roundish, of thick texture, dark green above, glaucous white beneath, and though the habit of growth is slender, it makes a neat pot plant. The flowers are borne in loose clusters terminating the shoots. They are about an inch across, of a delicate pink colour lined with carmine, and in shape exactly like those of *Rhododendron javanicum*. It is a pretty plant in itself, yet might possibly be improved by intercrossing with the *Rhododendron*, and might give rise to a distinct new race. It was introduced about fifty years ago from South America, where it grows wild in mountainous regions. It is called the Andean *Rhododendron*—not an inappropriate name.—W. G.

STOVE AND GREENHOUSE.

THE AMAZON LILY.

THIS house of *Eucharis amazonica* in flower (represented in the accompanying engraving) was photographed last February, and 1030 flowers were gathered in three weeks. The plants are growing in pots plunged in leaves. I have never tried the planting-out system for two reasons—1, the plants always flower three times a year; 2, the house is used for a different purpose during the three summer months, the *Eucharis* then being plunged in cooler quarters, where they get but little heat either above or below. My practice differs from that of those who rest the plants after they have flowered. I always turn over and add to the plunging material after

are taken away, and twelve of the largest and soundest returned to the pots. In repotting, the bulbs are buried about 4 inches beneath the surface of the soil, which consists principally of good, sound fibrous loam and sand. Happily, I have never been troubled with *Eucharis* mite, which is so destructive in some places.

WM. ALLAN.

Guntton Park.

NOTES ON LILIES.

THE illustration of *Lilium speciosum* Krätzeri in THE GARDEN (March 31) should direct attention to one of the finest varieties of *L. speciosum*, which is itself among the most variable of Lilies, as shown by the number of distinct forms existing in our gardens. Even with its many desirable quantities, *L. Krätzeri* does not seem to be cultivated to any great extent by the Dutch growers, as by far the

is closely related to Krätzeri; yet there are one or two well-marked points of difference between them. This variety had particular attention given to it last season, it having been brought forward under the name of *L. speciosum album verum*. The principal points in which it differs from Krätzeri are the broader leaves, the rather wider and more massive petals, but more particularly the bright yellow colour of the anthers, which in Krätzeri are brown. I have frequently found the lesser known variety crop up to a very limited extent among imported bulbs of Krätzeri. Besides the enormous quantities of this last that are imported from Japan, there is also sent, I should think, quite an equal number of a fine dark-coloured variety of *L. speciosum*, being, in fact, a very superior flower in the way of rubrum. Enormous bulbs of this kind are sometimes met with, and being good, clean-grown roots and well ripened, they may be depended upon to yield a fine display of bloom. Not only do these varieties of *L. speciosum* yield a profusion of flowers when planted in the open ground, but they are extremely useful for flowering under glass, being for this



Eucharis house at Guntton Park. Engraved for THE GARDEN.

each crop of bloom has been gathered—no pipes for bottom-heat are used—with the idea of stimulating fresh growth, as on the production of fresh and vigorous foliage depends the success of the next flowering, *i.e.*, whether the spikes shall be plentiful and vigorous, or weak and poorly developed. As seen in the engraving, the foliage and flower-spikes indicate great vigour, which is maintained by the liberal application, during growth and flowering, of manure water made from sheep-droppings, soot, and occasional doses of some artificial manure for a change. The plants thrive under this liberal treatment, and consequently, after two years of it, the pots become overcrowded with bulbs and the soil somewhat soured, thus necessitating the operation of repotting, which is generally done in May. All the small bulbs

largest quantity disposed of in this country during the season is imported direct from Japan and sold at the various auction sales under the name of *L. speciosum album*, which is quite a distinct Lily, and is the one with white flowers principally grown in Holland. This variety has the leaves dark green, the stems brownish, and the exterior of the blooms with the flower-stem suffused with chocolate. The inside of the flower is pure white, except a small green star in the centre, not nearly so pronounced as in Krätzeri, but after a few days' expansion the petals often become suffused with pink. The whole flower is far more irregular in shape than that of Krätzeri. The bulbs, too, are widely different, for while it is impossible to distinguish between those of album and the coloured varieties (roseum and rubrum) of speciosum, all of which are more or less of a reddish hue, those of Krätzeri are yellowish, and however much exposed, do not become red. Krätzeri can also be readily distinguished in all stages of growth by the lighter green colour of the foliage and stems. There is, however, another white-flowered variety of *Lilium speciosum* which

purpose better than any other kind, as the perfume of their blossoms is not nearly so overpowering as that of the golden-rayed Lily (*auratum*), whose scent is too strong for many people. Besides this *L. speciosum* flowers just at a time when its blooms are especially valuable, for it may be said to finish up the Lily season, as, with the exception of *L. neilgherrense* and a few of the second crop of *L. Harrisii*, all the others are past. Then we are glad to fall back upon *L. speciosum* for late summer and early autumn decoration. We grow the plants directly frosts are over entirely out of doors, as a comparatively dwarf and sturdy character is thus secured, added to which they flower later than they would do if grown partly under glass. Some of the bulbs are potted singly into pots 5 inches and 6 inches in diameter, while others are grouped into larger pots, so that they form when in bloom quite an imposing mass. When potted they are merely placed in a cold frame to protect them from sharp frosts and heavy rains, for the pots not being filled with soil there is a greater space for the water than would be the case if the soil came

to within half an inch or so of the rim. The best place for them during the summer is plunged in a bed of coal ashes in a well-drained spot and one away from trees, as where shaded by neighbouring plants they soon become weak. Before putting them out, however, the vacant space which was left when the bulbs were potted is made good by a top-dressing of loam and manure, to which rather a liberal amount of silver sand has been added. No attention other than watering or occasional staking will be needed during the summer unless aphides attack the points of the shoots, which does not often happen, as they prefer the varieties of *L. longiflorum* and *L. auratum*. Should, however, any put in an appearance they must be at once removed by a syringing with tobacco-water or one of the many other insecticides. Unless required sooner, the plants are allowed to remain outside until the earliest buds are on the point of bursting, for the beauty of the expanded blossom is greatly marred by heavy rains, especially if the coloured pollen gets washed on to the flower. Where they are planted in the open ground the partial discolouration caused by rain is not so noticeable as if they are removed under glass after having been exposed to the wet weather.

H. P.

Tree Pæonies.—These are well adapted for flowering under glass during the early spring months, as when so situated they are safe from the frosts and cold, cutting winds which at that season play such havoc with them when in the open ground, unless the situation is exceptionally favourable. To have them in bloom now, very little except simple protection is needed, or at all events the amount of fire-heat required is but small, though to obtain them earlier in the season more forcing is, of course, necessary. If they are taken from the open ground for flowering in this manner, they should be carefully lifted the preceding autumn and potted in good loamy soil. Then after this the plants may be wintered in a frame until the time arrives for them to be brought forward in a higher temperature. Directly after potting, a good watering should be given, and if this is carried out effectually, little more will be needed for some time, but still the soil must not be allowed at any period to get quite dry, and, of course, with a higher temperature the supply of water must be increased.—H. P.

Deutzia gracilis in pots.—For early forcing this *Deutzia* should be grown in pots rather than planted out in the summer, as the flowers are more numerous and the individual blossoms much larger on plants grown altogether in pots. It is a little more trouble to treat the plants in this way, but the results well repay for the extra attention required. As soon as the plants go out of flower some of the oldest growths should be cut out where they are much crowded, so as to make room for the young shoots that every year start up from the crown of the plant. If the *Deutzias* are young and in rather small pots they may be put into larger ones when they are pruned, but it is not necessary to keep shifting them on into larger pots. We have specimens that have occupied 7-inch and 9-inch pots for several years. The way we treat them is to shake away half of the old soil every year as soon as they go out of flower, and supply them with fresh, using nothing but good sandy loam as a compost. The plants are then stood in a shady place in the cool Peach house until the roots have taken hold of the new soil. They are then removed to a more open position, where they get plenty of sun and air. To encourage a vigorous growth the plants are well supplied with liquid manure all the summer, and thus become furnished with stout, short-jointed growths that never fail to flower abundantly. To ripen the wood and to prepare the plants for early forcing, they are placed out in the open until they have been exposed to several degrees of frost. This treatment is essential in order to make early forcing a success.—J. C. C.

Æchmea Mariæ Reginæ.—Though Bromeliaceous plants are almost ignored in this country, they include among their number some with very handsome foliage, and in others the inflorescence is

remarkable for its beauty. That under notice belongs to the last-named class, the blossoms being closely packed together on the upper part of a spike, which reaches a height of about 2 feet. They are tipped with a pleasing shade of blue, yet the blooms proper play but a very small part in the embellishment of the specimen. By far the most conspicuous feature is the large boat-shaped bracts which clothe the upper portion of the stem, and retain their beauty for a considerable time. The colour is a beautiful shade of magenta-rose, a hue by no means common among *Æchmeas*. The bracts under notice are about 4 inches long. Like most of its class, the cultural requirements of this *Æchmea* are simple. All that it needs is an occasional re-potting in good fibrous peat with a liberal dash of sand, and to be treated in the same way as the general run of stove plants.—T.

LACHENALIAS.

HAVING for many years been a grower of *Lachenalias*, I was much interested in the letters which have lately appeared in THE GARDEN on their cultivation and nomenclature. We very much need some authorised list and description of their characters and names. My chief object, however, in writing these few lines is to warn some of my fellow gardeners of the uselessness of trying to bloom in pots the two varieties which have commonly been distributed under the names of *rubida* and *stolonifera*. They are, in fact, not *Lachenalias* at all, but a very early and pretty variety of *Scilla campanulata*. This I have proved from experience. My old and valued friend, Mr. Nelson, of Aldborough, gave me these so-called varieties many years since, informing me at the same time that he had discarded them as useless, owing to their never blooming. Having myself persevered in growing them for a year or two with the same result, I determined to try the effect of deep planting in the open ground with a temporary shelter to keep off frost, a plan I have found to succeed with other refractory bulbs. The first year they came up strongly, but without bloom, but the second year they bloomed freely, and turned out to be, as I have said, an early variety of *Scilla campanulata*, the so-called *rubida* and *stolonifera* being identical. At the time I sent blooms to Mr. Baker at Kew, who kindly wrote to inform me that they had no connection either with *Lachenalias* or the Cape, but were natives of Portugal. I have some spikes now just coming into bloom in front of my greenhouse, where the bulbs have remained since they were first planted there. On digging up a few roots for a friend, I found that the little crooked, elongated bulbs which I put in had developed into large, solid tubers of the usual form of *Scilla*. I see that some of your correspondents speak rather disparagingly of *Nelsoni*, which I consider the most satisfactory of all the *Lachenalias*. This complaint may possibly arise from their not having procured the best strain of that variety. Mr. Nelson himself gave me two sets of bulbs, one of which he considered better than the other, being richer in colour, and I have since weeded out the inferior ones. Grown side by side with *aurea*, the blooms are very similar, though the stems are different, and the foliage of *Nelsoni* is much more robust. It also has one great advantage: it never fails to bloom, as *aurea* is so apt to do. *Superba* is a variety which seems but little grown, but from its early blooming and rich crimson-tipped bells, it is with me a great favourite. I procured the variety about twenty years since, and gave bulbs to Mr. Nelson, from whose collection it has no doubt been distributed. It is, I fancy, only a good variety of *quadricolor*, but most useful for crossing with, as it imparts its colour most readily to all on which I have tried

it, and I have now good examples of *aurea*, *Nelsoni*, *luteola*, and others, all more or less tipped with crimson.

THEODORE H. MARSH.

Cowston Rectory, Norwich.

Laurustinus forced.—On page 323 of THE GARDEN mention is made of the good returns in the shape of blossoms yielded by a few plants of the *Laurustinus* that are wintered under glass, as they will produce a considerable quantity of bloom at a time when flowers of all kinds are by no means plentiful. As pure white flowers are generally in the greatest demand, the white-flowered form of *Laurustinus* should be chosen, and so chaste and beautiful are its blooms, that in arrangements of cut flowers they may be associated with the choicest productions of the hot-house. An additional merit is that they last a long time in the cut state. Some few years ago a considerable quantity of this white-flowered variety was imported from the Continent by Mr. Wills, in the shape of little standards that were profusely laden with bloom, and in this condition they met with a ready sale.—H. P.

Rudgea macrophylla.—This is a Brazilian shrub with stout leathery deep green leaves and large globose, densely packed clusters of thick wax-like blossoms. The large ample foliage renders it an ornamental evergreen shrub when not in blossom, while the flowers make it very attractive. A stove temperature is necessary for its well-doing, and the treatment needed differs in no respect from that of the general run of plants that are grown in such structures. Though the *Rudgea* has been known for the last twenty years, it is by no means a common plant, no doubt owing to the fact that it is not readily propagated. The stout matured shoots cannot be depended upon as cuttings, and the best are furnished by a plant which has been shortened back after flowering, when numerous shoots will be pushed forth, and of these the weaker ones will strike most readily. They must not be taken until they have become slightly woody, and if then cut off with a sharp knife at a joint and dibbled singly into well-drained pots of sandy soil, they will not take long to root if kept in a close case and after a few days plunged in a gentle bottom-heat.—T.

Magnolias under glass.—One of the best sights among our hardy trees during the early spring months is a well-flowered specimen of the *Yulan* (*M. conspicua*), and yet its beauty is often sadly marred in a single night by a sharp frost, which is a common visitant during the blooming season of the *Yulan*. Such being the case, and the fact that, as it naturally flowers early in the season, little or no forcing would be necessary, are all points in its favour for growing under glass. But unless the conditions are exceptional, the size of the plants will prevent their employment for such a purpose, as small specimens cannot, as a rule, be induced to flower freely. Though there is this objection on the part of *M. conspicua*, the allied kinds—*M. Soulangiana* and *M. Lenné*—will flower when not more than 3 feet or 4 feet high, and form just now very striking objects in the greenhouse. Standing boldly out as they do from all their associates, these *Magnolias* attract a considerable amount of attention. I have some that have been for several years in pots, and they flower well each season, while half-a-dozen that were lifted from the open ground in the autumn and potted have opened their blooms without a check. Owing to the fact that the roots of the *Magnolia* are not very fibrous, the plants must be lifted and potted carefully, otherwise they may receive too great a check to flower properly. Those that are kept in pots are plunged out of doors during the greater part of the year, care being taken that they do not suffer from want of water during that period, and an occasional dose of liquid manure is of service when growth is being made. A little *Magnolia* that, though hardy, may be kept in health and will flower freely every year under pot culture, is the Japanese *M. Halleana* or *stellata*, which has pure white blossoms composed of a number of strap-shaped petals. Like the others, its perfume is very pleasing. In the matter of scent, however, all

the above are greatly surpassed by a couple of evergreen varieties, which are usually grown as greenhouse shrubs. I allude to the Chinese *M. fuscata*, a much-branched evergreen bush with dark green, oblong-shaped leaves and small dull, purplish-coloured blossoms. These flowers are so much hidden among the foliage and of so unattractive a character, that the fact of the plant being in bloom might often escape notice were it not for the delicious fragrance of its blossoms. This is so powerful that it may be detected throughout a large structure. The second kind (*M. pumila*) requires more heat than *fuscata*; indeed, it is often grown as a stove plant, and, under these conditions, does well. It is a low-growing shrub with good-sized leaves and rather large whitish blossoms. Even a single bloom may in a greenhouse be detected for a considerable distance.—H. P.

WORK IN PLANT HOUSES.

GREENHOUSE.—CAMELLIAS.—Plants that flowered early in winter, and were afterwards encouraged in a genial growing temperature, will now be making their growth. Manure water should be given regularly until the shoots have finished growing. Assistance of this kind is especially required by large examples that are at all deficient in root room, or that have for a length of time been in the same pots or tubs, through which the soil will naturally be too much exhausted to keep up the requisite vigour. The unsatisfactory state that Camellias sometimes get into is due to inattention, this causing them to make weak shoot-growth, the season's shoots often not producing more than two or three leaves each. If plants that are in this condition are turned out of the pots it frequently happens that they are found well furnished with quantities of healthy roots, the presence of which perplex the grower. A little reflection would show that no matter how numerous the roots are, if the soil within their reach is too poor, they are powerless to support the top-growth to the extent that it requires; hence the enfeebled state of the plants. In such cases the application of manure water is much the best way of giving immediate assistance, as it acts at once. It does not always follow that Camellias that get into the condition named are under-potted, the simple cause being that they have extracted from the soil the nutriment it originally contained to such an extent that they are reduced to a state of starvation. When the Camellias are in pots or tubs as large, or nearly as large, as it is desirable to give them, I have always found it necessary to begin giving them support, either by surface-dressings of concentrated manure, or by manure water, not later than the third season after they have been placed in the pots or tubs they occupy, particularly if after the last shift they have made more than usually free growth. When this has taken place, it naturally follows that the roots have extracted a proportionate amount of the nutriment that the soil first contained. Camellias that have flowered late on in the spring, and are about to commence growing, should in all cases, where necessary, have manure water every alternate time the soil requires moistening. To do justice to the plants they ought to have it during the time the flowers are opening; for, unlike many things, Camellias begin to make new roots before the flower-buds begin to open; consequently they are in a condition to take up a good deal of nutriment through the flowering season, and so the new growth is invigorated. Now, with the increased amount of sun-heat and long days, the plants require more attention with the syringe than would suffice earlier in the season. See that the shading is sufficient to break the sun's rays without darkening the plants too much.

AZALEAS.—Immediately the plants that have been kept for late flowering are out of bloom, follow the advice given for the earliest section and remove the seed vessels. It is a good plan before putting the plants in heat to give them a thorough washing with tobacco water should there be the least trace of thrips. If any exist, they will increase very fast as soon as they feel the influence of genial warmth. The plants must now have some shade in the middle of the day during

bright weather. But whilst it is necessary to thus protect them from the fierce rays of the sun they must not be kept too dark, as if this occurs the leaves will come weak. Under the best treatment Azaleas lose a portion of their leaves in autumn, but where they are seen in the semi-naked condition they sometimes get into during winter, it is the result of one of two causes, either injury from thrips, or want of solidity through an insufficiency of light whilst the growth was being made.

POTTING AZALEAS.—The plants that bloomed early and have already been some time in heat will now be in good condition for potting, their roots being in full motion. Good brown peat of medium texture, that is, neither too light nor too close and heavy, is the best material to grow Azaleas in. Use it in a more or less lumpy state proportionate to the size of the plants, and add enough sand to keep it sweet and porous for a lengthened time. Do not disturb the roots further than in removing the old drainage material from the bottoms of the balls. Ram the new soil so as to make it as solid as the old ball. In the case of large plants it is well to leave the new soil for a time higher than the surface of the ball. In this way the water that is given passes through the ball in sufficient quantity to keep the roots moist. The little soil thus left can afterwards be removed. Every afternoon at the time of closing the house the plants should be well syringed all round, so as to wet the foliage thoroughly on both the under and the upper surfaces. If this is regularly done it will help to prevent the attacks of thrips and red spider, both of which must be kept down.

SOLANUMS.—Where Solanums that have borne a crop of berries are to be used a second time and have been cut back with this object, they may now be planted out of doors. The advantage of turning them out in summer is that they require much less attention in watering, and the foliage can, with a little care, be kept in perfect condition. Plants that have made some young growths may at once be planted out, as after this time they will bear any frost that comes. A moderately sheltered position that is exposed to the sun should be chosen. Give a soaking with water at the time of planting, and attend to this as the state of the weather renders its application necessary. Later on the plants ought to be syringed overhead freely two or three times a week. Solanums that are used a second year in this way come into flower some time before young stock that has been raised from cuttings struck during the winter, so that their berries will have attained a good deal of colour when the time for taking up and potting the plants comes in September. Standards on stems 12 inches or 14 inches high are very useful for mixing amongst other things in winter. In this way the bright red colour of their berries is better seen than in the case of the low bushy examples usually met with. To obtain standards all that is necessary is to select plants that have a strong central branch and secure it in an erect position with a stick and ties, cutting away all the other branches and rubbing off any shoots that may afterwards appear about the collar. Nice heads will be formed by stopping once or twice.

YOUNG SOLANUMS.—Young plants that have been propagated during the winter, and are in small pots, will have been stopped once or twice, and now be in condition for turning out in pits and frames. So treated they make better plants before autumn than if kept in pots, and give considerably less trouble. When to be so managed the bed of soil should be raised sufficiently to get the plants near enough to the glass. Use soil that is sufficiently light and open to admit of the plants, when lifted for potting in the autumn, being taken up with plenty of roots, a condition in which it is almost impossible to have them if the material in which they are grown is of a close, adhesive nature. Keep the lights of the pits or frames nearly closed for a week or ten days, so as to start the roots in the new soil, shading if necessary in the middle of the day should the temperature run up too high. Afterwards give air freely, and give water as the roots require it. Syringe overhead in the afternoons; it is more necessary to attend closely to this when

the plants are grown under glass, as red spider and aphides, the insects to which they are most subject, are more likely to attack them than when out of doors. Any further stopping that may be needed will be confined to pinching out the points of any shoots that may take the lead in a way to outgrow the others.

PALMS.—The strong, large-growing species as well as the weaker kinds will thrive and maintain a healthy condition with comparatively less root-room than most plants. But in the case of such species as the Kentias, Seafortias, Chamerops, Arecas, and some of the kinds of Cocos that happen to be wanted in a large, effective state, they must not be too much cramped in their early stages. It retards their growth; consequently larger pots should be given as required. Palms may be shifted at almost any time of the year, provided the plants are kept in a growing temperature. But when the object is to push on their growth spring is the best season for carrying out the work. Of the kinds named, Cocos Weddelliana will do with the least room; for thriving young stock of this elegant species pots 2 inches or 3 inches larger than those they have been in will be large enough. The others may have a 4-inch or 6-inch shift, according to the natural vigour of the kind and the size the plants have attained. Palms are not particular in the matter of soil, but where rich yellow loam, such as procurable in some of the southern counties can be had, it is the best to use. The loam in question contains little sand; consequently more should be mixed with it than would be necessary for soil of a more gritty description. Drain the pots sufficiently, and in potting make the material solid, as Palms more than most things do not like their roots in loose soil. Though all the kinds named will thrive in a comparatively low temperature, with a view to growing them on to a good size, they should be kept in a warm or intermediate temperature. Syringe overhead freely every day at the time of shutting up the house, and keep the roots wetter than is necessary for most things. Shade when the sun comes on the glass; where this is not regularly attended to the plants will be injured, as the leaves get burnt. When through any defects in the glass the foliage gets burnt in patches, the disfigurement remains until the injured leaves die off naturally and new ones have taken their place. Of the kinds named the Kentias are far the most useful for conservatory decoration, or for standing in halls or rooms at times in the summer. Their hardy nature and the rich green healthy colour of the leaves enable them to bear much knocking about without showing ill effects. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Camellia reticulata was finely in flower a few days ago at Chiswick. There is a large specimen in a pit, and never fails each year to give a display of its large, clear, shining, rose-tinted flowers.

Epacris Lady Penmore is one of the best of the Epacrises, the habit of the plant being dwarf and the flowers white. Neat examples, full of bloom, are extremely ornamental.

Carnation Mrs. W. H. Grenfell, shown on two or three occasions recently by Mr. Charles Turner, of Slough, seems to be an acquisition to the Tree class. The flowers are of excellent outline, full, broad, and of a soft self salmon-pink colour.

Double Cinerarias seem likely to take the public taste, but they are not to be compared with the single varieties for elegance. The colours of the flowers are more decided and varied than they were, and for making a show in the greenhouse at this season are certainly most desirable.

Scarlet-flowered Sage (*Salvia splendens*).—This is one of the best of the Sage family for winter flowering, coming in late in autumn and continuing its brilliant display for a long time. The plants when done blooming are usually allowed to rest, but I recently noted some plants in the stove at Beddington House Gardens that had been cut down and grown again. They are now producing a number of the bright scarlet flowers. A long success may be therefore maintained with a little extra trouble.—W. H. G.

Caladium minus erubescens.—This Caladium will commend itself to those who are in want of low-growing kinds, as it is seldom much more than 6 inches in height, and is of good constitution and sturdy in character. It is well suited for growing as a companion to the popular *C. argyrites*, for while the

colours of this last are white and green, the lesser known kind has bright crimson leaves bordered with green. Like the rest of its class, it can be quickly increased, so that given a few good roots to start with early in the year a considerable number can be obtained before the autumn.—H. P.

THE ALPINE HOUSE AT KEW.

So far, this new venture at the Royal Gardens has met with all the success it so richly merits. It is a step in the right direction, and certainly meets a want long felt by ardent lovers of alpine flowers. The house is 30 feet by 10 feet, with a walk down the centre, and has benches on each side at a convenient height for visitors to study the plants at leisure. It strikes us, however, as being too small for such a wealth of rare alpine as the Kew collection contains, but as this is a fault that can be easily remedied, we hope at no distant date to see it at least doubled in length. No artificial heat whatever is used, and we were told that all through the hard weather the thermometer registered only 3° below freezing point. At present this structure is perhaps at its best. The show of bloom contained in such a small space is nothing less than wonderful. Daffodils, of course, predominate—*nobilis* of Redouté, varieties of the wild pseudo-Narcissus, muticus, cyclamineus, pallidus præcox, with large batches of triandrus var. albus, rupicola, juncifolius and the var. fl.-pl., poeticus ornatus, and many others of the florist set. Primulas are also well represented, *P. calycina* Clusiana being smothered with bloom; also spectabilis, Portenschlagiana, marginata vars., of which the most notable is *cærulea*; *P. hirsuta*, viscosa, Facchini, Forsteri, obconica, mollis, and last, but not least, a group of the Bardfield Oxlips. *Anemone montana* is not often seen in collections. It seems to be easily enough grown, and is certainly worth having. The Pasque Flower (*A. Pulsatilla*) is also charming; as are also *A. blanda*, *apennina*, and the variety *alba*, the latter a truly beautiful spring flower. The *Doronicums* are also well represented, including *Columæ*, *caucasicum*, *austriacum*, and others. A new *Erythronium* called *Hendersoni* is very beautiful, lilac and white, with a dark brown blotch at the base. *E. grandiflorum albiflorum* is also worth notice. Saxifrages are still in good flower, *Burseriana*, *aretoides*, *cuscutæformis*, and *luteo-purpurea* being amongst the best. *Heuchera sanguinea* is one of the best plants we have yet seen belonging to this genus, a few plants of this among Daffodils being very conspicuous. *Gentiana verna*, *angulosa*, a closely allied species; *imbricata*, a rare plant; and *G. acaulis* are all in fine flower. *Synthyris reniformis*, a Himalayan plant allied to the *Veronicas*, is in full bloom, and makes a pretty pot plant. *Douglasia laevigata*, a Rocky Mountain Primuloid, is a little gem. It will, no doubt, prove hardy, and if such be the case, its numerous bunches of rosy flowers will prove an acquisition for rockeries, &c. *Trillium erectum*, *Pulmonaria mollis*, *Dentaria pinnata*, *Soldanella minima*, *Iberis saxatilis*, *stylosa*, *Grape Hyacinths*, and a fine collection of *Lenten Roses* do not by any means exhaust the list, our intention being at present to give visitors a little foretaste of what they may now expect on a visit to Kew.

Cytisus racemosus as a standard.—I have two plants of *C. racemosus* in my greenhouse growing under different conditions. One is about 18 inches high and growing upon a bank over hot-water pipes; the other is a standard 9 feet high and almost in water by the side of a tank of cold water. They are both in flower, and the standard is simply magnificent, the stem being about 2½ inches round. It is an unsatisfactory plant for indoor decoration, as the flowers and leaves drop. When planted out, *C. racemosus* is simply perfection. Now is the time to plant out in a warm greenhouse, and if a standard is desired, leave the stem bare, with only a head of foliage at the top.—WM. SOPER, *Clapham Road, S.W.*

Clerodendron fragrans.—Those who like to grow fragrant-flowered plants in their stoves should certainly make a note of this old favourite, which for some reason has been allowed to drop out of general cultivation. It is now in fine bloom in the

Victoria Lily house at Kew, which it perfumes with the strong fragrance of its large clusters of white flowers. It makes a dwarf compact-growing pot plant, having large leaves and bearing loose corymbs of flowers at the tip of each shoot. It was brought from China nearly 100 years ago, and though it enjoys a stove temperature, may be successfully grown in a greenhouse. The double-flowered variety is a commoner plant, and perhaps may be preferred. The perfume is as strong and the flowers last longer in perfection, but it is by no means so elegant as the single form.

CHRYSANTHEMUMS.

E. MOLYNEUX.

SEASONABLE NOTES.

PLANTS intended for the production of large flowers in the several sections will be making rapid progress where the conditions have been favourable. Those struck early will now be in 6½-inch pots and growing freely, and will require much attention where the best results are to be obtained.

The long-continued cold east winds have affected the foliage somewhat, and cold draughts of air combined with an absence of sun have in almost all instances given a yellow colour to the leaves. During the last few days there has been a decided improvement in the foliage. Remove the lights entirely when the air is still, as an abundance of fresh, warm air strengthens the plants, which must be allowed sufficient space, so that overcrowding cannot take place. Specimens that are allowed to become drawn up weakly never have the same chance of success as those that are kept sturdy by proper room being given and as near the glass as possible. In mild weather the lights should remain off until dark, and when there are no signs of frost they should be tilted a few inches at one end. Early in the morning draw the lights off entirely. Pay thorough attention to supplying the plants with water at the roots, as neglect of this causes early loss of foliage. Some consideration, too, should be given to the kind of water used, and rain water is the best. This should be taken from the houses, where it is likely to be moderately tepid. At this season of the year that obtained from pumps or tanks standing out of doors should be avoided, as such water cannot fail to check plants that have been growing under favourable conditions in all other respects. In some cases suckers will be thrown up from the base of the plants. If plenty of cuttings can be obtained from the variety, such suckers should be destroyed, but where scarce they may be inserted singly in small pots placed in a frame kept close for a time. These plants will be useful for decorations, and will be the means of supplying a plentiful stock of cuttings for growing on next season. At this time some varieties—notably the Queen family and Lady Hardinge in particular of the incurved class—are very apt to form bloom buds on the points of the shoots instead of growth. It is difficult to understand the cause of this premature formation of flower buds. Sometimes plants will persist in this, even if the cuttings were secured at a distance from the stem of last year's plant. Cuttings taken from the stems are very liable to form buds in the manner described; therefore, to reduce this trouble to a minimum, great care should be exercised in selecting the cuttings that they be taken clear off the stem where practicable. Plants now showing the buds as described should have their points pinched out, when growth will form below this point. If this new growth is free from flower-buds, select two of the most promising growths, removing all others below this point. Sometimes flower-

bud formation is so persistent that the plants refuse to do otherwise. Two things alone remain to be done with such plants. One is to cut them down close to the soil, from the base of which other growths will spring, and these in time will perhaps produce flowers. I have known such growths again put forth premature bloom buds. It is only in exceptional cases that I advise such plants to be retained.

The other method of treating such plants is throwing them away altogether. This early flower-bud formation is more prevalent in the south than in the north. Some of the plants will commence to form side growths, which should be removed as soon as they appear. As growth advances, place a neat stake to each plant to preserve the leading shoots intact, as they are very brittle at this stage and easily snapped off, which is not to be desired at this stage of growth. The late dull, cold, sunless weather has favoured the spread of mildew where the necessary precautions have not been fully carried out, such as regular attention to air-giving and dusting the foliage with sulphur when the least signs of its appearance could be seen. At this time of year green-fly is troublesome on the points of the plants, and it is easily eradicated by a timely dusting with tobacco powder in the evening. A vigorous syringing of the plants in the morning clears them of both fly and powder. Any late-struck Chrysanthemums, owing to a scarcity of cuttings at the proper time, should be shifted on into larger pots as fast as they become thoroughly rooted. Means should be taken to place such specimens in a frame by themselves, so that after fresh potting they can be kept closer for a few days until the roots are running into the new soil, which they quickly do at this time of the year. Treat afterwards in the same manner as those potted earlier.

Fragrant Chrysanthemums.—Supplemental to the short note under this heading which appeared in THE GARDEN of the 14th inst., I may add that in an old catalogue of the late Mr. John Salter I find the *Pompons Miranda* and *President Decaisne* are stated to be violet scented.—C. H. P.

Fimbriated Chrysanthemums.—"T.," in referring to Marabout, reminds me that this is probably the oldest of the Chrysanthemums in this class. It was grown thirty years ago, perhaps more. There does not seem to be much reason for doubting that the other variety to which he alludes, viz., *laciniatum*, was really imported by Mr. Fortune. Every writer on the Chrysanthemum who refers to the event agrees that *laciniatum* was one of the few which Mr. Fortune sent over in 1860-62, but there appears to be some doubt as to two or three of the others.—C. H. P.

The Chrysanthemum in Japanese art.—Having latterly had several opportunities of examining collections of Japanese works of art, I have been much astonished to find how largely the Chrysanthemum is employed as a decorative subject. I was not unaware what a great favourite it is with these ingenious people, but the extent to which the Chrysanthemum is represented on the best art work of Japan is really beyond description. Vases, cups, saucers, bowls, screens, lacquer work-boxes, and a thousand and one domestic odds and ends bear evidence of the love which the Japanese have for this fascinating autumn beauty. I cannot refrain from mentioning that at the Japanese Fine Art Association I was much struck with the execution of a tiny bronze vase of superb workmanship, upon which were several miniature Chrysanthemums carved in mother-of-pearl. The blooms and foliage seemed to have been copied from living examples, and the most minute details faithfully rendered.—C. H. P.

Chrysanthemums on walls.—Plants that grew at the base of walls last season, and that are intended to be left there again to flower next season, will be breaking into new growth. There will be far more shoots produced than are really required,

so timely attention to thinning out of the growths will be necessary to afford extra strength to those remaining. If all were allowed to grow from now onwards, there would be far more than enough to cover the wall properly, and they would be drawn up weakly. Reduce the shoots to six or eight on each plant for the present, and the final thinning can be done later on. Some varieties do not withstand the severe frosts, even at the foot of south walls, so well as others, and a few will be dead. Now is a good time to examine such, replacing them according to instructions laid down in a former note. Remove about an inch of the surface soil from those already growing freely, and replace it with loam if at hand; if not, old potting soil, mixed with half the quantity of partly decayed horse-droppings, will suffice. This top-dressing of fresh material will influence subsequent growth, giving a deeper tone to the foliage during the coming season, as the *Chrysanthemum*, being such a gross feeder, quickly exhausts the soil in which the plants are growing.—E. M.

ORCHIDS.

W. H. GOWER.

MASDEVALLIAS IN FLOWER AT LEATHERHEAD.

IN the year 1864, when Mr. Bateman published his "Guide to Cool Orchid Growing," he was particularly anxious that plants of this remarkable genus of Orchids should be introduced to cultivation. In the above-mentioned pamphlet



Masdevallia Harryana.

he says the range of this genus is higher than that of any in the entire family of Orchids. Its species are chiefly confined to the Andes of New Grenada and Peru, where they reach an elevation of more than 10,000 feet. They are of humble growth, in habit resembling *Pleurothallis*, but with flowers of good size, great beauty, and presenting the utmost variety of colour and form. About fifty are known to botanists, but being of very difficult importation, scarcely more than half a dozen are yet to be found alive in Europe. At this time and for a few years afterwards Orchid growers were keenly watching for fresh importations of these plants, which arrived in varying condition, until at the present moment we have in cultivation fully a hundred or more species and varieties. Amongst these may be found a vast quantity remarkable for the extreme beauty of their blooms, but yet they do not appear to impress the majority of growers with that interest with which the various species and varieties of the genus *Odontoglossum* always do. This

may partly arise from their not having been seen in grand condition, but in Mr. Lee's collection at Downside at the present time they are simply superb and promise to continue so for a long time to come. The plants are numerous and in ruddy health, whilst the quantity of bloom at the time of my visit was



Masdevallia Chimæra.

very great, although the flowers are cut every week for decorating the glasses in the dwelling-house. These plants are grown in somewhat small pots, and are placed near the glass, kept cool and moist, and are well sheltered from the sun. Amongst the kinds most conspicuous, first comes *Veitchi*, which, although one of the earliest to arrive in this country, still maintains its position as one of the most beautiful, if not the very handsomest, of the genus. I have previously observed that some growers find this species enjoys a slightly warmer temperature than the majority of the kinds; but in this collection no difference is made, and it thrives admirably, several very fine varieties being in full flower. This plant is one of Mr. Pearce's lucky finds in Peru, and it flowered



Masdevallia Veitchi.

with the Messrs. Veitch at Chelsea for the first time in Europe just twenty years ago, but of not so fine a form as we now possess, the flowers being only 3 inches in diameter; whilst some of those at Leatherhead are more than double that size, the sepals (which are the chief points of interest in this genus) being of an intensely deep

and brilliant orange-red, over which there is a splendid lustre of violet-purple. So intense and brilliant are these blooms, that no coloured illustration has yet approached the original in beauty. *M. Chelsoni* is a hybrid form rather smaller than the preceding, and having the darker colouring in the centre; whilst in *M. Veitchi* the deep colour is on the outer portion of the sepals. Here also was a grand plant of the curious *M. Schlimi*, bearing five spikes, each one with six flowers on the raceme. It is a rare species, and when seen in this condition is extremely handsome, although the colours are not brilliant. The sepals in this species are not equal, the upper one being the smallest. They are all of a reddish brown hue, the long tails being yellow. Numerous forms of *M. ignea* were also contributing their quota to the show, conspicuous amongst which I noted *ignea miniata* and *ignea violacea*, together with an abundance of the beautiful and variable *M. Harryana*. *M. calurum* is a charming kind, somewhat in the way of *M. maculata*, the surface of the sepals being rich maroon and the tails yellow. *M. Armini* is a charming form with flowers in shape like those of *Shuttleworthi*, but wholly bright rosy purple with yellow tails. *M. Lindeni*, although smaller than *Harryana*, is another very telling plant, with its rich magenta-purple blossoms. Of the beautiful *M. Shuttleworthi* there were numerous examples and varieties, all of which are exceedingly showy, including the variety *xanthocorys*, in which the charming tints of colour found in the species are changed to yellow. The species belonging to the *Chimæra* group, of which an illustration is given, are all grown in hanging baskets and are represented by large masses, which when thoroughly established appear to bloom most profusely; to see these at their best, however, I was a little too early. *M. Benedicti*, however, was smothered with its creamy white flowers which have the chocolate tails of *Chimæra*; several varieties were in bloom, including a very dark one, but not so dark as the form known as *Roezli*. These and many other kinds are to be seen in the Downside collection, which would amply repay a long journey to lovers of these plants.

Orchid leaves unhealthy.—I enclose you a few *Vanda* leaves, and should be glad if you will inform me what is the cause of the spots that appear on them.—N. B.

** In answer to the above, there is no doubt that your *Vandas* are suffering from a very virulent attack of the disease called Orchid spot, which needs dealing with at once if the plants are to be saved, but, do whatever you will, the traces now exhibited by the plants will never be eradicated until the leaves fall. This disease arises from mismanagement. One of the causes is the keeping of the plants too wet during the winter, thus causing the roots to become overcharged with moisture and fall into a kind of dropsical state. Another cause of this disease is the roots being surrounded with rotten or rotting and sour material. I cannot remember having any plant under my charge attacked by this disease, but as in former years it was thought to be contagious, plants thus attacked were got rid of. Many plants affected with this disease have come into my hands, and unless they had become too bad I have always been able to cure them, so that I speak positively when I assert that the disease will not affect other healthy plants. It cannot be denied that the disease is the result of bad management, and the plants should be at once shaken out of the material in which they are potted, when doubtless the ends of the roots will be found rotten, and perhaps also the end of the stem. If so, cut it and the roots away until the sound portion is met with, drain the pots thoroughly, and repot in sweet living *Sphagnum Moss*. Set the plants in a genial warmth

and moist atmosphere, keeping them well shaded until they appear to be again well established; the leaves also may be syringed lightly to save them from shrivelling until the plant makes new and healthy roots. I may also add that too great a heat and want of air will so debilitate these plants as to render them subject to this disease. I should be glad to hear from you as to the condition in which you find the roots when you examine them.—W. H. G.

Dendrobium fimbriatum oculatum is a handsome flower at any time, but a variety of this plant which I recently noted in the collection at Kew was much finer than anything I have hitherto seen produced by this form, the flowers being very large, richly coloured, and deeply fringed. It is a plant of very free growth and soon makes a large specimen; its stem-like pseudo-bulbs grow from 1 foot to 3 feet in height. The racemes are about 9 inches in length and pendulous, bearing numerous flowers which last in perfection about a week or ten days; the colour is rich golden yellow, stained with a large blotch of blackish crimson at the base, the edge of the lip being delicately fimbriated. Old bulbs flower for several years after they have shed their leaves.—W. H. G.

Dendrobium Harveyanum.—This is a lovely Burmese novelty and was recently in flower in the collection at Downside, Leatherhead, and also in the Cambridge Lodge collection at Camberwell. It somewhat resembles *D. Brymerianum* in growth, and many say its flowers resemble those of that species, but all the segments of the bloom are fringed. This description is not, however, quite correct, the fact being that the flowers are smaller than those of that species, the sepals and petals being rich yellow and spreading, the former plain, the latter broadest and ornamented at the edges, with a similar fringe to that on the lip of *D. Brymerianum*, but in a less degree. The lip is rich deep yellow, of an entirely different shape to that of *Brymerianum* and nearly round, much resembling that of *D. Devonianum* and beautifully fringed like the petals. It is a lovely gem, but appears to be somewhat delicate. It enjoys strong, moist heat.

Dendrobium Cambridgeanum.—This handsome plant is said to be more correctly named *D. ochreatum*, but it has been known for so many years by the name here used that one cannot relinquish it. It is not so much grown as it deserves to be, probably owing to its blooms being somewhat short-lived. It appears to grow wild on the Khasya Hills at considerable elevations, where it forms short, recurved, knotty bulbs, which retain their leaves whilst flowering. The flowers appear just as the bulbs have finished their growth, so that in a state of Nature this would be just about the commencement of the dry season. The flowers are of a rich deep yellow, the lip bearing a large rich blackish purple-coloured spot at the base. The plant does not appear to object to a warmer temperature than it usually obtains in Northern India, for when grown in the warmest house it will produce bulbs from a foot to 18 inches in length, but it never flowered so freely with me thus grown.—W. H. G.

SHORT NOTES.—ORCHIDS.

Odontoglossum baphicanthum, flowering recently with Mr. B. S. Williams, of Holway, is a choice Orchid with much of the character of *O. crispum*. The flowers are very pale sulphur-yellow, spotted with chestnut-brown.

Cattleya Skinneri, in bloom now, is an Orchid that might be more often seen. It is very free, and the flowers are of a showy rose-purple tint. A good specimen when carrying several spikes is remarkably handsome.

Arpophyllum giganteum is a grand species, the leaves dark green and drooping, and the flowers purple and rose. They are produced close together in an upright spike from 8 inches to 12 inches high. An excellent specimen was recently shown by Mr. B. S. Williams.

Oncidium insculpum, which is flowering at Kew, is noteworthy for the great length the spike attains. It is trained along a wire, and bears numerous bronzy brown flowers. The plant is grown in a pot and makes a strong growth.

Odontoglossum Edwardi.—There are few Orchids so rich in colour as this. The fragrant flowers individually may be likened to those of the Nightshade, the colour a rich violet-purple. A strong raceme bears dozens of blooms that collectively make a great show. It has been an attractive feature in the orchid house for some time.

Epidendrum bicornutum.—This superb plant, which is difficult to manage, is now flowering in the garden of Mr. J. C. Lanyon, Birdhurst, Croydon, and bears two spikes of bloom of twelve flowers. This specimen flowers annually, its fragrant ivory-white blooms being large, somewhat Phalaenopsis-like in outline, and last long in beauty. The plant appears to enjoy strong heat and moisture in conjunction with a free circulation of air, and requires to be well exposed to sun and light.—W. H. G.

Odontoglossum grande.—This is a grand species, yet it is comparatively little grown. It is familiarly called an epiphyte, but on looking over a fine lot of this species recently received from Guatemala by Mr. Sander, of St. Albans, I noticed that they had been growing on the ground in a deep bed of rich brown fibrous peat. They had also made strong growth, and produced much longer spikes than I have yet seen the plant do under cultivation, although I have grown it myself for more than thirty years. It requires cool treatment.—W. H. G.

Odontoglossum Pescatorei Lleanum.—This species is not subject to much variation, neither does it appear to hybridise with other species. What it was twenty-five years ago so it is to-day, whilst in the closely-allied *O. Alexandrae*, varieties and hybrid forms abound. Now and then a distinct variety appears, as in the case of the above, which I recently observed flowering in the Downside collection. The spike is dense, and the individual flowers rather above the normal size, pure white, slightly tinged with purple. The fiddle-shaped lip is heavily streaked with purple round the column, and in front of the yellow crest is a large triangular blotch of deep violet-purple, which renders it very conspicuous and beautiful.—W. H. G.

Maxillaria Sanderiana.—A very fine form of this rare and beautiful species is now flowering in Mr. Lee's collection at Downside, Leatherhead. For some time it was grown in a pot, but Mr. Woolford, who has charge of these plants, says he found upon examination that its spikes grew downwards and perished in the drainage material. When this was discovered the plant was immediately removed into a teak wood basket and suspended from the roof of an intermediate house, where it may now be seen. Its flower-spike has grown through the bottom of the basket, similar to that of *Stanhopea tigrina*, the blooms of which much resemble at a first glance those of *M. Sanderiana*. An accurate idea may be obtained of this plant from the coloured plate which appeared in THE GARDEN of July 23, 1887. It appears to require more heat than the majority of *Maxillarias*, but as Mr. Sander has never divulged its native country, practice only can guide the cultivator. It still remains rare, and another consignment of this distinct and handsome species would be hailed with joy by all Orchid growers.

Dendrobium Farishi.—This beautiful species worthily commemorates the sender of a vast number of new Orchids from that eldorado for Orchids—Burmah. A very well-bloomed example of this plant is now flowering in the gardens of Canon Bridges at Beddington; the flowers are round and compact, of a uniform deep rose or rosy purple, the lip bearing a deep purple blotch on each side. It is a lovely and distinct plant, its colour rendering it most desirable.

Vanda tricolor.—A beautiful form of this plant is now flowering in the gardens of Canon Bridges at Beddington, in Surrey, and Mr. Penfold assures me that it has borne three crops of flowers every season for some time now, so that the plant can scarcely ever be without blooms. The flowers on the two spikes it is now bearing have been open since the new year, and two others are pushing up and the blooms will doubtless be open before the others are over. A handsome variety like this which combines such free-flowering qualities with its handsomely marked blooms well deserves recognition.

Cymbidium pendulum.—Twenty years ago this old species was almost ignored by Orchid growers. At the present time, however, it is held in esteem by many, this probably arising from the introduction of good varieties which have been discovered by the numerous plant-collectors who have been sent out to search every part of the Orchid world for novelties. I noted recently an extremely handsome specimen of this species, bearing numerous long, densely-flowered spikes.

The sepals and petals are bronzy-green, the lip rosy-red, the centre being white crested with yellow. It is a strong-rooting plant, and requires an abundance of pot-room. The soil it luxuriates in being peat and loam, the base of the plant should not be elevated above the rim of the pot, as it enjoys an abundance of water to its roots when growing.—W. H. G.

KITCHEN GARDEN.

CUCUMBER FAILURES.

THAT there are innumerable failures or comparative failures with Cucumbers every season few observant gardeners will dispute, and I may go further, and safely assert there are few or none among us that can say they have not been responsible for one or several breakdowns. It is my belief that failures more often occur now-a-days, or since it has become the almost general practice to grow them in well-heated houses, than they did in times when hotbeds and frames were the principal conveniences for Cucumber culture. That far heavier crops are taken from house-grown plants in a given time, I readily admit, but this is a doubtful gain, seeing that in most establishments a steady and continuous supply is far preferable to occasional gluts, followed either by a partial or complete breakdown. It is these extra heavy crops that are frequently to blame for a failure. What appears to be a strong, healthy plant and capable of perfecting any number of fruits is over-taxed, perhaps, at the very outset, and soon becomes a prey to red spider and other enemies. Plants with sickly or insect-infested foliage cease to form fresh healthy roots, and unless the latter remain active, it is not long before the collapse comes. The favourite variety with most cultivators, Rollisson's Telegraph (Improved or otherwise), is often blamed for a partial failure, and more often than not without sufficient grounds for complaint. We are told it lacks a good constitution. All other good qualities it possesses, but it is liable to break down under a severe strain. I should like to find an equally good variety that does not. There are plenty that do grow more vigorously and last longer in full bearing, but this is simply owing to their being less fruitful, especially at the outset. Give the Telegraph or any other variety much resembling it in habit fair play, and they will most probably last equally as long in a profitable state. Precocity ought always to be checked. Healthy plants of Telegraph will actually form fruit on the main stem being taken up to a trellis, and after the points are taken out every fresh break will produce two or more clusters of fruit. It is not absolutely necessary to remove all the latter, but not more than two should be left on each strong plant. They would perfect nearly, or quite, all of them, and are often allowed to do so, but that is mistake number one. Let the plants continue to grow strongly both at the top and roots, and a good foundation will be laid. If a quick crop is needed, grow a few supernumeraries either in pots or planted out, and let their life be a short and busy one. By the time the permanent plants have been stopped three times, each occupying a roof area 5 feet by 3 feet, they will be capable of supporting a heavier crop, or say as many as six nearly fully developed fruit at a time with others following. Clusters ought not to be encouraged, and these should always be thinned as well as a considerable number of single fruit removed early or whenever very plentiful. Then, if the haulm is not crowded, nor allowed to ramble far without being stopped, a steady, yet plentiful, supply, other conditions being favourable, ought to be available from April till the autumn.

Although judicious cropping is imperative, there are other important details not always so well understood as they require to be. The quality of the soil or compost used has much influence on the continued well-doing of the plants rooting in it. They will start vigorously in rich loamy soil, and at the outset would appear to revel in plenty of manure. All the time this remains porous and sweet the roots ramble freely through it, but when the fibre has decayed, the manure run, and the surface clogged by the settlement from liquid manure, the roots disappear, few or none being found near the surface, and a collapse soon follows. What Cucumbers require is a loose, lasting compost, or something that the roots will continue to delight in permeating. Good fibrous loam roughly chopped up should, where possible, be the principal ingredient, to this being added plenty of "burn-bake," or the residue of a burnt heap of prunings, hedge trimmings, and garden refuse generally. Failing this, charcoal, broken crocks, and charred loam ought to be used. No solid manure ought to be added, as this causes a rank growth at the outset, and afterwards encourages the production of tiny worms and those insects that puncture the roots. It is the free use of solid manure that is most frequently the cause of the defective, knotted, or much ruptured root action that has led to so many failures. A large mass of soil is not needed, a bushel in the first instance and fortnightly light top-dressings being all that are needed. I should add that if turfy loam cannot be had there is still greater need of adding plenty of charred wood, rubbish, and soil. A brisk heat, plenty of moisture at the roots and in the atmosphere keep the root-fibres constantly active near the surface and always ready to lay hold of the top-dressings. If a mulch of any kind is needed to prevent the too rapid loss of moisture, Moss will be found superior to manure. The roots delight in roving through this, and top-dressings may be given without removing or disturbing the Moss. Many start Cucumbers over a hotbed of leaves and manure and for a time the roots thrive in this material, but as heat and moisture soon cause it to become one solid mass of humus, they soon perish. Unless, therefore, the compost is frequently renewed and kept in a wholesome state, the plants are not long before they show signs of decay.

No manure being mixed with the soil, it follows that there is all the greater need for applying plentiful and frequent supplies of liquid manure, this being absolutely necessary to keep the plants in a profitable state. At one time we relied principally upon farmyard liquid manure, diluted as may be necessary, and by way of change of diet soot-water was given occasionally. Both, however, have a tendency to clog the surface, and this, as I have attempted to prove, has a most injurious effect upon the root action. We now use nothing but clear liquid manure, and find this answers remarkably well. Sulphate of ammonia and kainit mixed at the rate of two parts of the latter to one of the former—2 ozs. of this being ample for 3 gallons of water—suit Cucumbers admirably. Various other condensed artificial manures may be safely and advantageously applied at the rate advised by the vendors. One thing is certain: Cucumbers rooting in light porous composts require a lot of water, sometimes twice in a day—in fact, they ought never to become quite dry. The greatest enemy to Cucumbers is red spider, and once this is well established on the plants there is no remedy. Constantly syringing them only has the effect of saturating and ruining the soil, red spider thriving on the upper as well as the

lower surface of the leaves. Nor should those in charge of small houses attempt the growing of Cucumbers on the express system—that is to say, without ever opening the house. This method will answer very well till the middle or end of June, after which red spider is in the ascendant and the house may as well be cleared of Cucumbers at once. Very high temperatures accompanied by abundance of moisture will induce a very rapid growth on the Cucumbers, but they will not long stand the strain put upon them. The orthodox temperatures, or say from 60° to 70° by night, according to the external heat, rising in the daytime from 65° to 75° without air and 80° to 90° with air, suit them well, and a light shading is necessary during the hottest part of clear days. The house may well be closed and syringed early so as to run up the heat to near 95°, plenty of moisture being constantly distributed about the house on all bright days. I prefer blinds to permanent shadings of any kind. W. IGGULDEN.

THE AMATEUR'S VEGETABLE GARDEN.

EARLY SEAKALE.—In large gardens where there are ample resources the forcing of Seakale is easily performed. But the amateur with his small garden may desire to forward some also, and it is important that he with his limited means should know best how to go to work. I have known an amateur lift his Seakale and try to bring it on by some means, but rarely with entire satisfaction. He should, therefore, do the best he can with the crowns he has in the open air. Now it is not difficult to procure sound, fresh stable manure, and it is one of the best materials for covering the crowns, but it should be done in a proper manner. I have seen it laid over the crowns in such a way that the forced growths are deformed and unsightly, which is to be regretted. It is a good plan to place some old Fern, branches of Heather or such like over the crowns first, but in such a manner as that the shoots can ascend among them, and over this the longest of the manure can be shaken, and in this way clean and well-formed Kale can be had. Or stakes 18 inches high can be driven into the ground in line with the crowns, and on the top of the stakes a light rail can be nailed, and some shortened Pea stakes can be placed in a slanting position against the rail, laying over and on both sides a good coating of litter. A few inches of leaf mould can be placed upon the crowns. I have known excellent Seakale to be grown in this way.

RHUBARB.—If the amateur gardener has some of the Early Albert Rhubarb he can materially aid a forward development by covering the crowns with any light litter to the depth of 4 inches. When the stalks begin to ascend they will carry up the covering with them, and be protected from frost, snow, cutting winds, &c. A neighbour of mine grows the Early Albert Rhubarb largely, and the whole of his plantations are covered in this way, and he gets excellent crops.

LETTUCES.—The difference in the time of getting a crop between plants put out in the autumn and from seed sown in a slight hotbed in February is not great, and there are many risks attendant upon keeping safe through the winter an autumn-planted crop. If the young spring-sown plants could be pricked off in a cold frame and then carefully lifted and put out in the open some time during April with balls of soil attached to their roots they would come on rapidly.

BROAD BEANS.—Under this heading I include both the Longpod and Windsor varieties. The Seville Longpod is the earliest, and then Johnson's Wonderful and the Harrington Windsor should be sown for succession. There is now practised much less autumn sowing than formerly. If anyone has a warm, sheltered, sunny border, then he may sow some Longpod Beans in November, but if he sows in the open he might just as well wait until the end of February. As soon as the plants come through

the ground some soil should be drawn up in the form of a ridge on either side, which is found to be a great protection from cold, nipping winds. The amateur is prone to sow his Beans a little too thickly; let him give them a little more space in the line and he will find the result satisfactory.

PEAS.—What shall I sow? is a question often put by amateurs who are not intimately acquainted with the varieties of Peas. In the case of small gardens they should begin with American Wonder or Multum in Parvo, an excellent dwarf early variety. These two varieties scarcely exceed 18 inches in height in very good ground, and require short sticks. In larger gardens, Improved William the First is one of the best, Duke of Albany and Telephone to follow on, with Veitch's Perfection for late crops. A list of Peas is now so lengthy as to be perfectly bewildering. Peas generally are sown too thickly, and especially the free-branching varieties.

CELERY.—This should always be a forward crop in order that plants may be got out into the trenches before dry weather sets in; therefore, it is best to sow the seed in a gentle heat, or, failing this, raise it in a cold frame or under a handglass, and when the plants are large enough, prick them out into boxes or on to a bed in a cold frame, and by-and-by at the proper time turn them out into the trenches formed to receive them. Good Celery can only be had from rich ground, some good manure being forked into the trenches.

CARROTS.—The delicious early-forcing French Horn Carrot is not grown by amateurs so much as it should be. It is a quick-growing variety, and on good ground comes to a satisfactory size. But Carrots are generally sown too thickly, and then they are not thinned out so thoroughly as they should be. Many a Carrot bed is spoiled for want of the necessary thinning. R. D.

RIPE TOMATOES IN WINTER.

ALTHOUGH it is comparatively an easy matter to produce a supply of Tomatoes through the spring and summer, it is not so easily done from November to March, for during those months the growth is very slow as well as weak. The blossoms are also small, and very slow to expand and more difficult to set, and when they have set, the swelling-off process is a very tardy one. It is evident, therefore, that to secure a supply at such times more plants must be planted out, and consequently more space taken up, than would be necessary at any other time of the year, and the plants must also be well established and in a fruiting condition before the dark and shortest days come on. If this is not the case, it is very doubtful if any fruit could be secured for Christmas use. I have a demand for Tomatoes all the year through. For winter use, I know of no better plan than planting them out at the time I do my winter Cucumber plants. I have succeeded very well by growing them in a similar way; for I do not agree with, nor practise the restrictive and mutilating system so much as some people do, as, although I generally prune off young growths where not wanted and shorten much of the foliage, I allow the plants to extend themselves so as to cover the space allotted to them. This is the sunny side of a span-roofed house running east and west, and they have been fruiting all the winter. I raise stock from cuttings taken from plants on the open walls in August, and when rooted they are planted out in September far enough apart to allow of young growth being laid in when required. The leading shoots soon went to the top of the house, when the point was cut out and they set some fruit as they grew. After this, two other shoots were started from the bottom and allowed to grow in a similar way, and by the time they reached the top I had a fair lot of fruit swelling off in different stages. Other shoots were laid in as wanted and allowed to fruit if they would, but many of them failed to flower on account of diminished light and no sun, but by getting them in early, as above stated, I had always some fruit ripe and the other coming on. As soon as the days began to lengthen perceptibly the plants began to grow fast and

strong, so that pruning and thinning were necessary by cutting out old branches and laying in young wood; as long as the plants keep in a bearing condition and continue healthy I shall let them remain. The plants have been in their present position for seven months. I find them do well in a mixture of three parts turfy loam to one of rotten manure, applied to them at intervals instead of all at one time, and manure water once a week. The temperature that appears to suit them should range from 50° at night to 65° in the day, and I also find that more fruits are required in the winter time for a given weight than in the summer; this probably arises from the juices of the plant not flowing so freely. T. D. R.

KITCHEN GARDEN NOTES.

RUNNER BEANS.—The first week in May is quite soon enough to sow seed of these. When got in much before that time the seed is apt to perish, especially in cold, heavy soils, and where it germinates properly there is yet a probability of late frosts destroying the plants. In most instances where a large quantity of early dwarf Kidney Beans is grown very early supplies of Runner Beans are not needed, but should they be required, it is advisable to sow seed singly in 3½-inch pots, and set these in a moderately warm house or frame. The plants must be kept near the glass, with plenty of air, and eventually planted out where they are to grow. As this is the surest way of getting every fairly sound seed to germinate, this plan of raising the plants under glass is also to be commended in the case of extra choice or expensive varieties. If pots cannot be spared, shallow boxes may be substituted, these Beans transplanting readily with little or no soil about the roots. They delight in a deep and rather rich root-run, and require an abundance of water at the roots; hence the necessity for growing them within easy distance of the water supply or sewage tanks. If the whole of the ground cannot be well manured and trenched, the next best plan is to open trenches 2 feet wide, the top spit being thrown out, and a liberal dressing of solid manure forked into the subsoil before returning the top soil to its original position. If it can be spared, more manure may advantageously be mixed with the top soil, and ground thus prepared will usually sustain a row of plants in full bearing throughout the season. It ought to be generally known that one or two long rows, sown on well-prepared ground and given good room, are more profitable than double the number of crowded rows. Nor are Runner Beans particular as to the length of the stakes, as they will climb and crop to almost any height. The stakes may be 6 feet high, or, if the position be sheltered, nearer 15 feet in height. Our stakes are about 8 feet long before they are set in the ground, and the rows are formed 6 feet apart. The seed is sown thinly in a single drill, and covered, if need be, with a little sifted soil. The plants are eventually thinned to a distance of 12 inches apart and a stake placed to each, these being kept steady with the aid of another line of stakes, lacing them together near the top. When double that number of plants is grown in a row, or if double rows of stakes are given, these crossing each other, it usually happens that fewer pods are eventually produced than when a single thin row is grown. Runner Beans also do well in quite isolated rows or in groups. If large, straight pods are wanted, these are freely produced by such varieties as Girtford Giant, Ne Plus Ultra, White Giant, and Champion. These varieties, in the estimation of many people, are, however, improvements in the wrong direction, and, on the whole, the old Scarlet Runner is a much more profitable variety, this yielding very heavy crops of small pods, which are of excellent quality when cooked.

BEANS WITHOUT STAKES.—The bulk of the pods sent to the markets are grown in the open fields and without the aid of stakes. As a rule this plan does not answer well in private gardens. In the open fields, although manure is freely used, the growth is not so rank as is the case in the more deeply cultivated and naturally richer garden ground, and the firm root run induces a free production of flowers

rather than leafy growth. Those who may wish to give the plan a trial should select a good open position and sow the seed thinly in single drills drawn not less than 3 feet apart, the plants to be eventually thinned out to about 12 inches apart and have all running growth kept closely snipped back. It is the neglect of the latter precaution that has led to many failures, very few pods being gathered from plants that overrun each other. Many of the pods grown on dwarf plants have to be washed before they can be marketed or used, but a mulching of strawy manure would prevent their becoming so dirty. Immense quantities of Carter's Champion are annually sown, but the smaller-podded Scarlet Runner is found to sell more readily and at higher prices.

CROPPING BETWEEN BEANS.—Where the most has to be made of every yard of ground quick-growing crops should be planted between the rows or intended sites for Runner Beans. If the soil is in free working order, Ashleaf Potatoes or other short-topped, early-maturing varieties are suitable, there being good space for two rows of these between those staked—supposing the latter are 6 feet apart and one row between those to be kept topped. Early Cauliflowers and either autumn or spring-sown Cabbage also do well in such positions, these usually hearing in before they are heavily shaded by the Beans.

YOUNG ASPARAGUS BEDS.—It is very unwise to commence cutting from Asparagus that has not been long planted. The plants ought at least to have two clear seasons' growth—that is to say, any planted in the spring of 1886 should not have been cut from before this season, and not even now if the growth formed last year was of a weakly character. This may seem a long time to wait, especially where there are no well-established beds, but in the long run the balance will be very much in favour of those who give their young plants fair play. Closely cutting all the earliest and stoutest shoots naturally has a decided weakening effect upon the plants; whereas if reserved for one more season the foundation of strong, profitable clumps will be laid, and which for many years will, with ordinarily good treatment, throw an abundance of stout, succulent shoots altogether superior to the poor wiry stuff produced by prematurely exhausted plants. There is no necessity to give the whole of the ground up to young Asparagus plants, especially where the rows are 2 feet or more apart. A few Lettuces may be grown thinly on the raised beds, and the alleys between be cropped with Cauliflowers.

BLANCHING ASPARAGUS.—Asparagus grown on the French system, so as to have a good length of stalk and a compact point, is much appreciated by many good judges. These points or heads, which only are eaten, are very delicate morsels indeed; but those who like "plenty for their money" are apt to condemn the system as wasteful. Whether this is so or not is not the point. As gardeners, we are called upon to grow what best suits our employer's tastes, and if blanched Asparagus is wanted it must be grown. Deep planting or subsequent liberal additions to the surface soil is a very risky experiment, and in all cases where the soil is naturally cold and heavy is calculated to end in the loss of most of the plants. In our case the only safe method of blanching is to draw the well-pulverised surface soil up to the rows on either side, much as Potatoes are ridged over, this being done without serious injury to the surface roots. Even if only about 4 inches of soil is placed immediately over the Asparagus plants, this will materially add to the length of the stalks, the principal aim in all cases being to keep the point from being too long above ground. Directly the heads are well through the surface they ought to be cut as deeply as possible, and stored in clean Moss or sand rather than set in pans of water.

EARLY CELERY.—If early Celery is needed the plants must be kept steadily growing from the first, any check inducing premature bolting to seed. In our case there is no demand for it before September other than for soups, and no extraordinary pains in its culture are therefore necessary. It is possible to have fairly good Celery early in August, but not

without much trouble. The plants of a good white variety, such as either Sandringham Dwarf, Wright's Grove White, or Cole's Crystal White, raised in February, ought now to be either singly in 6-inch pots or in boxes of rich loamy soil, and at least 4 inches apart each way. They must be kept in pits or frames or in a warm house and not far from the glass, being eventually hardened off and planted out late in May. Those who may have a frame to spare at this time may adopt a more simple plan of growing a few dozen early sticks of Celery. A slight hotbed should be formed principally with old heating material mixed with a little fresh stable manure, on this setting the frame. In the latter place about 6 inches of good loamy compost, facing this over with a little fine soil. If the lights are at once put on and the frame kept close the soil will soon be warmed through, and into this the Celery plants may be dibbled direct from the seed-pans or boxes. They may be put in rather thickly, or say about 5 inches apart each way, should receive a little warm water, and be kept rather close and shaded till well established. When growing strongly they ought to receive plenty of light, air, and water, and by the end of May or early in June be touching each other all round and well hardened off. Before they spoil each other two-thirds of the plants should be carefully transplanted with a trowel to the trenches, the remainder being left about 15 inches apart each way. All the holes made when thinning out the plants should be filled with good soil, and if need be the frame can be carefully removed and rough boards substituted for the purpose of keeping the soil together. Being kept well supplied with water, the plants grow strongly, the roots spreading through the manure underneath. Before the plants open out much all side shoots should be pulled off and the leaves lightly tied up. The blanching can be effected with the aid of brown paper wrapped round the leaf-stalks sufficiently to exclude the light, and this should be done at least six weeks before the Celery is needed for use or exhibition. In this manner early and very clean sticks can be obtained, those transplanted to the trenches forming a good succession. W. I. M.

GARDEN FLORA.

PLATE 646.

CATASETUM BUNGEROTHI.*

It is very curious that in the majority of cases where members of this genus have been figured of late years some efforts are made to apologise for bringing the plant to notice. This, however, is not necessary in the case of *M. Bungeiroth's* discovery, for a glance at the accompanying plate will at once convince, even the most sceptical, that we have here the portrait of a noble and wonderful plant, affording ample proof that there are new plants of massive grandeur yet in the world to recompense the diligent searchers for them. *Catasetum* is a large genus, the whole of the species producing very curious blooms, but on account of many of them yielding flowers of a somewhat sombre hue they have not been very popular with orchidists for some few years. Some kinds, however, amongst the discarded ones are sufficiently showy to merit a place in the most select collection.

As a genus, they are characterised by their thick, fleshy, fusiform pseudo-bulbs, which bear large membranous plaited leaves. Their flowers are produced few or many together in long racemes, which are sometimes erect and frequently nodding; the flowers for the most part are thick and fleshy in texture, and of singular and fantastic forms.

The plants now included in *Catasetum* were formerly members of three genera, viz., *Cata-*

* Drawn for THE GARDEN, in the Royal Gardens, Kew, by H. G. Moon, November 18, 1887, and printed by G. Severeys.



CATASETUM BUNGEROTHI

setum, Myanthus and Monocanthus. That they were really but one genus was first discovered by Sir R. Schomburgk who found in Demerara flowers of all the three upon one spike, an account of which can be seen in the Linnean Society's Transactions, xvii., 551, and since then a similar spike was produced upon a plant cultivated in the gardens of the Duke of Devonshire at Chatsworth. This peculiarity enshrouds these plants in a great deal of mystery, some of which I have no doubt would have been cleared up by the late Mr. Wilson Saunders had he survived, for he was gathering together a great number of species at Reigate. In a cultural sense these plants are easily managed; they may be successfully grown in pots, but I prefer to grow them in hanging earthenware baskets; they should be well drained, and the plants potted in fibrous peat and Sphagnum Moss. When growing they require a fair amount of moisture, which must be diminished in quantity as the pseudo-bulbs ripen, after which it may be entirely withheld for a short period, but not sufficiently long to cause shrivelling. The flower spikes of these plants come up with the young growths, and the blooms expand about the time that the pseudo-bulbs are about half-formed, so that although they are deciduous plants there is never a lack of foliage with the flowers.

C. BUNGEROTHI, of which a glance at our plate will produce a more lasting impression on the mind than any description, was discovered by M. Bungeiroth in Ecuador only two days before he was struck down with fever. The first plant seen in bloom of this species appeared in Stevens' Sale Rooms, Covent Garden, having been sent there by M. Linden, of Ghent, and the flowering example realised several guineas. At the same time it was showing flower in the garden of Mr. Tautz at Shepherd's Bush, and I have since seen it in several gardens in this country.

C. INCURVUM is a very interesting plant which I have not seen for many years; it is one of the discoveries of Warszewicz, and flowered long ago in the Bishop of Winchester's collection at Farnham Castle; its blooms are large and of extraordinary appearance, green, streaked and spotted with dull purple.

C. MACROCARPUM and its varieties used to exist in quantity in the Kew collection; they produce large and showy flowers; sepals and petals greenish yellow and profusely spotted and dotted with rich brown; lip hooded, rich yellow inside and spotted with crimson.

C. QUORNUS is a species which I recently noted flowering in the nurseries of Messrs. Low at Clapton; it is a handsome kind with tall and erect spikes, bearing numerous flowers that are curiously reversed, the sepals spread out like wings, the colours being green, brown, and white.

C. LONGIFOLIUM is an interesting and pretty species, which I saw last season blooming in the Kew collection; the lip is inverted, resembling a skull-cap, and has long fringes; it is similar in shape to that of *C. discolor*.

C. CHRISTYANUM is a singular species, of somewhat recent introduction. It produces an erect scape, bearing some six or seven flowers, which are large and spreading; sepals and petals chocolate-brown, the pouched lip being green in front and fringed with long brown hairs.

C. SCURRA.—This is a distinct and beautiful species, which is well grown in the collection at Burford Lodge. It is a dwarf-growing plant, and produces waxy-white flowers, which are faintly streaked with green and yield a delicious perfume.

C. BARAQUINIANUM.—An extremely curious plant, somewhat resembling *Christyanum* in form; whilst for green and purple flowers there are

C. ATRATUM AND *C. CERNUUM*.—This latter species I recently noted flowering with Mr. White at Winchmore Hill. Other species of this genus

which I used to grow are *sanguineum*, green spotted with red; *Warszewiczii*, green and very fragrant; *Lansbergii*, green spotted with purple; *Wailesii*, green, and many others. I hope to see this genus well taken up by someone, for Professor Reichenbach says if one "takes *Catasetums* into their stoves, they are sure to become more or less bewitched sooner or later." W. H. G.

FRUIT GARDEN.

THE VINERY FOR THE VINES.

How often are disappointment and failure with Grapes brought about through not keeping the real object of the vinery uppermost in the mind. If the ambition of the owner or gardener is to grow Grapes in the best form, the house must be mainly devoted to their culture; but, on the other hand, if the Vines are only grown as ornamental climbers, and a few middling bunches of fruit are all that is looked for, then a collection of plants may be grown in the same house. Of course, there are many things which can be accommodated in a vinery at certain seasons without materially injuring the Vines or affecting the crop of fruit. The evil is to be found in the practice, so often persisted in, of making the vinery a receptacle for all kinds of plants, clean and unclean, and generally double the quantity there is room for, the inevitable result of such a proceeding being Vines covered with mealy bug, thrips, red spider, &c.

Any plants which are subject to these pests ought not to be admitted to the vinery; anything of a suspicious character should be minutely searched before being taken in, lest, perchance, mealy bug may be lurking upon it, for far better would it be to burn any such subjects than to run the risk of introducing them. Such examination may seem tiresome and occupy considerable time, but it will be repaid tenfold, for only those who have had to carry out the arduous operation of eradicating this pest when once established can realise the amount of time it takes, not to mention the injury resulting to the Vines from the constant use of insecticides, scraping, scrubbing, &c.

The temperature and atmospheric conditions which are favourable to the Vines when being started are equally suitable for many other things requiring gentle forcing. These conditions, so far as the plants are concerned, do not last long, and they should all be cleared out before the Grapes come into bloom, unless the house is very lofty and the side and front lights high, in which case such things as Ferns, Palms, and similar plants may be allowed to remain. We often read glowing accounts of Vines and plants succeeding wonderfully well together, but the failures resulting from such a combination far outnumber the successes, which can often be traced to some exceptional circumstances in the position or construction of the house. If the production of good Grapes is the object, everything must give place to the Vines during the greater part of the year, and every inch of glass surface, whether roof, sides, or back, where light can be obtained should be utilised for extending the summer growth of the Vines, because the greater the spread of foliage, the better will be the Grapes.

The roots also claim the same attention. Whether provision is made for them outside or inside the vinery, the first consideration should always be to encourage the formation of roots near the surface of the border, and to preserve and feed them when there.

With such a purpose always in view, the cultivator must resist any temptation to use the

outside border for growing any other plants, because such a practice can only result in depriving the Vines of their most valuable roots, as well as robbing them of nutriment, every particle of which contained in the necessarily limited space allotted to them should be conserved for their exclusive use. If an outside border is objected to as being unsightly, provision can be made for the roots inside the house, and in that case the presence of plants in any quantity will be prejudicial to the roots, as the constant drip from the watering required by the plants will in time destroy the fertility of the soil, and also impede the necessary operations and attention to the roots of the Vines.

In penning these remarks I have in mind principally amateurs, who so often ask the question, "What is wrong with my Grapes?" or "Do come and look at my vinery and tell me what to do." Invariably it is a case of neglect. The care and attention which should have been bestowed upon the Vines have been given to other things; the Vines having struggled on for a time, have become a source of annoyance and disappointment.

Let me, then, impress these points upon the above class of your readers, and if they will grow plants in their vineries, let them be thinly disposed, and of a class not subject to insects. Palms and Ferns are suitable. All kinds of Dutch bulbs are amongst the best things to grow, also other bulbous plants, such as *Amaryllids*, *Vallotas*, &c. Soft-wooded plants, such as *Fuchsias*, *Begonias*, *Marguerites*, &c., may be grown in the vineries in the autumn, when the Grapes are cut, while the house may be made gay for a time with *Chrysanthemums*.

Hindlip.

A. BARKER.

FRUIT PROSPECTS.

PRESENT appearances indicate that Pears, Plums, and Cherries will bloom almost simultaneously, and generally very profusely. The blooming period will be unusually late, even with warm weather intervening. Certainly the bloom in the kinds of fruits named can hardly be general until the end of April, and probably we shall be even into May. With such late bloom there should be little danger from frost, whilst the sun's power will by that time have become strong and helpful to fertility. Last year we had on many Apple trees a wonderfully profuse bloom and few fruits. That is no uncommon feature, as excessive blooming does not by any means always result in abundant fruit crops. It will be a disappointment to find the same feature on Pear trees that are at present full of promise, for many are set with buds to an unusual extent. We are sometimes advised to thin out fruit bloom, but none can tell which is and which is not fertile until the fruit is set. It is not so very often that on outdoor trees the fruit set is too large; but if it be so, thinning is perhaps best left until that fruit is fairly developed, when the weakest may be removed ere it has begun to distress the tree. However, it is a rare occurrence that Pears set too thickly as standard, pyramid, or bush trees, and whilst Cherries are never too thick, Plums can be thinned readily if found needful. Of tall or pyramid trees on Pear stocks, I note *Alexandre Lambre*, *Urbaniste*, *Huyshe's Victoria*, *Swan's Egg*, *Nouveau Poiteau*, *Beurré Diel*, and *Beurré d'Amanlis* will bloom with great profuseness, whilst almost the only kind thin of bloom buds is *Williams' Bon Chrétien*, which fruited well last year. *Marie Louise* on the Quince will also bloom very freely; indeed, the heat of last summer should make the present one a great *Marie Louise* year. No doubt, for the same reason, Pears generally will set well, provided their long retardation through the coldness of the spring months has not impaired the fertility of the fruit organs. The buds on Cherries are wonderfully plump, and should lead to a fine fruit crop. Whilst the condition of the season of last year singularly favoured the production of well-

ripened wood and stout fruit spurs, the present spring in checking bloom development until a genial time should make the work of the previous year presently perfect. Certainly if such favourable combinations do not lead to abundant crops, it will be difficult to look forward to any better luck in future years. It is difficult to forecast the probable product in bloom on Apple trees, and the buds plump up very slowly. Now and, then, when the trees are seen with a blue cloud for background, the woody tipped points of the buds seem to be plentiful. Evidently we shall be pretty near the middle of May ere the lovely Apple bloom bedecks our orchards and gardens, affording delicately hued tints, the which few trees give in greater profusion or beauty. The season's Apple produce will probably be a moderately good one, and on the whole, and for many reasons, we could hardly wish for a better, as too big a crop of Apples seldom proves a profitable one.—A. D.

— On all sides we hear of an abundance of bloom on the Apricot, Peach, Cherry, Plum, Apple, and Pear trees, the only failures being due to the birds. The latter appear to have been more destructive among the buds than usual, the bullfinch being the greatest offender in this respect. Apricots under glass copings and blinds have already set their fruit thickly, and the Peaches are nearly past the most critical stage. Jargonelle and other Pears will soon be gay with bloom, and the Plums are well advanced on the walls. The bush fruits are also showing well, and altogether, as far as we are concerned, the prospect of good fruit crops was never so promising as now. Everything depends upon the weather, late frosts being our greatest dread.—I., *Somerset*.

TO FRUIT GROWERS.

I SHALL be much obliged for information on the following points, and I make my request known at this particular time in the hope of inducing fruit farmers, amateur fruit growers, and gardeners to carefully observe and accurately note during the present season :—

- (1) The dates of blooming of the various kinds of Apples, Pears, Plums, and Cherries under their care, of which they know the correct names, for on accuracy of names much of the value of the observations will depend.
- (2) The dates on which frosts occur during the blooming period, the degrees of severity and duration of such frost, and their effect on the blossom of trees respecting which observations may be recorded.
- (3) The crops borne this year by the several trees under observation.
- (4) What varieties of the above-named fruits are least affected by the spring frosts.
- (5) What varieties are most injuriously affected by the frosts.
- (6) Whether the early or late bloomers bear the best crops of fruit this year.

Anyone who has made notes on these points, or any of them, in previous years will lay me under a great obligation by communicating them to me.

I am collecting this information for the purpose of testing a theory I have formulated on the subject of hardy fruit growing in this country, and I will publish it in this journal as soon as I am able to collate the several answers I may receive.

Gentlemen who may favour me with answers to the above questions will please state the exact locality where their observations are made, and if they are able to give precise information as to the crops borne in former years by the trees under observation this year, or others of the same variety, the information will be most acceptable.

EDWARD W. BADGER,
Mosley, near Birmingham.

Apple Ribston Pippin.—This favourite old Apple is now very seldom planted, and, indeed, there would seem to be a growing idea that it is likely to be altogether superseded by newer varieties.

If, however, it would flourish in all soils and under all conditions, as it does at Painshill, there is every probability that it would still be the Apple of Apples. It invariably crops well at Painshill, and last season (by no means a favourable Apple year) the yield was so great, that this one variety was in constant use for dessert for nearly four months. The trees in question are magnificent specimens of espalier training, and are apparently of great age; they must be from 30 feet to 40 feet in length, quite 6 feet high, and with stems as thick as those of standard trees. They are growing in the walled kitchen garden, not many feet above the level of the river Mole in a deep, black, rich-looking soil. I imagine from their appearance that they make very little annual growth; certainly there was very little made in 1887; but they are literally loaded with fruit buds, and must be a very pretty sight from the time the buds expand until the fruit is gathered. The conditions under which I find these espaliers flourishing are almost identical with those under which all the best trees of Ribston, either standard or espalier, that have come under my notice are growing, and are a proof that this particular variety is seen at its best in a deep rich soil—in fact in old kitchen gardens where the ground has been thoroughly well worked for many years. Where its cropping qualities are satisfactory there is no doubt that the Ribston must stand at the head of any Apple list, and now that the selection of high class fruits is coming prominently to the front, I thought the trees in question might be worth notice.—E. BURRELL.

THE WHITE WINTER GUAVA.

WHEN the many species of the genus *Psidium* shall have received the attention and development from tropical and semi-tropical pomologists that the Apple, Peach, Pear and Strawberry have received from those of colder climates, fruits will have been produced that will almost put to shame Oranges, Pine-apples and Mangoes, three almost incomparable fruits. Of the fifteen or twenty described species of this genus but three or four are as yet cultivated to any extent in Florida. Two of the more hardy species are occasionally met with, *P. Cattleianum* and *P. chinense*, and, in fact, of late their culture is receiving considerable attention, the plants of the common species having suffered so during 1886. *Psidium Cattleianum* is known as the Cattle Strawberry and purple Guava; it is thought by most authorities to be a native of Brazil, though it is certain that it was first introduced to England from China, and thus it seems to have reached China before its introduction elsewhere. *P. chinense* is known as the commercial, Chinese, and yellow Cattle Guava. In foliage it resembles the Cattle, though the fruit is yellow and larger than the purple or claret-coloured fruits of the Cattle. *P. cujavillus*, *P. guineense*, *P. polycarpon*, *P. peruvianum*, *P. Araca*, and some others have recently been introduced into the State, but the white winter Guava is a variety of the species *guaiava*, the *P. pyriperum* of Linnæus. The species *P. guaiava* (including both the *P. pomiferum* and *P. pyriperum* of Linnæus) includes the hundreds of varieties of the common Guava of South Florida. The first introduction of the common Guava to South Florida dates back to 1844, when Col. H. V. Snell brought the fruit and seeds from Cuba to Sara Sota and Mantee, on the Gulf Coast. Since then, other varieties of the same species have been introduced, and have originated from the seed, until to-day there is practically no end to the red-fleshed, white-fleshed, green-fleshed, yellow-fleshed Apple, Pear, Strawberry Guavas, and others of every conceivable grade of sourness, sweetness, seediness, size, and often of real excellence, that may be met with in the southern counties of the State. The white winter is one of the best known of these varieties, and has usually been propagated from the seed.

The Guava is large, somewhat pyriform, averaging 3 inches in length and 2½ inches in transverse diameter; colour, pale yellowish white, both outside and in; seeds comparatively few; pulp quite firm and solid. The fruit is still more valuable, as it ripens in winter. The season for

most of the Guavas is June to October, but this ripens from November to February, and is the only variety we have at present that never fails in this unusual characteristic. (Does not this fact point toward an origin further south than our common varieties—on the other side of the equator, at least?) The jelly prepared from the white winter Guava is prized for its beautiful clear light colour. In flavour it is rather inferior to that produced by our best summer ripening varieties.—P. W. REASONER, in *American Garden*.

HARDY FRUITS.

IF a cold, dry, late spring is favourable to full crops of fruit, our prospect so far is extremely promising. There is, however, a happy medium in all things, and experienced fruit growers generally, whilst dreading extremely early and unusually late seasons, have proved over and over again that trees which swell their buds on steadily without receiving a check always mature the best crops of fruit. Buds upon trees of all kinds are plentiful and fine; moreover, they are thoroughly ripe, but a persistent north-east wind which has been blowing up heavy snowstorms for the past two months is keeping back the sap, and when this happens, although we may not have a single killing frost, the finest and most forward blossoms open imperfectly. Petals in abundance there may be, but unless the delicate organs are perfect and pollen is plentiful, fertilisation becomes impossible, the flowers make a great show and remain a long time apparently satisfactory, but eventually fall from the trees. I do not wish to discourage the most hopeful, as I believe fruit trees generally are in the most satisfactory condition, but the sooner these bright, hot days followed by unusually severe frosts at night give way to more genial weather, the better will be the outcome of this exceptionally promising season. Protection, as a matter of course, is now in position over the wall trees, and the dry atmosphere is greatly in favour of the flowers, which, by the way, should not be rendered tender and weak by too much coddling, as often happens when light and air are excluded by permanent fixtures. If kept perfectly dry the flowers of the Apricot and Peach will stand many degrees of frost with impunity, but it is after driving storms of rain and sleet that they suffer most; therefore, the wind being constantly in the north or north-east, the broad coping board, often a host in itself, should be the first consideration. When this has been fixed, the breast covering, especially if permanent, cannot be too open and airy, and for this reason, independently of the great saving in daily labour, I always give preference to a front covering composed of three or four thicknesses of fishing nets dropped loosely from the edge of the boards and secured to the slanting poles about 2 feet from the ground. Under a covering of this kind, although we have had as much as 13° of frost, I believe every blossom is safe, and Apricots are setting freely. Peaches here, with the exception of A. Bec, are not yet in flower, but the trees in another week will be one mass of bloom, as we have not lost a single bud by dropping, a certain proof that ample autumn watering is the best, if not the only preventive. I do not object to opaque and comparatively airtight coverings, but being expensive at the outset and requiring so much daily attention, I am constrained to warn the amateur against their use, unless he is able to lift every morning and let them down again at night. Upon the same principle I object to the use of evergreen branches tucked or tied in, as they destroy a great number of buds by chafing, whilst others which escape this ordeal, becoming extremely tender, often get cut off late in the season.

Work upon wall trees generally for the next two or three weeks will be light, but vegetation as soon as the wind changes will be rapid, when disbudding, pinching, and war with insects will keep all hands fully occupied. The Apricot, being the first in leaf and fruit, claims our earliest attention, especially where young trees are trained upon the extension principle, and vigorous shoots laid in this season are expected to fruit freely the year following. To

secure thoroughly ripe wood well set with flower-buds, all foreright shoots should be pinched and repinched very early, and many of the side growths may be removed altogether. Those left will then furnish young wood for laying in, whilst the remainder by constant pinching will form a second string to the grower's bow in the production of neat little flower spurs close to the wall. Apricots, as a rule, are allowed to make too much early summer growth, which impedes the action of the sun upon existing spurs, when these as a natural consequence do not get properly ripened, and although they may flower freely they fail to set their fruit. If timely thinning or disbudding received attention and the trees were treated partially, if not entirely, upon the lines practised by Peach growers, a precocious fruit like the Apricot should and would ripen every flower-bud, which would develop into a perfect flower, that is to say, always provided the roots are most liberally supplied with water throughout the late summer and autumn. Next as to the fruit, which frequently sets in clusters, early thinning is not only advantageous, but absolutely necessary, otherwise it grows flattened and deformed, wanting in size, and deficient in flavour. The last point to which it is now necessary to direct attention is watering. It is well known that many fruit tree borders did not get half enough of this element last season, and it is just possible the lower stratum of soil in some gardens may still be only fairly moist. Should this be the case this defect must be corrected without delay, but before water is given it may be well to stimulate the surface roots of trees carrying good crops of fruit with a dash of bone meal, guano, or short manure, as it is only by keeping these well fed that fine fruit can be secured.

PEACHES,

as I have just remarked, never looked more promising, and bad indeed must be the weather if crops are not quite as good as they were last year. Timely thinning not only of fruit, but of undeveloped flowers is a most decided help to the trees, as we always find those moderately furnished setting freely and swelling up the finest fruit. Had we an extra early flowering season it might be prudent to forego bud-thinning, but when this stage is retarded until the middle of April, the chances are greatly in favour of the spring, hitherto swallowed up by winter, bursting into summer, when every flower left upon the trees will set. General thinning, bud by bud, is a tedious operation which does not pay, but when it is borne in mind that the fruit upon walls, as in houses, should always stand point upward, the removal of thousands of the least promising buds from large trees may be accomplished in a few minutes by drawing the finger down the under side of each well-furnished shoot. The disbudding of Peaches is a very pleasant operation, especially when they are well set with fruit; but the work should be performed piecemeal and not too early; indeed, on no account should a great number of shoots be taken off or pinched even until we have a thorough change to mild-growing weather. As Peaches receive more attention than is usually accorded to Apricots, there is less danger of the roots requiring water or stimulants; still, where root-lifting and relaying in fresh compost are not regularly performed, this matter when the fruit is set should be looked to. I never have occasion to give them anything stronger than a good top-dressing of old lime rubble and a little fresh stable litter, as I see the points of the roots every autumn and give them plenty of heavy calcareous loam, which answers better than manure or liquid.

CHERRIES AND PLUMS,

where the latter have not been attacked by birds, are unusually promising, and most likely will require much thinning. Insects also after so much cold, biting weather will spring into life as soon as there is a leaf for them to feed upon. Black and green-fly in many gardens give a great deal of trouble, and will continue to do so so long as the simple preventive measures so often recommended are neglected. Soap-suds cost very little more than the fetching from the laundry, but in how many places, whilst the wall trees are eaten up with Lichen and Moss and Morello Cherries are de-

voured by black fly before the fruit is fairly set, are they allowed to run down the drains to pollute some pond or stream when their application to the trees and walls would economise labour and ensure good crops of fruit. It is now getting late for dressing early trees, but so long as the flowers are undeveloped this excellent manurial insecticide may be applied with perfect safety. Not long since we read in THE GARDEN a glowing account of the exceptionally clean, healthy, and fruitful trees at Broadlands, and learned from the writer that soap-suds, which really cost nothing, kept all in order. Next to freedom from insects and parasites, a robust growth stands prominent as a preventive; therefore, much as many doubt its efficacy, there is no getting away from manure judiciously used as a mulch for well drained borders.

PEARS

for some weeks past have made very little progress, and this is to be regretted, as I never saw the blossom more abundant or promising. Neither from long experience have I been particularly impressed with the kind set which follows such tardy development. Pears just now occupy such a prominent position in all pomologists' minds, and it is to be hoped the varieties so far selected will forthwith prove themselves worthy of the time and thought devoted to them. Like all other wall-trained trees, they derive great benefit from the sheltering influence of broad copings and a few folds of netting, whilst retarding the opening of the flowers exercises a beneficial effect in breaking driving storms of rain and sleet into fine spray which falls short of the wall when otherwise they would cut the blossoms to pieces. Nets, again, are useful all the year round, for no sooner are the wall trees safe, than Strawberries, Cherries, and bush fruits require protection from our covetous feathered marauders. Frigid domo and other heavy opaque coverings, on the other hand, must be lifted or drawn aside every morning and replaced at night, and nine times out of ten they are snugly furled when driving storms by day are quite as disastrous as sharp, dry frosts by night. Moreover, the flowering season over, they are stored away and lie useless for eight or nine months in the store room.

BUSH FRUITS

are unusually promising, and, all going well, the crops will be enormous. There is, however, time for many a slip after the fruit is safe from frost, especially where steps have not been taken to eradicate the larvæ of the caterpillar. Out of sight, out of mind, these pests often lie snug, biding their time just beneath the surface of the soil at the foot of the trees. But why submit to annual devastation, when by clearing away and burning an inch or two of the old, dressing with quicklime, and then replacing with new compost, the bulk, if not the whole of the brood may be destroyed? Here, again, the soap-suds come in, first as a wash for the trees and walls, second as a destroyer of Moss, so troublesome on north walls, and last as an excellent stimulant. This work is best performed during the dead months, but it is not yet too late to go through the operation with care, as I frequently repeat the wash down to the end of April. Several correspondents have disapproved of the use of nets for the protection of Gooseberries from bullfinches, and some have kindly recommended lime, soot, alum, and other preventives to me. All of these, over and over again, I have tried, but to no purpose, and my only safe and sure protection is netting. Our bullfinches are most energetic, but they do not care for nets, which, before these lines appear in print, will have been removed from quarters of trees carrying every fruit bud. Hawks, owls, and other useful maintainers of the balance in the feathered world have been destroyed by ignorant gamekeepers, and many gardeners, I am sorry to find, now advocate and practise killing the finches. But why destroy these handsome and useful friends, when a net strained above the trees for two months is more effectual? Fruit is a necessity and must be forthcoming; but we do not live to eat; we eat to live; therefore gardeners should look beyond their own little world and not attempt to reduce this island to the silence of the Dead Sea, especially

when our two-months foes and ten-months friends can be circumvented. Near this garden we have a large Wych Elm, capable of feeding throughout the spring all the bullfinches in the district. It is, however, too near, as they pounce down when they require change of diet. It is, nevertheless, the tree to plant not only for profit, but also as a decoy. Therefore, whilst naturalists are considering their reply to my recent query, I would suggest its introduction into every wood and bird-infested district.

RASPBERRIES AND STRAWBERRIES. — If not already done, the beds should be cleared of weeds, dressed with soot, and raked over to work the autumn mulching well into the stools. The first, manure being plentiful, may then receive another dressing, as the crop is sure to be heavy and good. Raspberries cannot be grown without an abundance of rich food and moisture. Strawberries, especially old beds, after being dressed with soot, should have the compost or manure which has been lying in the rows throughout the winter carefully worked into the centres of the stools, as it is in this particular part of the bed that slugs and snails find shelter. Moreover, this earthing up of the base stems induces fresh surface roots ready for action by the time the fruit is set and requiring a quick and liberal supply of food. Old beds on light soils will take two dressings a year of good rotten manure, pure and simple, but heavy loams give the best flavoured fruit when composts consisting of fresh turf, lime rubble, and the refuse from renovated Vine and Peach borders are used. Young plants put out last autumn, owing to the drought and heat of the soil, have not made the progress we usually note after dripping seasons. I waited a long time for rain, but, disappointed, I planted and watered frequently, and yet the foliage dwindled away upon some varieties to an extent which led me to think I should have to replant. The roots, however, were better than the tops, and within the past ten days quite 90 per cent. have commenced growing vigorously. These we are now treading firmly to force back the soil lifted by the frost, and forthwith purpose mulching with the shortest part of fresh stable manure, the longest being reserved for the fruiting beds. The littering down of fruiting beds forms the keystone of success, but, unfortunately, it is too frequently delayed until the plants are in full leaf, and sometimes in flower, when, as a matter of course, the work takes more time and cannot be so efficiently performed. Now is the best time to put down the litter, as it then gets washed and bleached, and in the meantime affords a great deal of shelter to the rising scapes and tender foliage. Young Strawberries of home growth, it is needless to repeat, may be planted at any time when the weather is favourable, but April and May are the best months for spring planting. These, then, should now be put out upon heavily manured and deeply trenched ground, rammed and beaten as firm as an old pasture field. As these cannot be expected to give much fruit, single lines of Cabbage, Lettuce, and autumn-sown Onions may be pricked out between the rows, but unless vegetable ground is limited I do not recommend the practice. A correspondent a short time ago advised putting out forced plants for giving very early runners, and I must give him credit for having been more successful with these than with maiden plants of the preceding autumn—plants, indeed, put out immediately after these very forced, enervated, and possibly insect-infested plants were potted. Over and over again I have tried forced plants, which require no end of watering, and then the maidens have beaten them by weeks in starting runners and beyond conception in quality.

FIGS ON WALLS.

If these have been well managed pruning will hardly be necessary, but still it will be necessary to overhaul them and cut out any shoots that have been injured by frost. Also, as nailing in is proceeded with, a few shoots may require shortening back to secure a relay of young wood in various parts of the trees. Non-protectors do not, as a rule, lay all their wood in close to the walls, but work for a quantity of short-jointed breastwood, which stands out at right angles from the main

stems. This it is necessary to thin out to let in sun-heat and light, otherwise the sun-heat, which should be absorbed and held for a time by the brickwork, is lost and the fruit is late in ripening. If these superfluous shoots are cut back to a single

England and in sheltered nooks in Scotland do well as standards, and give no trouble whatever. In other places they require more care and only succeed under judicious management. W. C.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Calophaca wolgarica.—This is a common shrub in gardens, but not of much importance. It is dwarf and deciduous, has elegant leaves, and bears in clusters a quantity of yellow pea-shaped flowers, succeeded by reddish pods. It is generally grafted high, mop-headed fashion, on Laburnums, but its natural trailing growth is best. It is suitable for planting in the bold parts of a rock garden. Good for dry, gravelly soils. Native of South Russia. Pea family, Leguminosæ.

Calycanthus (Allspice Tree).—A North American shrub, having handsome flowers and

more curious than beautiful, but as they are commonly included in nursery catalogues they demand a notice here. They are all natives of Northern Asia, and hence perfectly hardy and readily propagated by seed. These and similar shrubs of the Pea family have their uses, being excellent for clothing dry sunny banks where few other shrubs would exist.

Cardiandra alternifolia.—A Japanese shrub not much known yet. It is allied to Hydrangea, is evergreen, and bears white and purple flowers. It is rather tender, and requires the protection of a wall.

Cassandra calyculata (Leather Leaf).—A modest little evergreen shrub (see illustration) with small leathery leaves on wiry branches. It bears in early spring numerous tiny wax-like, white flowers, like those of some of the Andromedas. It grows wild in various cold



The Carolina Allspice (*Calycanthus floridus*); flowering branch.

eye the young growths must be encouraged, but not pinched, unless they become unduly gross, as it is from these the next year's crop will be gathered. Protectors who succeed in low-lying districts where non-protectors would fail must now watch the weather-vane and the barometer, and when the wind gets into the south or west they may commence uncovering. They need not, however, strip all off in a day, but remove the Fern, which is better than straw, piecemeal, and when this has been cleared away, the young shoots must be nailed in 9



Fruit of Carolina Allspice (*Calycanthus floridus*).

a pleasant aromatic fragrance. There are several so-called species or varieties, but two only are common in gardens. These are *C. floridus*, commonly called Carolina Allspice, and *C. occidentalis*, or Californian Allspice (see illustrations). *C. occidentalis* is a shrub growing from 6 feet to 8 feet high, of a dense globular habit, and bears large flowers of a rich maroon-crimson and powerfully fragrant. *C. floridus* is a smaller shrub and not so dense, with purplish red strongly-scented flowers. The names enumerated in catalogues, such as *C. glaucus*, *laevigatus*, *oblongifolius*, *macrophyllus*, represent forms or varieties of either the eastern or western species. The two described are perfectly hardy shrubs, the Carolina species having been grown in gardens since 1757, while the Californian Allspice has been in cultivation for over fifty years. Their place in a garden is near a moist and shady walk, not in the open shrubbery, as they flourish best when overshadowed by other trees and where the ground is damp. They are both found growing wild near streams and wet places. *C. occidentalis* is quite a select shrub, and worthy of cultivation in every garden. It requires ample room to spread.

Caragana (Siberian Pea Tree).—Several of the Caraganas are found in gardens usually as mop-headed shrubs grafted 4 feet or 5 feet high. All have pinnate foliage and Pea-shaped flowers of various shades of yellow. The commonest and most ornamental species is *C. arborescens*, which when covered in spring with numerous clusters of bright yellow flowers is very showy. Other species are *C. Chamlagu*, *frutescens*, *spinosa*, *Altavana*, and *jubata*, which for the most part are stunted-looking spiny shrubs



The Leather Leaf (*Cassandra calyculata*).

countries, and does best in damp situations in peat soil. It belongs to the Heath family.

Catalpa.—As a lawn tree the Catalpa is most valuable, as it flowers in August and September when other trees and shrubs are flowerless. Though its growth is somewhat formal, its foliage is large and handsome, and of a paler tint of green than that of most other trees. It is a medium-sized tree, its average height in this country being from 20 feet to 30 feet. When



The Californian Allspice (*Calycanthus occidentalis*); flowering branch.

inches apart and close to the wall. Figs cannot be kept too dry in winter, but, like all succulents, they enjoy good liquid food in summer, especially where the roots are shortened annually and kept near the surface of warm borders. Figs in many parts of

fully grown and flourishing, the *Catalpa* produces a copious crop of flower clusters regularly every August, and the white flowers spotted with purple and orange have a charming appearance. The commonest and best *Catalpa* is the North American *C. bignonioides* (also called *C.*

hardy, are of less importance. All the *Catalpas* thrive best in moist ground and in a sheltered situation, while the common kind may be even planted at the margin of a lake or stream, where it flourishes best, though more liable in such spots to be injured by severe winters.

being generally done by layering. Introduced from Japan during the last century.

CAMELLIAS OUTDOORS.

It is somewhat surprising to find "W. G." amazed at the hardness of the *Camellia* as evidenced at Bagshot, where he saw a number of young plants growing in the open air. After so much has been written from time to time with respect to the admirable way in which *Camellias* grow as ordinary hardy evergreen shrubs at Glen Eyre, Southampton, I had thought it was now an accepted portion of a gardener's creed, with regard to *Camellias*, that they may be treated as hardy plants. If nurserymen have been slow to adopt this view, it has arisen probably because these plants are invariably grown



Catalpa bignonioides; flowering shoot.

syncingæfolia), as it is thoroughly suited to our climate, having been in cultivation for 150 years. *C. speciosa*, a newly-discovered species, native also of North America, is said to be much hardier than *C. bignonioides*, and bears larger flowers earlier in the year. It has not been thoroughly proved in this country, though young trees of it give every promise of fulfilling the description given of them. The golden-leaved variety of *C. bignonioides* is an effective plant if kept in a

Celastrus scandens (Staff Vine).—An elegant, shrubby climber, native of North America, and allied to the Spindle Tree (*Euonymus*). It is valuable solely on account of its rapid twining growth, which is excellent for trailing over trellis-work, arbours, &c. It is also beautiful when allowed to spread itself on a lawn or run over other shrubs and trees to a height of 12 feet or 15 feet. The flowers are inconspicuous, but the fruits are orange-red, like those of the Spindle Tree. It flourishes best in a moist, loamy soil.

Chimonanthus fragrans (Winter Flower).—Every garden, large or small, in town or country should possess this shrub on account of the delicious fragrance of its modest flowers, which it bears profusely throughout the winter before the leaves appear. One good tree against a sunny wall will yield an abundance of bloom, which may be picked and placed in saucers of wet sand. A few blossoms will perfume a large room. As a shrubby bush it succeeds well in warm, sheltered spots, but, generally speaking, it requires a wall to do it justice. It is so familiar that there is no need to describe it. The variety *grandiflorus* is most generally grown in preference to the original, because of its larger flowers, but some think it less fragrant. There is a variety also, called

luteus, having the flowers wholly yellow. The only attention it requires when grown against a wall is an annual pruning, which should be done in early spring after the flowering season is over. The aim should be to train as many new shoots to the wall as possible, as these bear the bloom. It is not an easy shrub to propagate,

The Winter Flower (*Chimonanthus fragrans*); flowering branch.

in pots under glass, and they have catered for that method of culture accordingly. "W. G." is correct in praising the beautiful leafage of *Camellias* out of doors. That of no other evergreen shrub can excel



Foliage of *Catalpa bignonioides*.

low state by annual pruning. It is then suitable for associating with other fine-leaved plants of sub-tropical aspect. *C. Kämpferi* and *C. Bungei*, natives of Japan and China, are a good deal like *C. bignonioides* in growth, but not being so



The Staff Vine on lawn (*Celastrus scandens*).

it in colour and glossiness. These plants in the open never make new growth until the spring frosts are over, for, as a rule, the plants bloom in April and May, and at Glen Eyre very strong ones grow

ing quite exposed to wind, weather, and sunshine flower gloriously. Several years since, when last there, I saw a number of Camellias freshly planted, the older ones having done so grandly as to encourage further planting, and of other kinds. Of older sorts, the Old Double White, Double Striped, Lady Hume's Blush, Mathotiana, and others I cannot well remember were all strong plants; indeed, the specimen Old Double Striped standing on gravel, near the conservatory, was then some 15 feet or 16 feet through. Of all the fine plants, some standing singly, some in beds, and some intermixed with other shrubs, not one was ever protected; indeed, at Glen Eyre it is a firm belief that Camellias are hardier even than Laurels. The soil generally is of a semi-boggy or dark peaty nature, rather poor, suiting the Pinus family very well, but wanting deepening and manuring for good shrubs, Camellias included. Where so many bushels of flowers may be cut in the spring, it is thought to be of little moment that some few may have been whipped by the wind or burnt by frost. If nurserymen had treated Camellias as genuine hardy plants, no doubt others would have been induced to plant them as ordinary shrubs long since. But when they have always been treated as greenhouse plants, there has naturally been much timidity shown in trusting them to the tender mercies of our winters, which after all seldom harm hardy plants. At Glen Eyre, when Rhododendrons and Laurels have suffered, the Camellias have come through unscathed, because the summer shoots are made later than are those of Laurels; the spring frosts rarely affect them, whilst of the old wood none of all shrubs is hardier. Now that the plants are being grown out in the open ground from the first at Bagshot, possibly gardeners may be induced to obtain them and plant outdoors with more confidence. Plants crammed into pots, especially after the roots have become hard set, are rarely the best fitted for planting out, and yet such as these have so far chiefly found their way into the open ground, rendering their establishment all the more difficult.

A. D.

FLOWER GARDEN.

NOTES ON NARCISSI.

WE are in the midst of the Daffodil season, and as these flowers of the spring are before us, a few notes respecting them will be opportune. At page 366 of THE GARDEN for April 21 occurs a paragraph in reference to Primroses that may be applied with equal force to the Daffodils:—

The number of so-called hybrids seems to be still on the increase, promising, sooner or later, to give our Primula growers considerable trouble in order to distinguish them.

This is unfortunately the condition in which the race of Narcissi is in at the present time; indeed, it is far worse, as hybrids have increased at such a rapid pace, each having a separate designation, though showing a distinction in degree only, that to attempt to keep up an acquaintance with even the majority of the forms is an impossibility. This is, doubtless, the outcome of a genuine enthusiasm, but it is not the best way to keep burning that ardent love for the Daffodil that was once manifested. Already the interest in the great army of forms that has flooded the garden is declining, and no wonder, when every week at the present season brings with it flowers that are thrust upon us as distinct when they show no more distinction than is to be found in a mass of the wild Daffodil in an English wood. True, they may differ slightly in the shade of colour or the length of the chalice, but yet it is the self-same species, and such variations when so near to the typical parent should never receive special distinction. It is the same with many other classes of plants, even the Orchids, which in certain genera

are becoming very much mixed, through the ill-advised nomenclature now in vogue and the naming of everything that shows a difference. I speak from experience in the matter of Daffodils, as I once had a complete collection, comprising about three hundred sorts, and in almost all the sections—Trumpets, Tazettas, &c.—there was such a similarity, that it was impossible to tell some of the flowers apart when bunched together.

I once showed twelve varieties of the same group bunched, and asked an authority to pick out which were distinct, and it was impossible for him to do so. Why? simply because the whole expressions of the flower were identical, and only by close examination we could perhaps tell that one had narrower segments and one not of quite such a depth of yellow as the other. We have a Narcissus committee, which is doing a much needed work in the sifting out and classifying the Daffodils, but it is hard to stem the tide that flows so rapidly, and if matters grow worse than they are now, I shall give up in despair, and treat new comers with contempt. I am too great an admirer of the Narcissus ever to keep it from my garden, but only those varieties that have obtained a reputation for their distinctness, beauty, and decided colours shall ever have a place in it. It is impossible for the amateur who has not several acres in which to enjoy his gardening pursuits, even though he may be a Daffodil enthusiast, to grow more than a small selection. One of the best of trumpet varieties, although old, is bicolor Horsfieldi, and now, even though dozens of forms have come before the public since then, is unsurpassed for boldness of form, rich colour, and brightness. And again, we may say the same of Empress, Emperor, maximus, pallidus præcox, the Tenby Daffodil, poeticus ornatus and the type, basket Daffodils, and a few others, but it would not require much space to give a list of Narcissi that are really worth cultivating for their genuine worth. In many nurseries only a very limited number indeed is grown, as it is found that there is comparatively little demand, except for a certain few, while it shows the good sense of the British public in really caring only for such kinds as do present noble characters. From the advent of the early pallidus præcox to the fading of the last bloom of the Poet's Narcissus, it is possible with only a few sorts to have a gay succession of Daffodils sufficient to satisfy all ordinary lovers of the flower.

And it is not only that we seem to show no discretion in the multiplication of Narcissi, but in the raising of the many double varieties we are spoiling a flower at once natural, beautiful and elegant, substituting in the place of such exquisite sweetness an unpardonable vulgarity and coarseness. Every rule has its exception, as there are a few double forms that I admire, but not many. It may, perhaps, be gathered from the above that I am totally opposed to any advance in the way of Narcissi, but let the reader disarm himself or herself of this notion, as there are, and must be, when the work of hybridisation is so extensively carried out, new beauties that we welcome as acquisitions. N. Johnstoni, for instance, is a lovely self flower, very pale sulphur, and distinct, though it has the aspect of N. cyclamineus, yet it is beautiful enough for a permanent place. But against such novelties as this how many are there utterly worthless, and only increasing the perplexity that already exists. We want, as is being done, a thorough purging out of all bad forms, the stopping of the influx of such that are too near the parents, and the increased

culture of Daffodils whose beauty and distinctness are widely acknowledged. X.

The Gladiolus in South Australia.—Several of the Gladioli in my garden this year have, in addition to the usual spike, sent out side branches, which bore about a dozen blossoms equal to those on the main spike; some had two and the majority four of these on one plant. I never take up the bulbs, as the climate here is dry and our rainfall very small, 23 inches being all we registered for 1887. The corms do not suffer in the least. A good top-dressing of rotten cow manure is all the Gladioli get except when they commence to show their flower spikes, when they are assisted with a little artificial manure.—W. B. WEGER, *Adelaide*.

Doubling of hardy Primroses.—In looking over some of last year's numbers of THE GARDEN I find the following remarks on doubling of hardy Primroses from "A. D." April 25, 1887:—

I have not heard of any instance in which any member of the Primula family has, in a wild state, been found with even semi-double flowers, not even a wood Primrose; hence it would seem conclusive that doubling is a product solely of cultivation aided by selection.

On reading this I remembered a case in point which may interest "A. D." Many years ago, I and my children used to bring hampers of wild Primroses from a neighbouring wood to plant them on the banks of a pond near the house. If we returned too late from the wood to plant them the same evening we used to empty our panniers under the shade of some old Oaks and Hollies. A good deal of the wood soil and leaf-mould, of course, was left with them, and in a few years the Grass became carpeted with little seedling Primroses and wood Anemones. One day I and a friend were struck by seeing several plants of fine double sulphur Primroses among the single ones. Now, these were not semi-double even, and they had evidently sprung from a wood Primrose's seed, and had had no cultivation or selection. The spot in which they grew is at some distance from either the kitchen or flower gardens. I think this proves that the double varieties are sports from the single wild Primroses.—YORKSHIRE.

Eremurus.—My collection embraces all three forms of E. robustus, named respectively E. r. elatus, with a flower-spike from 7 feet to 8 feet in height; E. r. intermedius, whose spike rises only to 5½ feet, and the handsomest of the whole family; and E. r. nobilis, whose spike, curiously enough, only rises to 3½ feet, but commences to bloom 18 inches from the ground, the flowers being deep rose colour, and I believe a good deal larger than those of the type. Its foliage is also at least twice as broad as that of the type and exceedingly handsome, so much so, that I think it should be re-named E. magnificus or splendidus, and on this point I have already written to Sir Joseph Hooker. Of this splendid variety only three plants of flowering size are in cultivation, of which I believe mine is the strongest; also the fine pure white species E. himalaicus, also 7 feet high, which I was the first to bloom in Europe, and of which there will be three fine spikes this year. Also the rare pale lemon-coloured E. aurantiacus, which has as yet only flowered once in Europe under glass at the Botanic Gardens at St. Petersburg, when Dr. Regel figured it in his *Gartenflora* for 1884, plate 1168, but his specimen was a very poor one. I expect mine, flowered in the open air from a plant with thirty-two leaves, should be much finer than what he makes it out to be. I think you should give coloured plates of this and E. r. nobilis in THE GARDEN. I also have E. spectabilis, E. Bungei, E. Olgei, which will not bloom till August.—W. E. GUMBLETON.

Early Saxifrages.—The varieties of S. Bursaria, that most charming of all alpine, besides giving a great variety in form, habit, &c., have proved a boon to us in spring in greatly prolonging the flowering season. Commencing with S. B. major and grandiflora about the middle or end of January, we are only now finishing up with a form sent out by the trade as S. B. macrantha. The latter is the most compact of all the forms we know, forming dense tufts of small leaves, which are just now en-

tirely hidden by the pure white flowers. Amongst the yellow-flowered kinds *S. luteo-purpurea* is the first to show. It is a cross between *S. aretioides* and *S. media*, with the flowers of the former and the leaves of the latter. It has, however, a more lax habit than either of the parents, extremely free-flowering, and we find it perfectly at home on the open rockery. *S. aretioides* var. *præcox*, an early form, selected by Paul and Son, of Broxbourne, flowers about a fortnight earlier than the type, though otherwise similar. *S. Tombeanensis*, nearly allied to the above, is always very useful.—K.

THE COMMON PASSION FLOWER.

THE common Passion Flower is *Passiflora cærulea*, and that first introduced into this country was the incarnata of Linnaeus, a native of Virginia, and figured by Parkinson in his "Paradisus Terrestris," who there styles it the surpassing delight of all flowers. The species now grown by us, which from its simple yet gratifying beauty and superior hardiness is now by far the most common, is of more modern introduction, and though a native of the Brazils, only on rare occasions suffers from the severity of our climate, and it blooms plentifully during most of the summer months, and when trained to a wall on a southern aspect will frequently produce ripe fruit of a pale orange colour. There is an excellent illustration of it in the *Botanical Magazine* for 1787—just over 100 years ago.

In the suburbs of London the Passion Flower has been rather freely planted against villa residences, and, as a rule, it does well. It is only in a case of a winter of exceptional severity that it is injured. I find generally that the plants which come through a severe winter most successfully are those that are on the south sides of villas and planted on a gravel subsoil. Even if such plants should, during a time of unusually severe frost, be cut down, the roots and main stem are pretty certain to survive, and a good growth be put forth the following summer. But it is always well to take some care of a fine plant of the common Passion Flower by covering up the roots and main stem especially, and as many of the leading branches as possible, as a precaution against frost. If some hay-bands were wound round the stem, or some loose short hay stuffed around it and covered with a piece of matting or sacking of any kind to prevent the hay being blown about by the wind, the safety of the specimen might be assured. But villa residents appear to be very loth to take even simple precautions to defend plants of a slightly tender character from the effects of frost, and not a few things are greatly injured for want of a little forethought of this character.

But it ought to be mentioned that a specimen planted above a gravel sub-soil is liable to suffer from drought on the occasion of a dry summer. I saw several such suffering in this way during the past summer, and, therefore, a caution is necessary. Remember that such a position is naturally enough very hot and drying, and though the roots may travel for a considerable distance, it is yet essential not only that water be freely given at times, but some mulching be applied also. This is of inestimable benefit during hot weather.

What a sight *P. cærulea* must present to view growing in wild luxuriance in the forests of South America, and is it to be wondered at that the superstitious Spaniards, when they first saw the lovely blooms of the plant, as they hung in rich festoons from the branches of the forest trees, regarded them as a token that the Indians should be converted to Christianity, as they saw in its several parts the emblems of the passion of our Lord. Possibly they saw the flowers of some other species, probably a brilliant coloured one to which Linnaeus gave the name of *incarnata*. R. D.

Crocuses in the Grass.—I have seen it stated that Crocuses are not adapted for naturalisation among herbage. They may not increase under such circumstances, but that they will live I have good proof. About four years ago, having a good many bulbs in various colours that I did not want in the garden, I planted them here and there in an old

hedgerow, where the Grass grows strongly and is not cut until autumn. I had almost forgotten having done so, when a handful of good blooms was brought me from the identical spot. The flowers were quite as good as any produced by my cultivated bulbs. What surprises me is that mice, which so frequently destroy them when in the flower borders, did not touch them. It is probable that where the Grass is allowed to run to seed these little rodents find enough to nourish them without attacking bulbous flowers. Crocuses perhaps more than any flower look best among Grass, which keeps the blooms clean and helps to hold them up against wind and rain. One day's inclement weather will often mar the beauty of Crocuses growing on the bare earth.—J. C. B.

FLOWER GARDEN NOTES.

PREPARING FOR SUMMER.—In places where much bedding arrangement is to be done, it is quite time that designs were decided, or the necessary plants for completion of arrangements may be wanting when planting time arrives. Of course "old hands" are somewhat independent, and care not to decide until planting time, as their long experience enables them to adapt their arrangements to the plants at hand. I, however, still find it necessary to have certain plants most in favour propagated in large numbers; but in all other respects, such as patterns or designs, and colour arrangements, and dispersion of plants generally, they receive no thought till the day planting begins; such is the result of long experience. I warn young hands that they must not attempt to do things in the same offhand manner, but give the utmost amount of thought to every detail of arrangement; then in a few years they may hope to dispense with the note-book and do it as well, nay, probably better, from memory. It may seem curious and contradictory, but it is a fact, nevertheless, that for some years now I have actually found note-taking in respect of summer bedding arrangements positively useless to me, as through my not having any notes I could not remember the previous year's designs and colour arrangements, and therefore could not repeat them. This course I still follow, and as a proof of its efficiency it is no unusual occurrence to hear the remark, "You have quite changed the style of your arrangements from those of last year." But now as to designs, the simpler they are so much the more effectively can they be arranged. Patterns with all sorts of curves, twists and meaningless figures are not only difficult to fill out with plants, but require much attention. Circles, ovals, and oblong forms I most favour, as they can be split up into sections to suit the various colours of plants. Next as to colours, pinks, blues and whites are my especial favourites, and next come lemon or orange, rose and crimson. Of neutral tints, such as grey, glaucous, cream, and green, it is almost impossible to have too large a proportion in conjunction with high, or what I call gaudy, colours. It is only by a free use of these neutral tints as "settings" that I can tolerate such colours at all. Particulars of arrangement shall be given in a later note.

PAMPAS AND SILVERY REED GRASSES.—As plants illustrative of form in British gardens, these deserve a foremost position. The *Arundo* conspicua is the more graceful of the two, the foliage being longer, narrower, and more pendent, and the plumes or flower-heads being light and feathery, remain for something like five months in excellent condition. We have numbers of plants fully 6 feet through with foliage of the same length; and last season I measured an extra vigorous flower-stem which, from the ground to tip, was 9 feet 6 inches. Imagine the grand effect such plants as these have (carrying, as they do, from two to three dozen plumes each) in the landscape and reflected in the water of the lake, on the banks of which they are planted, and in which position they are evidently, by their well-doing, most at home. We have some two or three plants in drier soil, but they make a poor display in comparison with these. Since the *Arundo* has proved so superior to the *Pampas*, both in gracefulness, long flowering, and hardiness, the stock of the latter is not being increased, though it

will be kept by way of variety. It has one advantage over the *Arundo*, as its massive upright plumes stand out conspicuously after the plumes of the *Arundo* have faded. All the plants are now being cleared of the dried, dead foliage, and some of the older specimens top-dressed with fresh soil and manure. They exhaust the soil very much, and unless top-dressing is regularly followed up, the plants quickly show, by their non-flowering and lack of vigour in foliage, that their food supply has been of a meagre description. Hardy Bamboos and *Phormiums* we hope to have time to attend to in the same way. They require just as much food, but this is compensated for by the fact that they do credit to whatever amount of cultural help we can give them.

FANCY PANSIES.—I was so struck with the beauty and effective appearance of masses of these in the garden at Otterspool, near Liverpool, at the end of last June, that I am resolved to copy Mr. Lindsay's plans, and have accordingly made provision by securing some hundreds of seedling plants, which have just been pricked out in cold frames, because it is desired to have them in full flower by the beginning of July. We shall keep the lights rather close until there are indications that the plants require more air. The extreme variability in the colours of the flowers of this section of Pansies is their great charm rather than their form or size. The latter point is only a question of good soil and plenty of moisture, and these we shall give, but in spite of this resolve, I have a sort of idea that the cooler climate of Otterspool being better suited to Pansies and *Violas* in general, my success is not likely to be of a very extraordinary character. Mr. Lindsay also had splendid masses of Countess of Hopetoun *Viola*, and an almost pure white *Antirrhinum*, so free flowering as to all but hide the foliage.

GENERAL WORK.—The pricking out of various seedlings, such as *Zinnias*, *Stocks*, *Asters*, *Phloxes*, *Salpiglossis*, *Sweet Scabious*, single *Dahlias*, *Eucalyptus*, *Pinks*, and *Carnations*. To plant *Calceolarias* and *Violas* in their summer positions, and all hardy plants that are to be used in summer bedding out. The upright edgings to beds we plant entirely with *Herniaria glabra*, and this work is nearly completed, and when this is done all hardy groundwork plants and shrubs will be got in, and other plants at intervals, according to their degree of hardiness. Propagation of soft-wooded plants, such as *Coleus*, *Alternantheras*, variegated *Mesembryanthemums*, *Heliotropes*, *Dahlias*, *Marguerites*, &c., still goes on, and others require potting into larger pots. The Canary Creeper, *Castor-oils*, *Hemp*, *Convolvulus major*, and *Nasturtiums* have just been sown. They are all fast growers, and early sowing usually ends in the plants getting injured either from being pot-bound or relegated to some out-of-the-way place, because so easy to raise. Rolling and sweeping of lawn preparatory to mowing requires attention.

W. W.

SHORT NOTES.—FLOWER.

Chionodoxa cretensis albiflora, flowering with Messrs. Barr and Sons, Covent Garden, is a graceful and delicate flower, but not so showy or decided in colour as either *C. Lucilæ* or *C. sardensis*.

The snowy Primrose (*Primula pubescens alba*, or *nivalis*, as it was called) has bloomed well this season. There are few flowers of such purity as this. It is well adapted for growing in pans, and then we get a good mass of bloom of the purest white.

A fine Hoop-Petticoat Daffodil is the pale yellow *Narcissus Bulbocodium citrinus*. It does well in pots, and also in the open ground if in a light soil. All the Hoop-petticoat *Narcissus* do better in the open than one would think, but they are rather tender.

Soldanellas are grown with skill in the nursery of Messrs. Paul and Son, Broxbourne. They are in shallow pans, and present a mass of bloom. Such gems as *S. alpina*, *minima*, and *minima pallida* the lover of alpine plants cannot dispense with. The bell shaped, delicately-tinted, and fringed flowers are charming.

Violet Victoria appears to be a very useful double variety, as it has both a delicious fragrance and rich colour to recommend it. One great point is its hardiness, while the leafage is also abundant—a point of considerable importance. It was shown well by Mr. J. Chambers, of Isleworth, at the recent Botanic show.

Blue Scilla and Chionodoxa.—I cannot quite agree with putting the blue *Scilla* before its rival, *Chionodoxa*. They both grow most luxuriantly and

seed freely here, but the *Chionodoxa* attracts attention on all sides, and is far superior for indoor decoration and button-hole bouquets.—G. BOLAS.

Early Squills from Weedon.—Mr. George Goldsmith, gardener to Mr. Loder, Floore House, Weedon, sends us an interesting gathering of a dozen varieties of Squill, which he mentions have been very beautiful in the garden for some days. Amongst them was the bright-flowered *Chionodoxa Luciliae* and the delicate *Puschkinia scilloides*. An extremely graceful and pretty form is *Chionodoxa nana*, or *minima*, as it is described; the flowers are about half the size of those of *Luciliae* and of a pale lilac-blue tint. *C. sardensis* is welcome for its rich blue colour, but it should be grown in company with *Luciliae*, not usurp its place. *Scilla sibirica* is an old friend, and *S. puschkinoides* and *S. trifolia* are flowers appreciated by those who like quiet, but beautiful things. There also came *S. bifolia* and several varieties of it, comprising the white form, one named *rosea*, with rich rose-lilac flowers, and *pallida* with pale-coloured blooms.

Fritillaria imperialis var. cashmeriana.—Six years ago, my friend, the late Mr. Isaac Anderson-Henry, gave me a share of seeds sent home and collected by his niece, Miss Louisa Johnston, in Cashmere. Among these, a *Fritillaria* turned out which at this moment is a beautiful ornament of my bulb beds. I do not judge it to have sufficient character to be botanically separated from *imperialis*, but it is horticulturally distinct, and well worth growing in the most select collection. In general appearance it has the stature and shape of *F. imperialis*, but it is inodorous, and the flowers, which are very full and substantial, are borne in very compact umbels. The segments of the flowers are not pointed, but rounded, and give the flower the appearance of robustness. The colour of the flowers is a beautiful clear orange, such as does not occur among the varieties of *F. imperialis* nor in *F. imperialis inodora*. I regard this plant as a great acquisition.—MAX LEICHTLIN, *Baden-Baden*.

Primroses.—The variations of seasons have been well shown in connection with the exhibition of Primroses at the National Auricula show, for whilst in some previous years—possibly in most years—it has been difficult to have decent plants kept in check for the show, this year it has been found needful to lift some and place them under glass to facilitate the production of flowers. In reference to these hardy flowers, I think we are having one of the latest springs experienced since I have been here. That Primroses will bloom well shortly there can be no doubt; indeed, some of the more inferior forms are full of bloom, but then they are usually in that stage by the middle of March. The very best flowers somehow always open latest, due possibly to their affinity to the Polyanthus, which are always from three weeks to a month later than are the Primroses, in spite of the fact that so many of the former do assume semi-Primrose habits. This fact is worth knowing, because it exhibits the decisive distinction which exists between the respective forms or strains. The garden or coloured Primrose, even out in exposed situations and on a cold, stiff soil, is invariably earlier in blooming than is the wild Primrose, which also is later than usual this year. The drought of last summer tried young plants more severely than old ones, for the newly-planted ones hardly had encouragement to make root from the time of planting until the end of August; but whilst every leaf was destroyed, not a vestige of the plants remaining, the old-established plants, with their roots fully 12 inches or 14 inches down in the soil, broke up again with wonderful vigour in the autumn, and will again bloom profusely. Few plants for their size produce more flowers than do clumps of hardy coloured Primroses.—A. D.

Draba aizoides.—Nice clumps of this species are now very showy in the alpine garden at Beddington House. It is a plant well deserving more attention.

Many years ago this plant was largely used for spring bedding at Hatchford Park, in Surrey, but it would appear to have been discarded for other and more worthless things.—W. H. G.

FERNS.

W. H. GOWER.

CHOICE FERNS.

LARGE private collections of Ferns are not so frequently met with now as they were a few years ago, there being apparently fewer lovers of these plants, but yet Ferns could not be allowed to pass away without a corresponding depreciation in taste, which is generally supposed to be improving. By the quantity of small collections of these plants which in my ramblings I see springing up throughout the country, I am quite willing to believe this is the case, and many of these may ultimately rise into importance; it is, therefore, quite refreshing to find in such establishments as those of the Messrs. Veitch, Bull, and Williams that



Davallia fijiensis.

extensive collections are still kept up, whilst the national collection at Kew, to which several large donations have recently been made, still maintains its position as the finest in Europe. I am also told by the leading nurserymen that the demand for good Ferns is greatly on the increase, which is very welcome news to any one partial to these plants. On a recent visit to Mr. Williams' nursery, I could but notice what a large quantity of kinds is there grown; those aristocrats of the Fern flora, the *Gleichenias*, still maintain their position, nearly all the members of the Australian section being grown. *Adiantums* are also well represented; the variety, indeed, has been largely augmented of late; but yet one never tires of Maiden-hair Ferns. Amongst the most distinct I noted *A. Williamsi*, the majestic *farleyense*, *curvatum*, *elegans*, *cardiochlamum*, and many others, including two very elegant species adapted for hanging baskets, viz., *A. caudatum* and *A. dolabriforme*, the former having pendent fronds a foot

or more in length and proliferous at the apex. *A. rhizophorum* is a form of the above, with the segments smooth; *A. dolabriforme*, another elegant plant for basket-work, and forming a nice companion to *caudatum* in a stove or warm Fern house, very much resembles *A. lunulatum*, but differs from it in being evergreen (not deciduous); the fronds are a foot or more long, pendent, and form young plants at the points. *Lomaria* is another genus well maintained, such species as *ciliata*, *attenuata*, *L. Herminieri* with its pink young fronds, *lancoolata*, *chilensis*, and many others being conspicuous, the latter species, by the way, being a noble hardy plant which I have seen with fronds nearly 5 feet long in the open air. Nice examples of that pretty miniature Tree Fern, *Brainea insignis*, were also here; as also handsome specimens of such kinds as *Cyathea dealbata*, *Smithi*, and *medullaris*. Plants of *Dicksonia antarctica* are to be seen here ranging from 2 inches to 12 feet and even 18 feet high, the latter with stout stems. There was no lack of smaller-growing Ferns, such as the beautiful *Actiniopteris australis* with its little miniature fan-like fronds; *Rhipidopteris peltata* and *R. feniculacea*, which, with their two distinct shaped fronds, are both handsome and conspicuous; numerous members of the Hare's-foot family, of which perhaps the most beautiful are *Davallia feniculacea*, *D. fijiensis* (here illustrated), *D. gibberosa*, and *Mooreana*. *Doryopteris* have of late become popular, and here are most of the known kinds, *D. nobilis* being the largest and most handsome. Winter is not a good time to look for perfect examples of the gold and silver *Gymnogrammas*, but they are well represented, including the golden crested form called *Laucheana grandiceps* and the beautiful *schizophylla gloriosa*. One cannot, however, detail all the gems of this collection, as they are so numerous. I also observed some very nice examples of the Club Mosses growing in baskets in the fernery, of which the most conspicuous were *Lycopodium uliginosum*, *laxum*, and *ulicifolium*.

Dennstaedtia davallioides Youngi.—There is one exceedingly fine variety of *Dennstaedtia* which Mr. Gower omits from his list as appearing on page 316 of your issue of April 7, viz., *D. davallioides Youngi*. This is well worthy of notice, being a strong, vigorous grower, yet so finely divided, that it is anything but coarse either in texture or appearance. It frequently produces fronds 6 ft. to 9 ft. long in cultivation, and is said to grow in its native habitats as high as 17 ft. It comes from Australia, and was introduced, I believe, by Messrs. Veitch and Sons a few years ago. It has a thick, fleshy, creeping rhizome, from which at short intervals the strong, thick-stemmed, tripinnate fronds rise gracefully, attaining the height previously named. The pinnae are often from 16 inches to 20 inches in length, on fronds 6 feet or 7 feet in height, and the pinnales have a peculiar upward curve, which produces a very pretty effect. The colour is light green. Planted in a warm greenhouse or stove with plenty of root-room, it soon makes a noble and effective specimen.—J. BIRKENHEAD, *Sale*.

The Falls of Minnehaha.—A tract of fifty acres, beautifully located on the Mississippi, opposite the mouth of the Minnehaha, has been acquired by the City of St. Paul, and land will most probably be secured for a drive of several miles along the river. The bank here is more than 100 feet high, often precipitous, clothed with a rich growth of primeval forest, shrubbery and Vines. It is hoped that Minneapolis may secure the land

immediately opposite, including the Falls of Minnehaha and the valley of the stream to the great river. In this event a great park could be made between the two cities, easily reached from the best part of both, with the Mississippi flowing through it and the falls as one of its features. This, in connection with the park so beautifully situated on Lake Como, three miles from St. Paul, and the neat parks of Minneapolis and its superbly kept system of lake shore drives, would soon be an object worthy of the civic pride of these enterprising and friendly rivals.—*Garden and Forest*.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

APRIL 24.

PRIMULAS and hardy flowers of various kinds, together with Orchids and other miscellaneous subjects, formed an exhibition of great beauty and interest; in fact, it was the most pleasant gathering of the Royal Horticultural Society that has taken place this year. The weather reminded one more of November than April, and the Drill Hall is a cold, dark place on a dull, sunless day, so that it is impossible to see the proper tints of the flowers, however bright; in the case of such quiet-coloured things as Auriculas a bad light is a misfortune.

First-class certificates were very numerous, and were awarded as follows:—

ODONTOGLOSSUM HUMEANUM.—This is evidently closely allied to *O. Rossi*, and some orchidists consider it a natural hybrid between this species and *O. cordatum*. Whatever its parentage, it is an exceedingly beautiful *Odontoglossum*, and the plant shown by Mr. H. M. Pollett, Fernside, Bickley, bore characteristic flowers. These were larger than those of the typical *O. Rossi*, and borne four together at the apex of a comparatively long spike. The sepals are narrower than the petals, and almost entirely covered with rich chestnut-brown, the latter portion of the flower having the same colouring at the base, but with the upper half pale sulphur-yellow. The lip is broad, bold, white, with just a suspicion of sulphur, and intensifies the mauve tip of the column.

ANGRÆCUM ARCUATUM.—With the advent of the newer forms of *Angræcums* an interest in this genus seems to have been kindled, as we here have another addition, though never likely to rank as one of the most popular. The plant shown was about 9 inches high, and bore a short, stiff raceme of flowers, which were crowded together, so that we have not that elegance seen in *A. Sanderianum*. The sepals, revolute petals and lip are narrow, creamy white, and diffuse an aromatic, honey-like fragrance. From Mr. H. J. Buchan, Wilton House, Southampton.

ODONTOGLOSSUM ROSSI F. L. AMES.—A very small plant of this was exhibited, but sufficient was shown to tell that we have here a rare gem. The type is recognised as one of the most useful of Orchids, but this has larger, bolder, finer flowers, as the colours are well defined and the form exquisite. The sepals are almost wholly rich brown, the petals snow-white except the rich brown portion at the base; this same clear white hue is also seen in the large, finely-shaped, and well-expanded lip. The plant only had one bloom, but if it is as free-flowering as the parent, it may be correctly described as a valuable addition. From Mr. B. S. Williams, Upper Holloway.

ODONTOGLOSSUM CRISPUM (Charlesworth's variety).—There are now so many varieties of this species, that it must be a really good thing to merit special distinction. But no fault was made in recognising this, as it is a bright and handsome variety, the flowers scarcely showing any trace of white except at the margins of the petals. The ground colour is a washy rose hue, overlaid with heavy stains of rich crimson, these several tints giving the flower a mottled appearance by no means displeasing. We seem to be breaking right away as regards the colours in *O. crispum*, and obtaining almost self forms. From Mr. J. Charlesworth, Heaton, Bradford.

CLIMBING NIPHETOS ROSE.—We scarcely understand why a certificate should have been granted to this, as *Niphetos* has in itself a climbing tendency if only allowed its own way. A large plant, some 15 feet or more high, was shown, and in a conservatory would, no doubt, make a great feature. The flowers, foliage, and other points were, as far as we could see, identical with the *Niphetos* Rose commonly grown. For cut flowers, we have few Roses so thoroughly useful and pure. From Messrs. Keynes, Williams, and Co., Salisbury.

ROSE MAY RIVERS.—A variety of the Tea class, scarcely so fragrant as some, but desirable for what, in the bad light, looked like a delicate tint of yellow. It is of dense, compact, and full form, but had not that exquisite grace we find in some of the most beautiful of the Tea Roses. From Messrs. T. Rivers, Sawbridgeworth.

AMARYLLIS MISS AINSLIE.—Out of a large number of excellent varieties of *Amaryllis* this one was selected for a certificate. It had a naturally dwarf habit, the scape scarcely rising more than about 2 feet, and bearing four flowers, which, though smaller than those commonly seen, have a neatness of form and clearness of colour especially desirable. The firm overlapping segments were rich scarlet, margined with white, and feathered slightly with the same clear tint. From Messrs. Kelway and Sons, Langport.

CINERARIA QUEEN VICTORIA.—A double variety with full, showy flowers almost pure white, but with just a tinge of purple. It is very free, but seemed inclined to show the centre of the bloom. From Messrs. Kelway.

CINERARIA BEATRICE KELWAY.—This is also a double variety, the flowers very freely produced, large, full, and white, tipped with a bright shade of lilac. From Messrs. Kelway.

The following double *Cinerarias*, all from Messrs. H. Cannell, were also certificated:—

ASPASIA.—A handsome variety, the colour rich violet-purple, and the form excellent.

ADVANCE.—This is of a somewhat unusual shade of purple, and is desirable for its rich appearance.

FAUST.—One of the best of all, as the flowers are of that bright rose tint so much admired.

PRIMULA CRIMSON BEAUTY.—A choice alpine *Primula*, the tufted plant bearing a large number of clear self-coloured, claret flowers, the centre white. Such sweet things as this are welcome. From Mr. J. Crook, Farnborough Grange.

ERYTHRONIUM GRANDIFLORUM ALBIFLORUM.—The beauty of the Dog's-tooth Violets is proverbial, and here we have another gem for those who love hardy flowers. It is a large form of *grandiflorum*, and its robust character is seen in the broad shining leaves, mottled with deep green on a ground of glaucous grey and the abundance of nodding flowers. These are white, with the stamens of a golden colour. It is surprising how useful the Dog's-tooth Violets are when cut, and this seems well suited for the purpose, owing to the length of stalk. From Mr. T. S. Ware, Hale Farm Nurseries, Tottenham.

PÆONY (Tree) COMTESSE D'ENDORT.—The Moutan, or Tree Pæonies are receiving the attention that their delightful beauty entitles them to. In this variety the flowers are of immense size, full, handsome, and of a rich salmon-pink shade. From Messrs. Veitch and Sons, Chelsea.

Orchids were again an interesting portion of the show, and the group awarded a silver medal, from Mr. F. G. Tantz, Shepherd's Bush, was most interesting. There were several *Cypripediums*, amongst which we noticed *C. Druryi*, conspicuous for the rich chocolate band down the centre of each of the sepals and petals; *C. Lawrenceanum atro-rubrum*, deep chocolate-crimson lip, and handsome dorsal sepal, rich lustrous crimson, upper portion white; *C. Mastersianum*, noticeable for the rounded, dwarfed dorsal sepal, bright green margined with pale greenish yellow; *C. Hookeræ majus*, a large and very highly coloured form of the type; *C. Hartwegi*, the great character of which is the twisted rose-coloured corkscrew-like petals; and *C. grande*,

which belongs to the long-tailed section, and is of light, cheerful colouring. Amongst other gems were a form of *Odontoglossum Wilckeanum*, the showy *Dendrobium fimbriatum oculatum* and the clear yellow *D. Cambridgeanum*, *Cattleya Lawrenceana* and its varieties rosea, very finely coloured, and concolor, pale lilac-rose, and *C. Schroedera*, white, lightly touched with pink, the lip golden orange shading to lilac, then to almost white at the margin. *Odontoglossum Harryanum* deserves a note, as a remarkably good form was shown with massive, almost self brown sepals and petals and a wide spreading lip, displaying brown and pale yellow colours. Mr. G. W. Cummins, gardener to Mr. A. H. Smee, The Grange, Carshalton, also had a group in which were several excellent *Masdevallias*. *M. Houtteana*, crowded with pretty creamy white flowers, which were covered with dull crimson spots; *M. trochilus*, very curious, the flowers helmet-shaped and deep crimson, except the long yellow tails; *M. Shuttleworthi*, *M. ignea*, and *M. xanthocorys* were represented by plants exceptionally well grown; as exhibited it is surprising how showy this genus is. *Masdevallias* are often regarded as rather dull, but such is by no means the case. Mr. Philbrick, Oldfield, Bickley, exhibited a carefully-grown specimen of *Cattleya Lawrenceana concolor*, which has medium-sized flowers of a distinct showy lilac tinge; also *Oncidium Cœsus*, small brown flowers relieved with a very brilliant yellow lip; and *Odontoglossum vexillarium roseum superbum*, the flowers rich rose. Mr. B. S. Williams, of Upper Holloway, had *Oncidium undulatum*, a large-flowered Orchid, the flowers rich brown, except the petals, which are tipped with white; *Cattleya Mendelli grandiflora*, the lip crimson-purple, a fine variety; and *Miltonia Tolliana*, apparently a very distinct flower; the narrow sepals and petals are white with a tinge of crimson, the base of the sepals having spots of like colour, the lip being sparsely streaked with the same hue. We may mention that the same exhibitor also showed *Amaryllis Black Prince*, a rich self crimson, the colour very deep, and the form almost perfect, like the variety *Dr. Masters* in this respect.

The group from the Royal Gardens, Kew, was, perhaps, the best feature, as there were plants never seen outside the precincts of a botanic establishment. The contributions from Kew add greatly to the interest of these gatherings. There was a wealth of *Primulas* of various kinds, which we cannot particularise for want of space; and a decided acquisition, named *Anemone Fannini*, a South African flower, hardy and of robust character, as shown by the downy foliage and strong stems. The flowers might be likened to those of *A. japonica*, and are white, when first expanding being of a greenish colour. A brilliant flower is *Echium calithyrsus*, the pink stamens against the blue of the other portion of the bloom giving a contrast particularly bright and rich. Other notable things were *Befaria glauca*, a Columbian plant, the flowers borne in a cluster, and rich pink in colour; *Bougainvillea spectabilis*, which ought to be more often grown; *Nymphaea Mariacea*, represented by a coloured plate in *THE GARDEN* of March 31, 1888; *Saxifraga latpetiolata*, a Spanish form, the growth diffuse, vigorous, and downy, the flowers small and pure white; *Rhododendrons* in variety, and *Cereus Mallisoni*, scarlet and very showy. It is strange such plants as the last-mentioned are so much in the background.

HARDY FLOWERS were, as they should be now, fairly numerous. Messrs. Paul and Son, Broxbourne, showed a neat collection, comprising principally alpine. There were the mossy, white-flowered *Houstonia cœrulea alba*, *Androsace Lageri*, very small, the flowers pink, but pretty, and alpine *Primulas* of several kinds. A silver medal was awarded for this interesting display. *Viola Snowflake*, a white variety, and the double *Violet Victoria*, a hardy double blue and very sweet-scented kind, came from Mr. J. Chambers, Isleworth. A lovely pure white self *Carnation* was exhibited by Mr. John Knight, The Oaks, near Epsom. From what we could see of it this is a choice variety, the flowers full, large, excellent in form, and very sweet. Mr.

Sullivan, gardener to Mr. D. B. Chapman, Roehampton, showed exceptionally well-grown plants of *Mignonette Sullivan's Perfection*, the plants robust, compact, and laden with large spikes of fragrant flowers. Mr. Howard also contributed plants of *Mignonette*, evidently of a very carefully selected strain. A basket of *Primulas*, full of flower and the colours rich, was shown by Mr. J. Crook, Farnborough Grange.

ROSES were represented by specimen plants, of which a group was sent by Messrs. H. Lane and Sons, Berkhamstead. Such varieties as the apricot-tinted *Jules Margottin*, *Annie Laxton*, the lovely peach-coloured *Souvenir d'un Ami*, and the salmony pink *Catherine Mermet* were well represented. Messrs. Paul and Son, Cheshunt, had a similar exhibit, including *Innocente Pirola*, *Safrano*, and *Charles Lefebvre*. In the case of the last-mentioned and the group from Mr. Rumsey, Waltham Cross, a silver medal was awarded, and a bronze medal went to Messrs. Lane. A basket of *Roses* also came from Messrs. Wm. Paul, of Waltham Cross, and flowers of a Hybrid Perpetual named *Mlle. Germaine Caillot*, a full, handsome *Rose*, delicate peach-coloured centre, and white outer petals.

DOUBLE CINERARIAS made a show of colour, as they are more effective than the single varieties. Messrs. H. Cannell, of Swanley, had a large collection, the plants well flowered, and the blooms of full form. From the same firm came a bunch of flowers of *Carnation Pride of Penhurst*, now well known for the delicacy of its yellow tint, and Cannell's *Perfection Mignonette*, a fragrant, free-flowering and robust variety. A useful plant is *Begonia Carrièrei villosa*, of which several specimens were shown. The plant is of graceful habit, and the white, slightly drooping flowers have a charming appearance. Double *Cinerarias* were also exhibited by Messrs. Kelway and Sons, and it was noticeable how much this class has improved. From the same firm came a large number of seedling *Amaryllis*, the great point about which was their dwarf stocky habit and the light colours of the flowers. The bulbs had been lifted from the open ground in January and potted. If we could only obtain dwarf *Amaryllis* with all the good qualities of the finest types now in commerce, we should increase the value of this spring flower considerably.

An interesting contribution was the cut blooms of *Rhododendrons* from Mr. J. T. Llewellyn, Penllergare, Swansea. The flowers had been gathered from plants in the open air and included such Himalayan kinds as *barbatum*, *Thompsoni*, *niveum*, *ciliatum*, and *Campbelli*. Their fresh colouring and beauty were surprising. Sprays of *Passiflora* princeps came from Mr. S. Ford, The Gardens, Leonardslee, Horsham. They were a mass of dull scarlet flowers and must have been cut from a grand specimen. *Coleus Hart's Conqueror*, a crimson and deep brown-leaved variety, very rich, was shown by Messrs. A. Hart and Sons, Guildford, but *Coleuses* are out of favour just now. Messrs. J. Veitch, of Chelsea, sent *Azaleas* representing the result of crossing the mollis varieties with the Ghent, and also the mollis section with the ponticum race. This is an interesting break away, and likely to bring in new acquisitions to the hardy garden. *Adiantum scutum roseum* came from Mr. H. B. May, Upper Edmonton, the young fronds having a rich rose tint. *Cyclamens* were shown by Mr. R. Clarke, Twickenham, one variety named *Albert Victor* having flowers of very rich colouring, almost blood-red.

DAFFODILS were, of course, an important part of the show, and a large bank was exhibited by Messrs. Barr, of Covent Garden, whose collection comprised such noble kinds as *Emperor*, *Golden Spur*, *spurius coronatus*, broad rich trumpet, and *John Nelson*. A silver medal was given. Messrs. T. S. Ware, of Tottenham, also had a large display, in which were *rupicola*, *bicolor Horsfieldi*, *Bulbocodium*, *citrinus*, *Golden Spur*, and *amabilis*, while there were good blooms of *Iris tuberosa*, *Anemone blanda*, *Cypripedium Calceolus*, and forced *Spanish Iris*. A bronze medal was given.

Messrs. Collins and Gabriel, Waterloo Road, also contributed *Daffodils* of the leading kinds in con-

siderable numbers, and were given a silver medal for the interesting exhibit. Mr. J. Walker, Whitton, made a similar display, the large-flowered *Sir Watkin* and *Horsfieldi* being worthy of note. A silver medal was awarded. Bouquets of *Daffodils* made of a large variety of kinds were sent by the Civil Service Co-operative Society, Haymarket. The flowers of *Horsfieldi* lend themselves well to such arrangements as these, as the colours are rich.

FRUIT was unimportant. There were a few Apples and Pears. *Pius IX.* and *Mme. Millet Pears* from Mr. G. W. Cummins were, as far as appearance goes, exceptionally fine.

Lullington's variegated *Broccoli* from the Chiswick Gardens was certificated.

NATIONAL AURICULA AND PRIMULA SOCIETY (SOUTHERN SECTION).

APRIL 24.

THE annual *Primula* show took place on the above date in the Drill Hall, Westminster, in association with the meeting of the Royal Horticultural Society. There were show and alpine *Auriculas* in plenty, as well as some of the curious and fantastic among them—the fancy varieties. There were *Polyanthuses* and *Primroses*, and many species of the genus *Primula*. It was unfortunate it was a dull day, because the brightness of a clear light is needed to show up the *Auriculas* to the best advantage. The judging of the flowers was got through under some difficulties, but all were eventually surmounted, and a throng of admirers gathered about the flowers during the time the exhibition was open to the public.

SHOW AURICULAS.—By these are meant the green, grey, and white-edged, and self varieties; the latter should have the broad marginal colour which surrounds the zone of white paste of one colour, but it could be noticed in the case of some of the newer varieties that a shading of two distinct tints is fast becoming perceptible, and it is not improbable that we are on the eve of a race of shaded selfs, and very handsome some of them are likely to be. In the class for twelve *Auriculas*, dissimilar, there were five competitors. The Rev. F. D. Horner, Lowfields, Burton-in-Lonsdale, was, as usual, first, with a very good lot indeed for such a backward season, having of green edges, *Seamew*, *Kestrel*, *Edith Potts* (Bolton), a fine, bright, and striking variety, selected as the premier *Auricula* in the whole show; and *Prince of Greens*. Greys—*George Lightbody*, on this occasion almost divested of its usual surface of meal, and really a green edge; and *Atalanta*. White edges—*Magpie* and *Hypatia*. Selfs—*Heroine*, *Laura*, an instance of the shaded self, maroon, with a marginal shade of purplish magenta; *Sapphire*, and *Ebony*, a rich dark variety. With the exception of *Prince of Greens* and *George Lightbody*, all the foregoing were raised by the Rev. Mr. Horner. Mr. J. Douglas, Great Gearies, Ilford, was second, his varieties including *Marmion*, a fine and promising grey-edged *Auricula* of his own raising; and Mr. T. E. Henwood, Hamilton Road, Reading, was third. There were seven collections of six varieties—the Rev. Mr. Horner being again first with green, Neptune and *Prince of Greens*; grey, *George Lightbody*; white, *Miranda*; and selfs, *Melanie* and *Heroine*. Mr. T. E. Henwood came second. There were five competitors with four varieties, Mr. George Wheelwright, Oxford Road, Reading, being placed first with green, Rev. F. D. Horner; grey, *George Lightbody*; white, *Reliance*; and self, *Reliance*; second, Mr. C. Phillips, Erleigh, Reading, with the old *Green Edge*, lovely and in its highest and seldom seen character; grey, *Lancashire Hero*; white, *Acme*; self, *Heroine*. There were five collections of two varieties, Mr. G. Wheelwright being first with green, Rev. F. D. Horner, and self, *Black Bess*; second, Mr. C. Phillips, with white, *Acme*, and self, *Othello*.

Then followed classes for single specimens of the edged and self varieties; and, as under the regulations, one exhibitor can now show only two plants in each class, the number of plants submitted for the judges is less than it used to be. Green: first, Mr. T. E. Henwood, with *Prince of Greens*; second, Mr. C. Phillips, with Rev. F. D. Horner;

third, Mr. G. Wheelwright, with *Lancashire Hero* in its occasional green form. Grey (edged): first, Mr. A. J. Saunders, gardener to Viscountess Chewton, Cobham, with *George Lightbody*; Mr. Wheelwright being second with *Lancashire Hero*; Mr. J. Douglas third and fourth with *Mabel*. White: first and second, Mr. J. Douglas, with *Conservative*; the Rev. F. D. Horner being second with *Heather Belle*, and third with *Pearl*. Selfs: first and second, the Rev. F. D. Horner, with *Heroine*; Mr. W. Bolton being third with *Sapphire*; and Mr. Wheelwright fourth with *Black Bess*.

In the class for fifty plants, duplicates being admissible, and in which no one need look for the best varieties, Mr. J. Douglas was first, and Mr. C. Turner was second. We presume this class is retained simply because it helps to make a show, but it is one open only to big growers, and there is rarely more than two competitors.

ALPINE AURICULAS.—Some of these were very fine, and they are so bright and attractive in colour that they are always favourites with the public. Mr. C. Turner had the best twelve, staging *Ernest*, *John Laing*, *Edith*, *Fred Bates*, *Sensation*, *Charles Turner*, the finest variety in cultivation, *Sunrise*, *Sir H. Darville*, *Lady H. Grosvenor*, *Lady H. Crewe*, *Marguerite*, and *George Wheelwright*; second, Mr. J. Douglas. Mr. Turner was also placed first with six varieties, having *Sunrise*, *Madonna*, *Reginald*, *Edith*, *Mrs. Stafford*, and *Lady Harpur Crewe*; second, Mr. T. E. Henwood. Mr. T. E. Henwood was first with four varieties, having *Hotspur*, *Mrs. Ball*, *Princess of Wales*, and *Edith*; second, Mr. S. Barlow, Stakehill, Manchester, with *Vesuvius* and three very fine seedlings of his own, one of which was named *Sir Trevor Lawrence*, and awarded a first-class certificate of merit.

The best single specimen golden centre was *Pallas*, from Mr. C. Turner, Mr. S. Barlow being second with *Mrs. Meiklejohn*. The best white centre was *Susie Matthews*, from Mr. S. Barlow; Mr. J. Douglas being second with *Queen Victoria*; third, Mr. T. E. Henwood with *Ladylove*.

POLYANTHUS, GOLD-LACED.—These were by no means in their best form, owing to the character of the season, and they looked dull in the indifferent light. Mr. S. Barlow was first with six varieties, having *Exile*, *Cheshire Favourite*, *Prince Regent*, *Sidney Smith*, *Lancer*, and *George IV.*; second, Mr. J. Douglas. Mr. Barlow also had the best three varieties in *Cheshire Favourite*, *George IV.*, and *Exile*. The best single specimen was *George IV.* from Mr. J. Douglas, who was first and second with it.

FANCY POLYANTHUS.—Some fine types of these were shown by Mr. R. Dean, Ranelagh Road, Ealing, who was placed first with twelve large plants, Mr. J. Douglas being second.

PRIMROSES, SINGLE AND DOUBLE.—Mr. R. Dean was first with twelve pots of fine, bright, high-coloured single varieties. Messrs. Paul and Son, Old Nurseries, Cheshunt, were first with six large pans of double varieties.

FANCY AURICULAS.—With twelve plants, Mr. S. Barlow was first, and Mr. J. Douglas second.

SEEDLING AURICULAS.—Green edge.—A first prize was awarded to the Rev. F. D. Horner for *Monarch*, a promising variety of good quality. Grey edge.—First, the Rev. F. D. Horner with *Irreproachable*, a bold and striking flower. Selfs.—First, the Rev. F. D. Horner with *Constance*, a fine and bold-looking variety of a crimson-maroon shade; second, Mr. W. Bolton, Warrington, with *Mrs. James Tinsley*, maroon. No prizes were awarded for seedling alpine varieties.

SPECIES OF PRIMULAS.—Collections of these formed a fine and instructive feature. The best twelve came from Mr. J. T. D. Llewellyn, who had *japonica*, *Auricula*, *verticillata*, *rosea*, *denticulata*, *viscosa*, *cortusoides*, *involucrata*, *cashmeriana*, *erosa*, *obconica*, and *officinalis* var. *suaveolens*; Mr. James Douglas was second. Mr. Samuel Barlow had the best six, Messrs. Paul and Son being second.

Narcissus committee.—A meeting of this committee was held in the Drill Hall on Tuesday. Mr. Schoolbred sent some blooms of the double

pseudo, from the same lot as those described in THE GARDEN (p. 356), which he guaranteed to have been planted by him originally as single, and to have been converted into double. Mr. Boyd, of Melrose, sent a pale-coloured form of minor, said to be naturalised in great abundance. From Mr. Rawson were received a number of varieties, including Johnstoni, and some of those collected and sent home by Mr. Tait under distinctive numbers, small sulphur-coloured forms of pallidus præcox and others. Mr. Corder brought a number of Portuguese forms of yellow Ajax collected by him. Captain Nelson showed a seedling believed to be from cernuus pulcher × J. B. M. Camm, which he had named Galatea. It was of a most robust habit, and was much appreciated, being distinct and beautiful. It was agreed to defer registering it until the stock should have been somewhat increased. Also a seedling from John Nelson, and one from cernuus pulcher crossed with some bicolor or possibly princeps. Miss Owen brought a fine white Ajax, which was thought to resemble the one known as Butterfly; bulbs were requested for Kew. Mr. Wilks sent a fine seedling from Troilus, which he named Cressida; it was much larger than the parent; and a seedling Telamonius plenus, raised from a bloom of the ordinary double form. Mr. Marsh brought a white Ajax collected wild in Great Britain. Mr. W. Barr showed a variety collected last year, which he proposed to call Santa Maria. It was of a fine deep yellow colour, and was deferred to another season. Also a variety of incomparabilis, which was registered as Duchess of Westminster; this he had proposed originally to name as Flora MacDonald, but had altered subsequently. Other well-known garden varieties were named for various senders.—C. R. SCRASE-DICKINS, *Hon. Sec.*

LAW.

VALIDITY OF NON-GUARANTEE CLAUSES.

It will be remembered that in a previous number we reported the result of the action, Reynolds v. Wrench, tried before Mr. Justice Denman. The case came before the Divisional Court, consisting of Mr. Baron Pollock and Mr. Justice Charles, on the 18th inst., by way of application on the part of Messrs. Wrench for a new trial. Mr. Cock, Q.C., and Mr. Earle appeared for Messrs. Wrench, and Mr. Murphy, Q.C., and Mr. Winch, Q.C., appeared for Mrs. Reynolds.

Mr. Baron Pollock, in delivering judgment, said: The arguments in this case have been of a very interesting and instructive nature. The case before Mr. Justice Denman was clear. Mrs. Reynolds, the plaintiff, received from Messrs. Wrench, the defendants, a certain quantity of Turnip seed, viz., Yellow Tankard Turnip, which was particularly suitable for old growth. When the plaintiff returned the produce, we now know that it consisted of Purple Mammoth Turnip seed, which was of an early growth, and it could not be distinguished by view or touch; the result could not be known after it had been grown. Messrs. Wrench sold the seed to a firm in Edinburgh, who sold it to customers to be grown in Germany. It was of great importance that it should be not of an early, but of a late growth; hence arise the claims by Wrench against Reynolds. Under the circumstances it was thought best by Mr. Justice Grove, when trying the case at the Huntingdon Assizes, that there the jury should try the question by whose fault the wrong seed was sent. The jury heard all the evidence, and came to the conclusion that the fault was that of Reynolds. Then came the question of damages, and as it was a mixed question of law and fact, it was determined that it should be settled by Mr. Justice Denman without a jury. His lordship then referred to the facts brought out in evidence before Mr. Justice Denman, from which it appeared that Messrs. Wrench sold the seed to Lawson, of Edinburgh, on November 3, 1885, and that the invoice contained the following note, printed in red:—

Messrs. J. Wrench and Son give no warranty, express or implied, as to description, quality, productiveness, or any other matter connected with the seed. This note was not only on the invoice sent to Messrs.

Lawson, but was also sent to Mrs. Reynolds. This note, continued his lordship, has been held by Mr. Justice Denman to afford protection to Messrs. Wrench, but I confess that if I had to consider the construction of it *de novo*, I should not agree with that view, because I should say, using the words of Lord Abinger in *Chamber v. Hopkins*,

A good deal of confusion has arisen from the unfortunate use made of the word "warranty." A warranty is an express or implied statement of that which a party undertakes shall be part of a contract collateral to the express object.

I should then go on to say that when a man undertakes to sell a perfectly well-known article, such as Yellow Tankard Turnip seed, whatever may be the description, quality, or other matter which is mentioned in respect of this seed, it is a condition precedent that it should be that seed, and that to deliver a different kind of seed would be a breach of the contract. But where the word "description" is mentioned, I find it applicable to this question. Lord Abinger in that case speaks of the circumstances of the parties selling a particular thing by its particular description. What was passing in his mind was not "description" as if you speak of some collateral quality, such as "of good growth," but something more than definitive description. That is still more marked in the case of *Allen v. Bates*, to which his lordship went on to refer, and continued: That being so we come to the conclusion that these words in red protect the vendor, and that if Lawson could not recover damages against Wrench, then he could not recover against Reynolds. But then there is another question. If there was a special contract, as alleged by Wrench, that the words in red were not to apply on the sale of the seed to Lawson, then it would be for Wrench to prove that Reynolds was aware that such special contract was made either by express notice or by the usual course of trade. Reynolds ought not to have assumed that Wrench would sell the seed on any terms other than those contained on the invoice, and therefore as any damages arising from breach of a special contract were not in contemplation by both Wrench and Reynolds when the contract was made to grow the seeds, such damages cannot now be recovered.

Mr. Justice Charles entertained no doubt that the words in red protected Wrench from any claims made by Lawson, and in all other respects concurred in the judgment of Baron Pollock.

The application for a new trial was therefore refused.

THE LATE JOHN SMITH, A.L.S.

I SHOULD like to see a biography of John Smith, written in detail from the same point of view as that of his fellow Scotchmen, Robert Dick and Thomas Edward. He was born on the 5th of October, 1798, at Aberdour, in Fifeshire, where his father was a gentleman's gardener. The story of his early life and of his struggles to educate himself in the rudiments of botany will be found, told by himself and accompanied by an excellent portrait, in *Gardeners' Chronicle*, n.s., vol. v., p. 363 (1876). His whole school education did not cost more than £5. When he was employed as a journeyman at the Edinburgh Botanic Garden in 1818, four of them lived together in a one-roomed bothy, and his wages were 9s. a week, out of which he saved money to buy his drying-paper and a copy of Sir J. E. Smith's "Compendium." In 1820 he came to London, and on the recommendation of the younger Aiton was appointed to a place in the Royal Garden at Kensington.

In 1822 he was removed to the propagating pits at Kew. The Botanic Garden then was the private property of the Crown, and consisted of 9 acres, enclosed by a wall, the wages of the young gardeners being 12s. a week. At the age of twenty-five he was promoted to be foreman of the bothouses and propagating department, and soon began to take a special interest in Ferns. At that time there were about forty hardy and as many tender exotic Ferns in the Kew collection. Between 1823 and 1840 Kew was at its lowest ebb, and when, at the death of William IV., Lindley, Bentham, and Paxton were appointed a commission to investigate its condi-

tion, they reported that whatever names were attached to the plants "have been furnished by Mr. Smith, the foreman, and that the director does not hold himself answerable for them."

With 1841 came the transfer of the gardens to the Commissioners of Woods and Forests. Sir W. J. Hooker was appointed director, and John Smith was continued as curator, with results which I need not recapitulate here. In 1846 the collection of Ferns had increased from 80 to 400 species, in 1857 to 600, and in 1866, when Sir Wm. Hooker died and John Smith resigned, to about 1000 species and well-marked varieties. A considerable number of the additions were raised from spores taken from dried specimens. During the Aitonian period Smith had contributed two papers to the "Transactions of the Linnean Society," one on *Ergot* in 1838, and his well-known paper on *Cœlobogynae* 1839. In 1841 he contributed to Hooker's Journal an enumeration of the magnificent collection of Ferns made by Cuming in the Philippine Islands. His scheme for a new classification of Ferns was laid before the Linnean Society in 1841, and published in Hooker's Journal in 1841-2. His primary divisions, *Desmobrya* and *Eremobrya*, were original, but in his idea of founding genera on venation he was anticipated by Presl, whose "Tentamen Pteridographia" appeared in 1836. His ideas on Fern-classification were further explained in his contributions to Hooker and Bauer's "Genera Filicum" in 1842, and in his enumeration of the Ferns gathered by Seemann during the exploring expedition of the "Herald," published in 1856. In 1861 his sight began to fail, and in 1863 he retired upon a pension, having been in the service of the Garden forty-four years. His collection of dried Ferns, consisting of 2000 species on 6000 large folio sheets, was purchased in 1866 for the British Museum. His wife died in 1838, and he lost his six children one after the other by consumption, the last in 1871. His son Alexander held posts in the Museum, and afterwards in the Herbarium at Kew.

In spite of his blindness, Mr. Smith still continued to take a keen interest in botanical and horticultural matters, and his memory and energy were wonderful up to the very last. He lived in lodgings at Kew, and had a young lady secretary, whom he kept employed for about six hours a day, reading to him and writing for him. The principal books which he produced under these circumstances are his "Ferns, British and Foreign," 1866; "Domestic Botany," 1871; "Historia Filicum," 1875; "Bible Plants," 1878; "Records of the Botanic Garden, Kew," 1880; and "Dictionary of Economic Plants," 1882. He died suddenly on the 12th of February, 1888, and was buried in the churchyard on Kew Green, beside his wife and children. His funeral was attended by Sir J. D. Hooker and nearly the whole of the present staff of the Kew establishment.—J. G. BAKER, in *Journal of Botany*.

The death of Mr. Thomas Cripps, of the firm of Cripps and Son, Tunbridge Wells, occurred on the 17th inst., his age being seventy-nine. The deceased had, through his energy and tact, built up a large business, and it is interesting to note that the first white-sepalped *Fuchsia*, named *Venus Victrix*, came from this nursery. Shrubs, trees, and Clematises had received his special attention during recent years.

BOOKS RECEIVED.

"An Essay on the Pelargonium and its Culture." Second edition. Chas. E. Pearson, Chilwell.

"Roses and Rose Culture." Sixth edition, illustrated. By W. Paul, F.L.S. Kent & Co., 23, Paternoster Row.

"The Art of Preparing Vegetables for the Table." Sutton and Sons. Hamilton, Adams, & Co., 32, Paternoster Row, London.

"The Native Flowers of New Zealand." Illustrated in colours from drawings coloured to Nature by Mrs. Charles Hetley. Sampson Low, Marston, Searle and Rivington, St. Dunstan's House, Fleet Street, E.C.

Garden farming.—There is a long article on this subject in the current number of the *Quarterly Review*.

Names of plants.—*G. M. E. M.* The varieties of *Narcissi* are so numerous, that it is impossible to name the flowers sent.—*Polyanthus*.—The flower was quite crushed, but it is certainly not *Primula verticillata*.—*R. N. W.*—1, *Dendrobium crystallinum*; 2, next week; 3, *Oncidium luridum*.—*Foronica*.—Your treatment is quite right. In all probability the bulbs require age.—*G. B.*—1, *Arctostis* sp.; 2, *Tulipa sylvestris*.—*F. Bordini*.—*Cymbidium pendulum*.

WOODS & FORESTS.

PLANTING A COVERT.

IN THE GARDEN, March 31 (p. 304), "S. F." says:—

I shall be much obliged if some reader would give me his advice on the subject of planting a piece of ground forming part of a Whin covert. . . . It is within half a mile of the sea on the north-east coast, stands high, and exposed to every wind that blows. In summer and autumn it abounds with rabbits. I shall want some sort of Fir that will stand exposed situations, will grow well with no great depth of soil, and will withstand the attacks of rabbits and hares. . . . I should also like to have some evergreen underwood for pheasants, &c.

The descriptive particulars as here set forth are in some respects similar to those of a plantation which I examined on the east coast some time ago. This plantation is about a mile from the sea (as the crow flies). The site consists of a series of sand-hills, I should say about 50 feet above sea level. The trees used here are Black Austrian Pine, with evergreen and other shrubs planted between for covert. At the time of my inspection the trees had attained a height of some 20 feet, were in excellent health, and as they were allowed plenty of space they were well furnished with branches from the ground upwards. These sand-hills are swarming with rabbits, yet by a little attention the covert was established, and is now all that can be desired. None of the Pines are altogether proof against the attacks of hares and rabbits. Perhaps *Pinus Laricio* is the nearest approach in this way, yet in a time of severe weather it as well as others is liable to be nibbled. Although the *Pinaster* is a valuable tree for seaside planting, yet when growing in proximity to other plants for covert it always loses its bushy habit and assumes that of a bare, lanky pole, and is therefore objectionable on that account for covert planting. The Austrian Pine naturally assumes a dense habit of growth, while it is so hardy that I have planted it with success on all classes of soil, including boggy marsh, poor thin soil upon granite, trap, and limestone rocks at an elevation of upwards of 1000 feet above sea level. It is one of the best trees for covert and shelter on exposed situations.

"S. F." does not give the elevation of the site, but from the fact that Whins grow on the surface, I conclude that it is not too high for successful tree culture, and although the soil is poor and the situation exposed, I have every confidence that the following trees and shrubs will form a very efficient covert when thoroughly established. Plant Black Austrian Pine and *Pinus Laricio* alternately at a distance of 10 feet apart, and an evergreen shrub between each pair of Pines, so that the plants will stand at a distance of 5 feet apart over all. This will allow the plants space to extend their side branches, a matter of much importance in the formation of covert in exposed situations. Let the Pines be stout, stocky plants, twice transplanted, with good roots, and not less than 12 inches high. Had it not been that the ground is infested with rabbits, I should have advised autumn planting, but on that account "S. F." had better defer operations till March, by which means his plants will not be exposed to the attacks of vermin during winter. As the ground is of a poor texture, it will be much improved by opening the pits for the plants in autumn or during winter, and in doing so extract all Whin roots from the soil, and leave the stuff excavated on the edge of the pit fully exposed to the weather. The size of the pits may be about 15 inches in diameter and a spade deep, and

should the subsoil consist of till or other hard impervious matter, it had better be well broken up with a pick. When planting the trees, place a little soft pliable mould in the bottom of the pit to keep the roots sufficiently near the surface, as too deep planting is a serious mistake and should always be guarded against. From the dense, bushy habit of the Austrian Pine, it presents a large surface to the force of the wind, and if the roots are not well spread out it is apt to be blown on one side on exposed situations.

The evergreen underwood for pheasants may consist of the following, viz., common Highland Juniper, common English Yew, Evergreen Privet, Oval leaved ditto, *Mahonia Aquifolium*, common Laurel, Butcher's Broom, Tree Box, Evergreen Barberry, Spurge Laurel, *Cotoneaster Simonsi*, and Portugal Laurel. These are all hardy, and not apt to be eaten by hares and rabbits. Choose stout, hardy, bushy plants with good roots and about a foot high. In planting these, mix the plants in such a way as to show variety over the whole surface of the ground. About the end of April it will be necessary to examine the plantation, and should any of the plants be upset by the wind, they should be set up and the ground made firm around the collar of the plant. After the plants commence their growth and the roots take to the soil, they will give no further trouble in this way, provided the instructions as to the selection of plants and spreading out their roots at the time of planting have been carefully attended to. J. B. WEBSTER.

The Pine beetle.—When it is desired to plant immediately after a crop of Scotch Fir is cut down and cleared away, it should be proved whether the ground is in a foul state or not. This can be done by keeping a quantity of the branches when burning up all the brush, and spreading them over the ground in spring, when it will soon be seen if Pine beetles are there, and if they are, gather and destroy them during spring and autumn.—J.

Spruce Fir timber.—The Norway Spruce will thrive and produce useful timber on boggy ground, where few other trees will succeed. In Scotland and in Ireland the thinnings of Spruce sell as readily as those of Larch for fencing purposes, and for pit props. For roofing farm buildings Spruce has long been used in Scotland. I need hardly speak of the value of imported Spruce timber for scaffold poles, spars, masts, white deal, Baltic deal, &c.—C.

Rings as evidence of age in trees.—An agent of the U. S. Forestry Department, Mr. R. W. Furras, who has given much study to rings in timber as indicating the age of trees, has reached the following interesting conclusion: "Concentric or annual rings, which were once accepted as good legal evidence, fail, except where climate, soil, temperature, humidity, and all other surroundings are regular and well balanced. Otherwise they are mere guess-work. The only region, within my knowledge, where either rings or measurements were reliable indications are in the secluded, even, and regularly tempered valleys of the Southern Pacific coast. Annual measurements of White Elm, Catalpa, Soft Maple, Sycamore, Pig Hickory, Cottonwood, Chestnut, Box Elder, Honey Locust, Coffee Tree, Burr and White Oak, Black Walnut, Osage, Orange, White Pine, Red Cedar, Mulberry, and Yellow Willow (nineteen species) made in South-eastern Nebraska show that an 'annual growth is very irregular, sometimes scarcely perceptible, and again quite large,' and this he attributes to the difference in seasons. As trees increase in age inner rings decrease in size, sometimes almost disappearing. Diminished rate in growth after a certain age is a rule. Of four great Beeches mentioned in Loudon, there were three, each about 17 feet in girth, whose ages were respectively 60, 102, and 200 years. Mr. Furras found twelve rings

in a Black Locust six years old, twenty-one rings in a Shell-bark Hickory of twelve years, ten rings in a Pig Hickory of six years, eleven rings in a wild Crab Apple of five years, and only twenty rings in a Chestnut Oak of twenty-four years. An American Chestnut of only four years had nine rings, while a Peach of eight years had only five rings."

Forest fires.—The following mode of protection against forest fires is now generally practised in Continental forests. Plantations are now made in 10, 20, 40, or 100 acres, separated by spaces 200 feet or 300 feet wide. This mode is practised especially in coniferous woods. The spaces are cleared out and kept bare. They are laid out so as to get the sweep of prevailing winds. Existing forests are prepared with this mode of controlling fires by cutting these spaces at regular intervals through them.—X.

The wood of Paulownia.—*Paulownia imperialis* is used to a considerable extent in this country as an ornamental tree, but attention has been drawn to the value of its timber. The extreme lightness of the wood has, no doubt, caused it to be neglected. A well-dried branch of a young tree is scarcely heavier than cork. The wood from an old tree is more compact, and is susceptible of a fine silky polish. The striking peculiarity of the wood is that it does not shrink, nor warp, nor split, even when green, or however thin it may be cut. The Japanese use it in thin veneers for the same purposes that we use pasteboard—to make boxes and such like articles.

Bog Oak is popularly supposed to have been submerged in the bog, or peat, since the deluge; when taken up it is perfectly black from the action of the peat or bog-water. It is very rarely obtained in a sound state, and in most cases the outer portions of the tree or log are rotten, and useless even for fuel purposes. When laid up for use care must be taken that it is not placed in the open air, lest it may, from the sun's rays, become open and shattered into chips from end to end. To preserve it, it must be put into some cool place, and left to dry gradually, and when properly seasoned, it must be cut in lengths of from 2 feet to 4 feet, and these lengths be split again and the sound parts removed from the unsound. It takes from four to six years to season some specimens, as in many instances the wood is found at a depth of 8 feet and sometimes 10 feet under the surface. When properly seasoned, any portion requiring to be glued becomes hard as stone, and is firmer and less liable to give way than any portion of the manufactured article. The finish is not quite perfect until the article has been for some time in use, and the longer, the finer the article seems to be, no matter whether used as a personal or table ornament.

SHORT NOTES.—WOODS AND FORESTS.

Would you kindly inform me if Firs or Pines would do well in a cold, bleak place in Lancashire, and if so, what sort would be the best? How thick ought the trees to be planted? When is the best time to plant, and what soil suits them best?—E. J. ROBERTS.

Book on forestry.—Will some competent person kindly mention the title and price of a book on forestry in which I could find plain and practical directions for the management of a plantation extending to about two or three acres round a small country house; the proper time and manner of pruning the different kinds of trees, flowering shrubs, Evergreens, &c., and other such matters?—M. M.

Douglas Fir for covert.—With those who preserve game, the Spruce is a favourite covert tree, as pheasants are known to be fond of its friendly shelter, and cannot be seen in it by poachers at night, but as the Douglas Fir sends out its branches in the same horizontal way, it is just as useful for the same purpose, and of far more value in every other respect.—D.

Wood of *Æsculus glabra*.—The timber of the Ohio Buckeye tree is of a beautiful white colour, very soft and pliant, and makes a good inside finish. There is no wood better adapted for the manufacture of flour-mill machinery or for any other machine woodwork where lightness, strength, and freedom from warping are required.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLOWER GARDEN.

ALBINO DAFFODILS.

CHANCE seedlings with white flowers are commonest when the normal colour is blue or purple. We have all seen them in the Harebell, the Wood Hyacinth, the spring Orchis, the wild Mallow, and such like plants, but never perhaps in the Buttercup or the Dandelion. In fact, amongst yellow flowers albinos are scarce. *Anemone palmata* and *Verbascum Blattaria* are exceptions which occur to me, but white variations from yellow are not frequent. For many years I have wondered whether a true albino wild Daffodil has ever been found—by this I mean, whether a chance seedling with a white flower ever occurred without passing through any intermediate shade of colour, or owing its origin to any extraneous introduction in a wild bed of Daffodils of the normal type. I have hunted and asked all over the kingdom for evidence of this, and the evidence must always be liable to be impugned as doubtful. For instance, enterprising amateurs might plant a white Daffodil in a field full of the yellow type just to see what would come of it, and I believe that this has occasionally been done. Assuming that botanists are right in referring all Trumpet Daffodils to one species, viz., *Narcissus pseudo-Narcissus*, a question which does not admit of being discussed in a short note, it is probable that many centuries would be required to pass through the many intervening stages of form and colour which exist between, for instance, the large golden *N. maximus* of Northern Italy and the delicate little white *N. moschatius* of the Pyrenees, and, as a matter of fact, we seldom find that different varieties grow together in a state of Nature. As a rule, every spot in which Daffodils are found truly wild contains but one variety which comes nearly constant to form. The Tenby Daffodil, the pallidus *præcox* of Bayonne, the *Telamonius* of the valley of the Arno, and the typical wild Daffodil of Devonshire present comparatively little variation. One well-known exception is the Daffodil found in several parts of the Pyrenees, and called by Parkinson *variformis*. This, however, varies, as it were, in a triangle at the three corners, of which are *N. mesticus* of Gay, *N. pallidus præcox* and *N. nobilis* of Redouté, and investigations made where *N. variformis* grows wild have led me to think that its variability is owing to its being the mixed produce of these three varieties.

But to return to the question of albino Daffodils. I have met with two orchards or meadows in different parts of England—I had rather not indicate the exact spots—in which white Daffodils and yellow Daffodils of the shape and size of the ordinary wild type grow and flower together. But on closer examination I have found that in both places, though in some instances the stature and shape of the white and yellow flowers were similar, there were other flowers of taller and more slender growth, and turned downwards exactly as in the variety called *cernuus*, and that between the two forms every gradation could be picked out. I infer, therefore, that at some time,

perhaps a century or more ago, white Daffodils had been introduced amongst the yellow either by accident or design, and that their seedling progeny had produced all the varieties.

A third case is perhaps less easy to explain. A gentleman living in Gloucestershire told me that a few years ago he found one white Daffodil growing in a field far from a house or garden amongst a large mass of the common type. He transplanted this bulb to his garden, where it increased rapidly; but he has often looked in vain for another white flower in the same field. He kindly gave me two or three of the white-flowered bulbs. I am obliged to say that they certainly resemble in form the white-flowered varieties of gardens rather than the wild yellow type. I conclude, therefore, that even supposing the common wild Daffodil to be indigenous to England, wherever we find white-flowered Trumpet Daffodils wild, they owe their colour to intercourse with foreign introductions. Foreign varieties of Daffodil—I could mention at least a dozen distinct forms—are naturalised in particular spots in England, Wales, Scotland, and, most of all, Ireland; but, as a rule, each variety maintains its individual characters unvaried. The oldest inhabitant can seldom recollect the time when these Daffodils first came, still less where they came from; but it is most likely that when they were first planted by some ambitious admirer of the flower who probably found them somewhere in his travels, their characters were exactly what they are at this day. C. WOLLEY DOD.

Edge Hall, Malpas.

THE PARMA VIOLET.

WHAT is the difference between this Violet and the Marie Louise? I ask the question for several reasons: first, because in the long notices of the Parma by "E. H. W." (p. 281) and J. Cornhill (p. 366) neither of them makes any comparison of the Parma with Marie Louise; while the descriptions of both would almost apply to Marie Louise.

Another reason is that, fresh from Italy and France and daily familiar with the Parma Violet, we have immediately accepted our Marie Louise as the Parma, as a matter of course ordering and accepting it for button-holes, bosom bouquets, &c., and praising it as much as Parma, where the plants had been luxuriating for months.

Another question is worth asking of our two correspondents who praise the Parma so much. In what, if anything, is it superior to Marie Louise, far and away the queen of coloured Violets? In colour it seems identical, and if not, in what is it superior? In habit it seems very nearly like it, if not the same or even better. And as to profusion and continuity of flowering, size of bloom, consistent length of stalks, colour and cleanliness of foliage, and general well-doing of the plants under good culture either out of doors or under glass, but especially the latter, it seems impossible to get a superior Violet to Marie Louise.

Having got a capital stock of it, and satisfying the major portion of our coloured Violet wants as they never were satisfied before, I mean to stick to Marie Louise until your two correspondents or others adduce weightier reasons for discarding it for the Parma than have yet been given. We also grow the Neapolitan for late pickings in the open air, and for sentiment and sweetness—not that it is much, if any, more fragrant than Marie Louise. Likewise the Victoria Regina, Czar, and odorata single Violet. While as for whites, we have discarded all others for Comte de Brazza, as he who is not satisfied with this Violet deserves no other, neither white, blue, double nor single.

As a frame Violet it is simply magnificent, while out of doors in mild springs it is also excellent, though losing part of that length of stem and size and spotless whiteness and purity of bloom which

raise it to the highest rank as an invaluable bouquet and wreath flower, and for all sorts of useful purposes in room and personal adornment.

We want no other double Violets but these two, unless better or more fragrant, and either seems wholly impossible. HORTUS.

P.S.—I have heard that the variety New York is not equal to Marie Louise; if so, it is not wanted in England.

Narcissi at Chiswick.—A small collection of Daffodils in the Chiswick gardens of the Royal Horticultural Society is flowering now, though the bulbs will be seen under better conditions next season when they have made stronger growth. Amongst the sorts that were in bloom were the noble *maximus*, the colour of which is of the richest golden yellow; *rugilobus*, in the way of *Horsfieldi*; *princeps*, similar; *incomparabilis albus* Roland, white segments, short yellow chalice, Empress, Emperor, and the double *incomparabilis* Eggs and Bacon. A trial of Daffodils would be of great interest and also instructive. By having all together we should be able to classify the numerous varieties, many of which are distinct in name only.

Crocuses on Grass.—I have excellent proof that Crocuses succeed admirably when planted on Grass, and that they increase rapidly is a fact without any doubt whatever. We have a piece of Grass about two acres in extent devoted to bulbous plants in particular; amongst these are probably something like 10,000 Crocuses. Single bulbs of the large yellow variety, planted some four years since, have now increased to clumps of eight and ten bulbs. The effect of such a number of bulbs flowering freely can easily be imagined. The yellow variety is the earliest, then the deep purple and the white, the whole forming a charming picture of floral beauty. Crocuses are not the only bulbs growing on the Grass in question, as Lent Lilies, Narcissi, and double Daffodils, besides numerous Hyacinths, Tulips (both double, single, and those of the olden garden type), *Polyanthus* Narcissus, Jonquils, Aconites, and Snowdrops, all find a place here and produce many pleasant pictures. The great point in the welfare of all bulbs growing on Grass is never to cut the foliage down until it is thoroughly ripe. The Grass here is not cut until the end of June.—E.

Daffodil flowers becoming double.—The note on single flowering Daffodils becoming double in THE GARDEN, April 21 (p. 356), is very interesting and instructive. In this district (North-west Middlesex) there are thousands of the common Daffodil in flower, but it is impossible to find a real double form of *N. pseudo-Narcissus*. Here and there in orchards and in fields close to houses and gardens can be seen groups of the double *N. Telamonius*, but these are quite distinct from the common Daffodil. At various times I have transplanted some hundreds of the field roots into the garden and into different parts of the field, and have watched the development of the flowers with interest, in the hope of seeing some at least show signs of becoming double; the result has been simply to improve the size of the flower, and in this respect many of our transplanted flowers are worthy rivals of the bicolor section. The soil here is quite the opposite to that mentioned by Mr. Shoolbred, being a rich loam on a clay subsoil, and this fact is sufficient to account for the absence of double flowers if the theory of the poor soil causing the doubling is correct.—JOHN W. ODELL, *Pinner.*

The Spring Star Flower (*Triteleia uniflora*).—A note on this may be useful in bringing it to the notice of some of your readers who are unacquainted with it. It is generally recommended as an edging plant for large beds, or to be planted in clumps on the mixed border. But the results obtained in such positions are not encouraging, for unless supported and protected from heavy rains the flowers get splashed and lose much of their beauty. When used out of doors it should be planted on Grass, and unless the soil is naturally light and sandy, an elevated position would suit it best. It is, however, as a pot plant for cold frame culture that I would re-

commend it; several bulbs may be grown in a 7-inch pot, and they will flower in April and May. The ample foliage, which resembles that of the Snow-drop, recedes sufficiently to quite hide the pot, and sets off the starry flowers, which are about 2 inches in diameter, and are borne on slender stems about 1 foot in height. The colour of the flowers is white shaded with porcelain blue, and a dark stripe running up the centre of each petal at the back shows distinctly through. The blooms emit a strong Primrose-like perfume. Care should be taken, however, not to damage the leaves or bulbs, or the perfume will savour of Garlic. On a pot of the size mentioned I find there are now sixty-four spikes showing, on about fifty of which the flowers are fully expanded, and one of these spikes is twin-flowered. Does this often occur? One would think not from its name. Can any reader say if there would be any likelihood of fixing the character by selecting the bulb and propagating from it? I may say that the spike appears perfectly normal, and the twin flowers are not the result of fasciation.—JOHN C. TALLACK, *Livermere*.

FLOWER GARDEN NOTES.

HARDY FERNERY.—Though this hardly comes under the designation of flower garden, there are at present sufficient flowers intermixed with the Ferns as to justify this note. In respect of this department of ornamental gardening, Primroses, Scillas, Daffodils, Wood Anemones, Arabis, Myosotis, and Aubrietias make quite a show now that the greater part of the Ferns are frondless. During the present week all dead fronds have been cut off, a few specimens lifted, divided, and replanted, and the ground weeded, and where needed fresh soil given. This is nearly all the attention this department requires or receives all the year round, as on no account do we think of clearing dead fronds as soon as they die off in autumn and winter, but they are left for protection to the crowns. The position, though northerly, and obtaining but very little amount of sunshine, is rather dry; consequently all newly-planted specimens have to be given copious supplies of water all through the summer. After this, the soil being of great depth, they get so well established that artificial watering is never required a second season. The shade the Ferns afford keeps the flowering plants above named from drying up during the summer. Of course they do not grow or flower so profusely as in the case of the same plants in more open positions, but we are able to plant them much closer together. Refuse Hyacinths, Tulips, Crocuses, and Daffodils all find a home amongst the Ferns. Mice and rats eat some of the bulbs, but we usually get a fair percentage of third-rate flowers, which are most useful for cutting.

PRUNING ROSES.—This treacherous weather has fairly shrivelled up the greater half of the buds that had started, and rather than have blighted shoots and poor flowers we prefer to wait longer and have good blooms; hence this second pruning that is being performed on plants that are most severely injured by the cold. They are being cut back rather hard to buds that although prominent are not likely to burst before the weather becomes more propitious. Teas are mainly on walls and are more sheltered; consequently they have suffered but little, and only the very worst shoots of this section will be cut back. All have had a good dressing of new soil and manure, and such plants as required it have been freshly staked. It is better to do this whilst busy amongst the plants rather than postpone it.

LILIUM AURATUM AND GLADIOLUS.—It is possible, no doubt, but a good deal of labour, skill, and expense would be needed to keep a Rose garden continually gay with flowers from June to October. For that period every part of the garden devoted to flowering plants of any kind we are expected to keep constantly gay with flowers of some sort or other, and complaint was once made that beds of Roses were most disappointing, because in August, when the greatest floral display was wanted, the plants were, comparatively speaking, flowerless. To remedy this defect, I first of all had

recourse to planting amongst the Roses, firstly Stocks, then Asters, next Zinnias, and then followed Virginian Stock and other annuals, also Mignonette. These all helped somewhat to lengthen the season of flowers, and, as a matter of course, did not do the Roses any good. I, therefore, determined to try auratum Lilies and Gladioli, and the success has been complete. The rich soil for Roses suits both these bulbous plants well, and the only drawback is the difficulty to get the Lilies to grow the same height or flower simultaneously with each other. In these respects Gladioli answer wonderfully well, and I expect that Hyacinthus candicans, a few of which we have this season intermixed with them, will answer equally well. Mignonette makes an appropriate carpet for all, and this is kept so thin as not to be injurious either to Roses or bulbs.

BORDER PINKS AND CARNATIONS.—Birds are doing great injury to these this season, and having noted that the same thing takes place in many other years, growers would do well to be on the alert. Chaffinches and sparrows are the delinquents, as they have eaten the points out of a number of our best plants, and after trial of several remedies an effectual one has been found, and that is, dusting the plants with tobacco powder. Soot and lime proved useless. If applied with a sulphur puff, it will cost but a few pence to do a large number of plants. Seedlings raised last summer, and which have been wintered in frames as well as cuttings struck in the autumn, are now to be planted in clumps of about five plants 6 inches apart. They will flower later than old-established plants, and so prolong the season of these favourite flowers.

BEDDING PELARGONIUMS.—We do not use these very largely, and, indeed, at this season have not house room for the small number required, and so to bridge over the difficulty, having some spare old lights, a pit has been constructed by driving into the ground a double line of rough stakes, between which straw and hay form a good wall. The lights rest on a rough rail secured to the wall stakes. On the floor of the pit some 5 inches depth of leaf-soil and loam has been put, and the Pelargoniums which have been wintered in boxes are now being planted out about 6 inches apart. The roughish leaf-soil, of which the compost mainly consists, will ensure free rooting, so that the plants will with care transplant with sufficient soil adhering, and they will scarcely feel the check. Our favourite bedding varieties are, pinks, Master Christine and Amaranth; scarlets, Henri Jacoby, Bonfire, and Vesuvius; rose, Nora and Trentham Rose. Whites are not used. Variegated varieties are Crystal Palace Gem, May Queen, Sophia Dumaresque, Flower of Spring, Rev. W. F. Radcliffe, Manglesi variegata, and Lady Plymouth.

GENERAL WORK.—Preparing beds for summer-bedding plants, planting out Violas, Pansies, Calceolarias, and Hollyhocks. To stake Sweet Peas and make the principal sowing, also of Mignonette and of all annuals that are intended to be raised by sowing them in open borders. Continue to propagate Alternantheras, Ageratums, Lobelias, Iresine, and all soft-wooded plants that are needed for bedding. Seedling Petunias and Verbenas are worthy of greater attention than they receive. We have quantities ready to prick off as soon as other plants can be got out of the pits into which they are intended to be put. All plants that will bear a few degrees of frost will now be got out and placed under the shelter of walls and trees, for only in this way can room be found for plants requiring warmth until all danger from frost is past.

W. WILDSMITH.

Yellow Auriculas.—From the Rev. A. Rawson, of Windermere, has come a box of blooms of exquisitely scented yellow Auriculas in half a dozen distinct varieties. For some time past Mr. Rawson has been engaged in improving the Dusty Miller of the north, and he is to be congratulated on his success, as shown by the flowers sent from the lake district. They range in colour from creamy yellow to gold, and they produce very fine trusses of flowers. Mr. Rawson states that they are blooming in a frame just to keep them from injury by the untoward weather. Large plants of

these laden with bold trusses of scented flowers would prove invaluable subjects for conservatory decoration at this time of the year. One pip only of a large-flowered yellow is remarkable for its size, substance, and depth of the purest gold. If the rich gold tube were round instead of angular, and the paste were dense, circular, and in keeping with the marginal colour, it would make a grand exhibition self Auricula. With the foregoing came a truss of a striped Auricula, a kind of dull magenta, flaked and striped with gold.—R. D.

The blue Cornflower (Centaurea Cyanus).—The common practice in gardens of sowing seed of this hardy plant in the spring does not allow of its full development; indeed, if the seed is sown in the autumn in patches and so left, the plants then still lack that size which is seen when sown during the first week in September and transplanted out thinly at the end of October. But apart from the much finer development in plant and flower seen under such treatment, very remarkable and interesting is the exceeding variety found in the foliage and general habit of the plants when they have made strong growth. That is at least my experience here, for in a small batch of plants more variation in foliage and habit of growth are seen than can be found in any other hardy plant. The foliage in its diversity approaches most nearly to the variations of the flowers of Japanese Chrysanthemums, for whilst some have long, curled foliage, others have equally narrow leafage, but shorter and more compact. Then some of the plants have tall, flat, almost erect leafage, whilst others have shorter leafage of similar form, and there are intermediate variations. Some are so marked that it is hard to believe all will produce flowers identical in character. There is perhaps no hardy annual which it is more desirable should have its flowers enlarged and its colour deepened than is this Cornflower. It is so common as to be universally grown, and it is so much in demand as to be indispensable for the furnishing of that natural colour of blue which all admire. And yet it seems not to have improved in flower appreciably under garden cultivation, as seed saved from cornfield plants will in gardens give as good flowers generally as will be the product of garden-raised plants of many years' succession. Without doubt these blue flowers, doubled in size and deepened in colour, would prove valuable additions to our garden flora, and I hope some day that desired improvement may be brought about.—A. D.

SHORT NOTES.—FLOWER.

Double blue Hepatica is very deep blue, and quite double. Messrs. Barr had several plants flowering in their nursery at Tooting a few days ago.

Narcissus Horsfieldi.—This species is largely grown by Mr. Penfold at Beddington House, where it is now finely in flower. It is considered the finest of all, Empress as grown here being very similar, but always later.

Blue winter Windflower (Anemone blanda) was flowering remarkably well a few days ago on the Kew rockery. The spreading clump covered with rich deep blue flowers was nestling in a sunny corner.

Tenby Daffodil was very fine recently in the Epsom Nursery. There is an immense bed of it, as the flowers are in considerable demand by reason of their bright colour and neatness. It is one of the best of all Daffodils.

Narcissus poeticus grandiflorus has much larger flowers than the type, at the same time retaining its purity and delicious fragrance. It is a choice variety, and is blooming in Messrs. Paul and Son's nursery at Broxbourne.

A small-flowered variety of the old double yellow Wallflower was recently noted at Broxbourne. It is quite double, rich yellow, and smaller than the type. It is called Ewbank's variety, and is quite hardy.

Double Primroses are gaining ground, and they are likely to do so when we get such fine, bold flowers as those of the double lilac, yellow, and crimson. We noted these recently in bloom with the Messrs. Barr.

A variegated Daisy of the richest leafage is *acubae-folia*, but unfortunately it is tender. Messrs. Barr had several plants in pots, but they mentioned that large breadths planted out were killed.

Anemone Fannini, in flower at Kew, seems to be a really valuable plant for the garden. It is hardy, vigorous, and with white flowers. We quite expect this to be one of the hardy plants of the future.

Anemone blanda.—Can anyone give me the origin of this Anemone? I find that in some catalogues it is given (and I have no doubt very properly) as a variety of *A. apennina*. Who selected it? or is it a seedling form, though I am not aware if *A. apennina* yields seeds? Who named it *blanda*? and who sent it out?—R. D.

Crown Imperials are making the garden gay with their large bell-shaped flowers. The old *Fritillaria imperialis* is rich in colour, but the golden-

coloured variety is the finest. Both are blooming with Messrs. Barr, and amongst them is the variegated variety, a bright and handsome plant.

ROSE GARDEN.

T. W. GIRDLESTONE.

ROSE-COLOURED ROSES.

THERE is a great want among Roses of some first-rate vigorous varieties of a pure and brilliant rose colour. There are red Roses, pink Roses, crimson Roses, and even white and yellow Roses in considerable numbers which have all the principal recommendations, but there is a plentiful lack of varieties of that bright and telling rose—a colour which to many people is more delightful than all others—possessing also the essential qualities of hardiness and vigour.

Of course the names of all colours are so loosely employed by Rose growers, and are, moreover, so vaguely defined, that the term rose colour is frequently made to indicate the most widely differing tints. If, for instance, rose colour is the exact definition of the delicate shade of maiden blooms of Monsieur Noman, it can hardly be contended, in view of such recent varieties as Her Majesty and Mme. Gabriel Luizet, to say nothing of the fine allied varieties, Marquise de Castellane, Alphonse Soupert, and Mme. Georges Schwartz, that there have not been valuable and vigorous additions made to the section.

But it is desired to employ the term rose colour to define the brighter shade of such Roses as Constantin Petriakoff or Marie Finger at its very best and freshest, and while there are several Roses with very lovely flowers of this type of colour, most of them are so little hardy or vigorous, that there is ample work for the raiser to extend the class not only in numbers, but in constitution.

Victor Verdier has been the parent of some of the most pleasing Roses of this colour, including perhaps the best of all, namely, Suzanne Marie Rodocanachi (Lévêque, 1884), not to be confused with a Rose of almost similar name, but of infinitely less value sent out a few years previously by E. Verdier. Suzanne Marie Rodocanachi is about the strongest grower of the Victor Verdier family, and produces an abundance of fine deep-petalled flowers of a pure rich rose colour, and has the additional advantages of being a thorough autumnal and not very liable to mildew. That so attractive a Rose should be weighted with so terrible (to English tongues) a name is a genuine misfortune, and it has been suggested that Rodocanachi might be dropped altogether and the Rose be known as Suzanne Marie—an arrangement to which probably little objection would be raised.

Another very lovely Rose is Mary Bennett (Bennett, 1884), which would be assured of a very high position if it would only grow. As a maiden on dwarf Brier stocks, it is most constant, every bud producing a practically perfect flower, exquisite in its pure rich tint of rose as well as in its refined and graceful form, but as a cut-back it must be regretfully admitted that it is not vigorous enough. Nevertheless, it is precisely the type of flower that is wanted, and if Mr. Bennett would oblige with a Mary Bennett of as vigorous a constitution as Ulrich Brunner, the ideal rose-coloured Rose would be realised.

There are two other Roses of this family of considerable attraction and which promise to prove valuable: Rosieriste Chauvry (Gonod, 1885), which appears likely to be considered as the best of its late raiser's seedlings, and is a good, deeper-coloured, and brighter Victor Ver-

dier, although it is possible that in a season of less brilliant sunshine than that of 1887 the colour may be too deep to rank as rose; and Mme. Bois (C. Levê, 1886), a very brilliant and pure rose colour, with flowers large and well formed, and of vigorous habit for the section.

Maiden blooms of Marie Finger (Rambaux, 1873), especially when young, are of the colour that it is desirable to define, but on cut-backs or when rather fully blown, there is just a hint of a lilac shade that mars their brightness. There are three other charming varieties, all of whose flowers, unfortunately, are seen to the greatest advantage as maidens, but which are taller growers than the Victor Verdier family. The first, and perhaps the finest of these is Countess of Rosebery (Postans, 1879), of which a maiden bloom at its best can hardly be surpassed for purity of colour, size, and perfection of form, but the variety lacks that absolute constancy which is looked for now-a-days in a Rose of the very first rank. Almost the same may be said of Lady Sheffield (Postans, 1881), a lovely Rose of the same type of colour, but distinct, especially in form and habit. The youngest of the trio is Marie Legrange (Liabaud, 1882), which, like the other two, is smooth-wooded and a fairly tall grower, and produces most pleasing rose flowers, rather lacking size on cut-backs, perhaps, though the maiden blooms are of good high-centred form and exceptionally smooth and well finished. Their colour is between that of Mary Bennett and Mme. Charles Crapelet (Fontaine, 1859), which, though so old, is still among the best of its colour and a most charming Rose.

Another Rose of about the same date, which, though now-a-days lacking (unlike Madame Charles Crapelet) the fulness and refinement of form considered essential to a first-rate Rose, has still the brightest and freshest possible complexion is Anna de Diesbach (Lacharme, 1858), but it must be admitted that its telling colour is this Rose's chief recommendation.

It seemed on the appearance of Comtesse Riza du Parc (Schwartz, 1876) as if it might be among the Teas that varieties of pure rose colour would be obtained, but this particular variety is still the only one of its colour in the class, and is itself so little constant in form that it has never attained a wide popularity. The nearest approach among Hybrid Teas is in the delightful Grace Darling, but here the rose colour is generally diffused to a considerable extent by yellow and shaded white.

Comtesse de Paris (Lévêque, 1882), a charming ever-blooming Hybrid Perpetual (not to be confounded with a crimson Rose sent out under the same name by E. Verdier in 1864), is a pure rose colour, which flowers with equal freedom and constancy as a maiden and as a cut-back, and which will, perhaps, in time obtain the general recognition that it deserves. The flowers are of admirable form, and the variety is most useful in the garden, since the bright flowers are carried erect on their upright stems, and are abundantly produced in autumn as well as in summer. Perhaps, however, the most characteristic of all in colour is the variety referred to above as typical, namely, Constantin Petriakoff (Jamain, 1877), which yields the most lovely maiden blooms, but appears as a cut-back on Manetti to be absolutely without a constitution. Must it always be that the attainment of this brilliant purity of tint can only be at the expense of vigour? Although, however, as a cut-back on Manetti this Rose is hopeless, on seedling Brier grown in the strong land of the west of England it appears to thrive, and

certainly during the summer beautiful blooms are exhibited from thence.

Nevertheless, Roses that have to be grown on a particular stock or soil cannot be considered to be, from the general grower's point of view, in the first rank; and the problem that raisers have yet to solve is how to eliminate all bluish shades and obtain pure rose without sacrificing the hardiness and vigour of the plant.

MARECHAL NIEL ROSE.

In Mr. Girdlestone's most interesting account of new Roses at Cheshunt, p. 309, the following sentence occurs:—

The celebrated and patriarchal trees of Maréchal Niel are bearing this year finer flowers than ever, and are evidently endowed with eternal youth, affording a standing protest against the frequent allegation that the Maréchal's life is a short and a merry one.

While all of us who have the pleasure of knowing these fine plants heartily congratulate their owner on their present prosperous condition, we would be further indebted to him if he would favour us with his views as to the cause of their abnormal longevity—if it is abnormal. That the plants are large and fine is readily admitted, but that they have earned the title to be called patriarchal may be doubted. Few men know better than Messrs. Girdlestone and George Paul that size is but a poor test of age in the matter of Maréchal Nels. I also forget whether these fine plants of Maréchal Niel are on their own roots, Gloire de Dijon, Banksian, or other stocks, and whether they have developed any warts or not. It would be of interest to every rosarian of THE GARDEN to have the views of such an experienced cultivator as Mr. George Paul on the causes, prevention, or cure of these warts, which cut short the lives of so many Maréchal Niel Roses. Any specialities of culture, soil, or manure that may be thought to have added to the length of life of those particular plants of the Maréchal might also prove valuable aids to the elucidation of one of the most inscrutable and provoking mysteries in the life, constitution and premature death of this invaluable Rose. By the way Mr. Girdlestone winds up the sentence I have quoted, it almost seems as if he doubted that Maréchal Niel Roses were short-lived. But no rosarian of his experience can really doubt or deny this all too abundantly demonstrated fact that individual plants of the Maréchal Niel die young, having the life throttled out of them by cruelly constrictive warts. The existence of a few patriarchs here and there affords no more logical or standing protest against such truthful allegations than the existence of a few octogenarians disproves the melancholy fact that the majority of our race die young, or before reaching middle age.

But if Messrs. Girdlestone, George Paul, or other writer for or reader of THE GARDEN will show us the way to make our Maréchal Niel plants patriarchal, they will confer a favour on many readers and cultivators, who would love their golden Maréchal all the better were their annual harvest of beauty and fragrance reaped from plants better known and, consequently, more endeared to them by sentiment and association as the years rolled by.

D. T. F.

SHORT NOTES.—ROSES.

Single Roses are coming to the front there is no doubt. Witness the award of a first-class certificate by the Royal Horticultural Society on the 10th inst. to *Rosa multiflora grandiflora*, a most beautiful variety, and one thoroughly deserving of recognition.

Seedling plants of *Rosa multiflora* (syn., *polyantha*) are a good deal used now in France as stocks on which to graft Roses under glass in spring. The seedlings of the new *R. multiflora grandiflora* are said to be especially well adapted for this purpose, and experiments are now being made to ascertain their value for budding out of doors.

Maréchal Niel should be exceptionally fine out of doors this year, for the wood was well ripened in the abundant sunshine of last summer, and has passed through the winter uninjured. The continued coldness of the weather now, too, is keeping the growth from a too early start, so that the chances of a fine crop of flowers presently have rarely appeared more favourable.

Roses and the frost.—Eight degrees of frost this morning (April 27) will not improve the chance of Roses pruned in February or early March. This April frost is less severe than has sometimes been the case of late years, but it will probably be followed by another early in May.

Rosa berberidifolia Hardyi.—It is worth noting that a plant of this Rose, growing entirely in the open without any protection whatever, is bursting into leaf to the very tips of the shoots; whereas a plant in a sheltered position on a south-eastern slope of the rockery has its shoots killed back more than half their length, although protected by a good bunch of dry Bracken Fern.

NOTES OF THE WEEK.

Royal Horticultural Society.—We learn that the council have decided that the show in the Inner Temple Gardens shall be kept open for two days, viz., May 17 and 18.

Polyanthuses in variety came from Mr. W. H. Frettingham, Beeston Nurseries, Nottingham. The flowers were rich in colour, bold, and handsome, especially the beautiful laced varieties. Every gardener who admires simple beauty should grow the variously coloured Polyanthuses and Primroses.

Draba saxicolor.—I was much struck with the beauty of this alpine gem (for so it truly is) when I saw large tufts of it on the new portion of the rock-work at York a few days ago, where it forms masses of golden yellow. It appears quite distinct from most other species of Drabas. It spreads in a similar way to, and resembles in habit, Saxifraga tenella.—R. P.

French Pansies.—We have received from Messrs. Vilmorin-Andrieux, of Paris, a gathering of Trimardeau Pansies. They are remarkably vigorous and showy, but we think in beauty not quite equal to the tufted Pansies, such as the self-coloured Mrs. Kinnear, Ariel, Holyrood, and many others, and the beautiful laced varieties. It is possible to make even the Pansy too big. Its purity and beauty of colour are its most precious qualities.

Flowers from Cork.—From Mr. Hartland, of Cork, we received a gathering of flowers, including the double Lilac and a Jonquil, described as the Monster Irish Jonquil. It is a very sweet and quite double variety, the colour rich yellow. Also came flowers of the hybrid poeticus Narcissus Muzart orientalis, which is considered a fine market plant. It has large, bold clusters of white flowers, the cup or chalice rich orange. It is something like Polyanthus Narcissus in appearance and perfume.

Dendrobium thyrsiflorum.—I send you flowers of Dendrobium thyrsiflorum, which, I think, are particularly good, as the faded raceme has some fifty-eight flowers, and the plant is not a large one. I also have one or two plants with the colour of the blooms nearer to lemon—very pretty. I also enclose a bloom of Cattleya Mossiae.—J. F. WILKINSON, *The Gardens, Highland, Minchinhampton.*

**** A handsome raceme** of one of the finest of Dendrobes. The Cattleya represented a good average variety.—ED.

A white Zephyranthes.—In the article in THE GARDEN of January 7, 1888, I do not find any reference to a pure white Zephyranthes having upright, stiff, cylindrical, dark green leaves like those of a young Onion. It is very common in gardens here, as is also the other white one with narrow, soft green leaves, viz., Z. tubispatha. The former has the best flowers, the form of which is more compact, somewhat like those of a Dutch Crocus. The bulbs are smaller than those of Z. carinata, and the outer skin is black. Can you tell me what variety it is?—P. BARRIE, *Ford Vale, Lucknow, India.*

The Crete Mullein (Celsia cretica) is generally grown out of doors, but it makes a capital pot plant for the greenhouse in spring, as may be seen by the fine specimens of it in the greenhouse at Kew at the present time. These plants are from 4 feet to 5 feet high, slender and erect, the upper half of the stem being wreathed with large golden yellow flowers, densely packed together. A group of well-flowered plants produces a fine effect, and as the flowers open in succession the plants are attractive for a long time. It is almost hardy, and, therefore, may be grown successfully in frames. It is biennial, but a few fine plants can be easily

and quickly grown from seed. Another Celsia is often seen in gardens as C. cretica, but which is really C. Arcturus, altogether a smaller, though scarcely less showy plant.

Cattleyas from Perth.—Mr. W. Macdonald, Woodlands House, Perth, has sent us a bloom of Cattleya speciosissima and a spike of Lælia Russelliana. The first-named is a showy, handsome flower, which is about the same size as a good bloom of C. Trianae. The colouring presents no special features, except on the lip, which is of purplish tint, boldly veined with rich amethyst. L. Russelliana is a variety of the purpurata group and has large flowers, in which the sepals are considerably narrower than the petals, both being of a delicate tint of lilac. The lip is large, rose-magenta, and pale yellow in the throat.

The Gentianella at Oakwood.—I had no idea of the beauty of some of the varieties of Gentiana acaulis (Gentianella) till they lately bloomed at Oakwood. The gorgeous blue of the type, especially when grown in full sunshine, might make it seem that any change in colour would be a move in the wrong direction, but in this case, as the varieties are all of delicate tints of colour, no comparison is provoked. My son, Mr. Scott Wilson, while studying the Swiss birds in 1885 and 1886, did not forget the Wisley garden, and when among the Gentianellas, collected those of abnormal colours and sent them home. They are now established and, though small plants, are blooming well. One is pale azure-blue; another white, faintly tinted with pale blue; another white, tinted with pink-purple, the reverse of the throat being a full pink-purple.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath.*

Tropæolum rhomboideum (Lem.) and T. amœnum (Rengifo).—T. rhomboideum was introduced to Europe some forty years ago, but has since disappeared from cultivation. I have succeeded in re-introducing this, and also for the first time a nearly allied species, T. amœnum (Rengifo). Both (natives of Chili) belong to the tuberous-rooted section, of which T. tricolor is the best-known representative. The flowers of both are intermediate between those of tricolor and brachyceras, the flowers yellow, the calyx yellow, red, and green. T. rhomboideum differs from T. amœnum by its shorter spur, more open flower, and its deeper red colour. Both are lovely plants, well worth cultivation as greenhouse climbers. A sandy soil, good drainage, and careful watering are all they require. A low temperature suits them best during winter. Some of my plants were accidentally frozen, and by thawing them slowly they took no harm. T. polyphyllum, edule, and another new species from the Canary Islands are perfectly hardy here.—MAX LEICHTLIN, *Baden-Baden.*

Drabas.—These are now about at their best, and although to the casual observer there is a great similarity amongst the several species, they prove distinct enough when carefully examined. The best we have seen so far is one called D. Ardoini, said to be a native of the Caucasus, and perfectly hardy, even in exposed positions. It forms large tufts of tiny rosettes of a greyish appearance, and with an abundance of short silvery hairs on the foliage. Each is surmounted with bunches of deep yellow flowers, which are larger than those of any of the European kinds known to us. D. Aizoon, a native of the mountains of Carinthia, and closely allied to D. aizoides, is a very charming plant. We have a large tuft placed in the hollow of a stone, with no more than a handful of soil, yet in the best of health and flowering most profusely. Others are D. corymbosa, nivalis, Dorneri, all white flowered and very useful for rockeries.

Alpine Crowfoots.—Amongst the prettiest in flower just now is the mountain Buttercup (Ranunculus montanus). The flowers are a little larger than those of our common native species, but the whole plant is only 2 inches or so high, compact in habit and producing its brilliant flowers with great freedom. R. alpestris, though plentiful on most of the mountain ranges of Europe, does not seem to be common in gardens, the name often being applied to a near ally, R. crenatus. The flowers are borne

on short stalks, from one to three on each, pure white, and make a fine contrast against the dark green foliage. R. bilobus also belongs to this set, the leaves being smaller, kidney-shaped, dark green, and the flowers not so plentiful as in the above two mentioned kinds. R. Traunfelleri appears to be a small form of R. alpestris, habit, flowers, &c., corresponding. The most curious, however, we have yet seen is one called R. hybridus, in every way like R. Thora, except in the flowers, which are yellow. They should be grown on exposed places, and well looked after.

Apennine Windflower (Anemone apennina).—In small patches on rockeries, &c., the Apennine Windflower is an extremely useful plant, being so free flowering, and producing as it does such ample bright green foliage, but as a wild plant we have nothing to compare with it, unless indeed it is its near ally, A. blanda. In the wild garden at Kew, at the present time a golden sheet of Daffodils, a large patch of several hundred crowns is a most lovely sight. The groundwork is Vinca minor, which does not seem to interfere in the least with the Anemone, and the Buttercups have been left to mingle amongst the others, the bright golden flowers of which heighten and give variety to the group. A tall tuft of coarse Grass, a Dock here and there, Viola odorata, and a few bits of Chickweed, &c., gave us infinitely more pleasure than a trim bed or border of the choicest mixed flowers.

Two rare Tulips are Tulipa lanata and T. Kolpakowskiana, both brilliantly coloured forms that are now flowering with Messrs. Paul and Son in their Broxbourne nursery. Such gems as these are worth the care of the lover of the species of Tulip, as their beauty is far more refined than that of such large-flowered species as T. Greigi or the coarse T. præcox. T. lanata is of dwarf habit, the colour of the neat goblet-shaped flower rich vermilion, relieved with a large black spot at the base of each of the segments. It would make an excellent Tulip for massing, by reason of its dwarfness. T. Kolpakowskiana is more elegant, the flower bell-shaped, small, and on a slender stem about 4 inches or 5 inches long. It is faintly scented, the colour varying from rich scarlet to clear gold yellow, with some of the segments striped with scarlet. It is very free, and one of the choicest Central Asian species. Also in bloom at Broxbourne is the Italian form of the English Tulipa sylvestris, the segments longer than in our English kind, and the habit dwarfer; it is of an excellent yellow colour, and with brownish stems. We want greater interest taken in the species of Tulip, as amongst them are some that rival the florists' types for clearness and brilliancy of colour. There were several of them in bloom at Kew recently.

Address to the Dean of Rochester.—At a meeting of the committee of the old South Notts Horticultural Society, it was decided to present a congratulatory address from his horticultural friends to Dean Hole upon leaving the neighbourhood in consequence of his elevation to the Deanery of Rochester. The address is to be handsomely illuminated and enclosed in a carved Oak casket, and in order to carry out the necessary arrangements a sub-committee was appointed, consisting of the chairman (Dr. Appleby), the Rev. J. M. Dolphin, Mr. Gascoyne, and Mr. Marsland. It was felt that the number of subscribers would be more appreciated than the amount subscribed; therefore the individual subscriptions are not to exceed 10s., and all old members of the society, exhibitors at its meetings, and fellow workers in horticulture in Newark and the neighbourhood are invited to contribute. Any of the above mentioned gentlemen will be glad to receive subscriptions, or they may be sent direct to the treasurer of the fund, Mr. E. M. Hutton-Riddell, Messrs. Samuel Smith and Company's, Newark. Many of the readers of THE GARDEN will remember Dean Hole as the author of the charming "Book about Roses" and the "Six of Spades." The circular is published in full in our advertisement sheet. The subscription list will remain open until the end of May.

A PERGOLA.

A BEAUTIFUL example of a Vine-clad pergola is given in the annexed engraving of the one in the old Capuchin Convent at Amalfi, in Southern Italy. It is of stately proportions, and, standing as it does in a commanding position on a coast renowned for singular natural beauty, one is disposed to envy the former brothers of the order their place of daily exercise and meditation. The convent is now no longer a religious house. Adaptations of the Italian pergola are much to be recommended in English gardens, for though our summer is short, there are a good three months when a bowery shaded walk would be most enjoyable, and besides Vines, the

real gems. But I think there is considerable confusion of ideas and diversity of opinion as to what really constitutes an alpine plant. I visited a show lately in Scotland where a prize is given for the best six alpine plants. The two lots that were first and second contained plants of Grape Hyacinths and dwarf Daffodils. If those things are alpine, I suppose we might show any herbaceous plant. Perhaps some of your readers could tell me what really constitutes an alpine plant. —J. H.

CHRYSANTHEMUMS.

E. MOLYNEUX.

SINGLE VARIETIES.

I WAS pleased to see the short note on single Chrysanthemums on p. 332, as it proves that some people are taking an interest in them. If growers generally knew the value of these

Most of the sorts being erect flowering, the blooms can be used either singly or in long sprays as grown. More than this, some of the kinds are decidedly sweet-scented; particularly is this noticeable in Mrs. Langtry, a pale pink variety, having smallish flowers. Two or three plants of this sort, if properly grown, are sufficient to perfume a whole house. Single Chrysanthemums are especially suitable for the amateur, as they require less space to flower in and can be grown in smaller pots than the bulk of the other sections. The variety Snowflake, named on p. 332, is synonymous with Jane. It is without doubt one of the best varieties, the peculiar twist of its florets giving it a charming character. It is also of a robust habit of growth, without being too tall, and the foliage is deep green, an essential point in a plant grown solely for decoration.



An Italian pergola, or creeper-clad covered way in the old Capuchin Convent at Amalfi, in Southern Italy. Engraved for THE GARDEN.

numbers of free growing climbing plants at our disposal give an abundant choice of material. Aristolochia, Wistaria, Virginian Creeper, rambling Roses, Honeysuckles, Jasmines, and the free Clematises are all suitable, and both look well and do well in such a position. The supports, if not of stone or some masonry (in the one engraved they are of limestone plastered), may be well made of rough stems of Oak 8 inches or 9 inches thick, with smaller Oak branches for the top.

J.

What is an alpine? is a question for which I would like to have a satisfactory solution. Alpines are a most interesting class of plants, some of them

sorts when properly grown for supplying cut flowers for vases, much more interest would be taken in them than is now the case. I am surprised Chrysanthemum societies do not offer prizes for them more liberally. But shown, as they generally are, in the orthodox manner of three blooms in each bunch is a mistake, because in that case the plants are grown to produce the largest blooms. For the object named this method of cultivating the plants must be adopted if success on the exhibition stage is to be obtained. The most effective way, however, of growing single Chrysanthemums is that known as the "bush" method. The plants have several stems, and each one bears a good display of flowers, varying of course according to the habit of the individual varieties.

If exhibition flowers are required, the plants should be grown in the same way as in the case of the other sections, with the exception that more branches should be allowed to each plant, as many as six in most cases being none too many. Although I gave a list on page 505 last volume, I repeat it again, naming those best suited for exhibition, as some sorts, although they do well in bush form, are not suited for exhibition culture, having flowers naturally of too small a size.

Cuttings should be struck during January and February, topped when 4 inches high, and again when 4 inches or 5 inches of growth have been made. Two sizes of plants may be grown, and the smallest should have three or four branches after the first topping. No more cutting back

of these should take place, and it is better to allow the branches to grow away without interruption until the natural break takes place than to continue topping the shoots until the middle of June. Under the more natural method of treatment longer branches can be had, resulting in a larger quantity of flowers upon each stem, as such shoots develop blooms from each side branch. If larger plants are required, two pinchings back should be given with the object of getting, say, eight branches to each plant; these in time will be ample to grow into large bushes. Pots 8 inches in diameter will be large enough for the smaller plants, while those 10 inches wide will be ample for the largest-sized plants. The object should be to obtain short, firm, well-ripened growths, as these produce the best results. At the final potting make the soil firm, and as the plants are to be grown in small pots, more water will be required; therefore, add a liberal quantity of charcoal to the soil if this is of a heavy nature, as it tends to keep it sweet and porous. Select an open position out of doors during the summer for the plants, so that they get the full benefit of the sun and air. Regularly supply the plants with water both at the roots and overhead. Some support will be necessary during the time growth is being made, and this is best given by placing three stakes triangular in form around the outsides of the plants, looping the branches to them loosely. Many of the varieties are upright in growth and almost self-supporting; therefore, to stake each shoot separately is a loss of time and quite unnecessary.

Those named are suitable either for growing in bush form or for exhibition: Lady Churchill, brick-red; Snowflake, white; Mrs. Langtry, pale pink; Mrs. Wills, white, suffused with pink; America, bluish; Helianthus, bronze-yellow; Mrs. Dr. Duke, pale lilac; Crushed Strawberry; Patience, amaranth, tipped white; White Perfection, white; Oriflamme, reddish brown; Queen of Yellows, yellow.

The undermentioned having smaller flowers, they are not so well suited for the above purpose, but make capital bushes: Lady Brooke, bright yellow, Buttercup form; Oscar Wilde, dull brick-red; Miss Gordon, light pink; and Miss Martin, pink.

REFLEXED JAPANESE CHRYSANTHEMUMS. THE revision committee (Messrs. Lewis Castle, George Gordon, and Harman Payne) appointed by the National Chrysanthemum Society to tabulate and arrange the returns for the new catalogue have prepared the following list of reflexed Japanese varieties as a guide to growers intending to compete in the new classes provided for these kinds.

It must be pointed out that the varieties named as Japanese reflexed are only excluded from the true reflexed class, so they can be shown in all the Japanese classes as before. Nearly two-thirds of the thirty members of the committee have named varieties they consider should be classed in the new section, and a total exceeding sixty varieties has been thus mentioned. The following twenty-four have obtained the highest number of votes, and will form the select list recommended by the committee for exhibition. They are arranged in the order of merit as determined by the votes, and those that are also specially adapted for culture as specimen plants are indicated by an asterisk.

*Elaine, *Maiden's Blush, Triomphe du Nord, *Dr. Macary, La Triomphante, L'Adorable, Madeleine Tezier, *M. Astorg, Amy Furze, Jeanne Delaux, Père Delaux, M. John Laing, *Val d'Andorre, *M. Henri Jacotot, *Flambeau, Gorgeous, *La Nympe, Criterion, *L'Africaine, *Roseum superbum, Phœbus, *Margot, *Wm. Holmes, and *Tendresse.

A few have advocated transferring Cullingfordi

to the Japanese reflexed section, but the majority are in favour of its retention in the true reflexed class.

KITCHEN GARDEN.

EARLY THINNING OUT.

A VERY busy season with gardeners is fast approaching, and unless we stick very closely to the work in the kitchen garden especially, crops may be very easily marred. It is a case of now or never with many important details, not the least among these being the necessity for timely thinning out. If this is neglected early in the season the chances are, in many instances, no thinning out at all will be attempted, and although this may not be attended by actual failure, yet the results may be far from satisfactory, or not nearly so good as might have been the case had timely thinning been resorted to. Take Peas, for example. For various reasons it is thought desirable to sow these rather thickly, or, at any rate, it is done, whether desirable or not, and the consequence is that more than double the number of plants is grown in a row than there is proper space for. The early round-seeded varieties may well be left rather thickly, as these do not naturally branch strongly, and, besides, in this case, quick and early rather than heavy and continuous crops are needed. The second early wrinkled-seeded varieties, notably Telegraph, Telephone, Stratagem, Prodigy, and Anticipation, are naturally of branching habit, and so also in a lesser degree are Criterion, Huntingdonian, Gladiator, Marvel, Dr. McLean, Wordsley Wonder, and Stourbridge Marrow. Among main-crop and late varieties, Ne Plus Ultra, Veitch's Perfection, Chancellor, Evolution, Sturdy, Duke of Albany, Walton Hero, Latest of All, Emperor of the Marrows, Reading Giant, and Walker's Perpetual Bearer may be named as of branching habit, and no doubt there are plenty more that might be similarly described. Any of these if left as thickly as they come through the ground in the majority of cases, or say about 2 inches apart each way in a drill 5 inches wide, are soon far too crowded to do well. What is generally wanted is a good and continuous crop rather than an abundance of pods for a few days only. Being so thick on the ground they impoverish each other, and soon fail from mildew or other causes. The strongest growers may well be thinned to a distance of 5 inches or rather more apart each way, and other conditions being favourable, a strong branching growth, this being more continuous bearing, is the result.

Much that has been advanced concerning Peas is also applicable to Runner, Kidney and Broad Beans. Not only should the rows of these be disposed a good distance apart, the former doing remarkably well when quite isolated, but the plants in the rows must also be freely thinned out where at all crowded. Who has not seen rows of Runner Beans at least 9 inches wide, and the plants left in these no more than 5 inches apart each way, the ultimate result being a complete thicket of unfruitful haulm. If it is intended to have a double line of stakes, these ought at least to be 12 inches apart, only one plant being trained to each, and the rest either pulled out or transplanted elsewhere. We are satisfied with a single row of plants and stakes, each about 12 inches apart, and our earliest sown Beans remain in a profitable state until cut down by frosts. The earliest Dwarf or Kidney Beans may be sown in rows 15 inches or 18 inches apart, according to their vigour, but on good land the stronger-grow-

ing Canadian Wonder and Negro Long-podded may well be sown in rows 2 feet apart. The former to be thinned to about 6 inches apart, and the latter nearer 9 inches. Thus treated, they form sturdy, branching plants, and remain for some time in a profitable state. Broad Beans we grow 9 inches apart in single rows 2 feet apart, the plants branching strongly and bearing heavily.

Large roots of Beet, Carrots, Onions, Parsnips, Salsafy, and Scorzonera not being the most profitable, thinning in this case may easily be overdone. But if it is unwise to thin out very freely, yet what thinning out is necessary cannot well be commenced too early. When long delayed the plants have already weakened each other, and it sometimes happens that the ground becomes hard and dry, thus rendering thinning out an impossibility. In a young state the seedlings are easily removed without disturbing those reserved, but when the Onions are as thick as lead pencils and Carrot roots large enough for cooking, they are not easily removed, the greater part snapping off near the ground. Early thinning is absolutely necessary in the case of Turnips, or bulbing will be slow and late. Beet will grow quite large enough if left 6 inches or rather more apart in the rows, while 8 inches is enough for Parsnips, unless extra large roots are preferred, which too often, however, keep badly. If the broad drills of Onions are about 12 inches apart, the young plants may be left 4 inches apart each way, and if they drive each other out of the ground, so much the better, as the medium-sized well-matured roots are the most serviceable. I have long held the opinion that timely and light thinning out is one of the best preventives of the Onion maggot, late thinning and consequent loosening of the ground favouring the egress of the egg-bearing flies. Horn Carrots ought to be very lightly thinned out; in fact, if the seed is sown thinly, no thinning out will be needed till the forward roots are fit for use. We sow a good breadth of the Nantes Horn variety on a warm border, and the thinning is going on all the summer, a good crop being yet available for winter use. The intermediate kinds in rows 12 inches apart may be early thinned to about 6 inches apart, very little more space being needed by the Long Surrey and Altringham Carrots. Our Salsafy is sown in rows 12 inches apart, and the roots become quite large enough when the plants are early thinned to a distance of 5 inches apart. The Extra Early Milan Turnip does not form much top growth, and in frames may be left 5 inches apart each way, those drawn and used early favouring the swelling of the later bulbs. In the open ground Turnips ought at first to be lightly thinned out as soon as large enough to handle, and later on from 6 inches to 8 inches apart, according to the vigour of the variety.

Radishes fail to bulb unless early thinned out to about 3 inches apart each way, or not less than 2 inches apart in drills. Lettuces transplant badly if crowded in the seed bed, and it is very certain that much drawn Celery, Broccoli, Cauliflowers, Borecole, Leeks, and other plants are soon spoilt by crowding. These ought to be early and lightly thinned, and, if need be, the thinnings duly pricked out.

W. IGGULDEN.

Supply of vegetables in Dublin.—I am an Englishman resident in Dublin for a number of years. I wish to call the attention of your readers to the bad supply and extravagant price of vegetables in the city of Dublin. What market gardens there are in the suburbs are limited and of an inferior kind. If this should meet the eye of anyone experienced in market gardening and having a little capital, he may think it

worth his while to take a trip across and prospect the situation. Any person going into the matter should, in addition to the garden, have a shop on the north side and another on the south side of the city, and sell his own products.—OBSERVER.

KITCHEN GARDEN NOTES.

EARLY POTATOES.—On warm borders the haulm of these is fast pushing through the soil, and unless protected in some way may be badly crippled by a slight frost. If the first growth is damaged before moulding up takes place, the recovery is slow and the crops light. The best course to pursue is to well mould over the young tops, and if they are injured afterwards the good length of stem preserved in the ground soon pushes out fresh shoots. The loss of the points of the haulm is bound to check both top and root growth, and should be prevented as much as possible. Branches of Evergreens and Spruce Fir fixed in the ground, so as to well overhang the Potatoes, will ward off quite a severe frost, and it also pays to stretch mats, cotton or canvas blinds over them. Those in frames should be cleared of Radishes and weeds and given plenty of light and air, bottom, not top growth being most desirable. The haulm should be kept dry, but give water at the roots as often as the soil is found to be approaching dryness. It is not always advisable to lift a number of plants when the first dishes are needed. The larger tubers may be carefully searched for and removed, the rest being left to improve in size and quality. If very early Potatoes are in demand, or say for use at Christmas, save some of the earliest frame-grown tubers, and if these are properly stored, strong sprouts will form on them in the autumn. Old Ashleaf, Mona's Pride, and Early Eclipse are all suitable for pot culture and very early forcing.

MAIN-CROP PEAS.—It is those grown for affording supplies in August and September that are specially liable to suffer from drought. In order to guard against failure extra pains should be taken in the preparation of the ground for these sowings, and only approved varieties should be relied upon. A deep, rich root-run is the best preventive of mildew, but even this was of little avail last season, and only those rows growing in the coolest part of the garden, and which received abundance of water, were at all productive. Where the soil is of a light gravelly or sandy character, main-crop and late Peas may do well in shallow trenches prepared somewhat similarly to those intended for Celery. In this case the manure is placed under the roots, and watering can be effectively carried out. On stiff soils this plan will not answer, owing to the sides of the trenches shrinking and becoming hard and dry, and unless extra large quantities of water are given failure results. We prefer to trench either the whole of the ground or else double-dig 3-foot widths, mixing manure freely with each spit. Main-crop Peas also do well over the old Celery trenches, and in any case the drills should be drawn or shovelled out deeply, the seed being covered with not less than 3 inches of soil. The rows ought to be quite as far apart as the varieties are known to grow in height, and the plants started thinly in the rows. Duke of Albany, Veitch's Perfection, Satisfaction, Anticipation, G. F. Wilson, Triumph, Ne Plus Ultra, Sturdy, Emperor of the Marrows, and Reading Giant are all good main-crop varieties, but it does not follow that all should be grown in one garden. Having tried them all for at least two seasons, I am able to speak of their merits, and any three of them which may be grown are ample.

STAKING PEAS.—In many instances the earliest Peas will have been already staked, and the successional rows nearly fit for stakes. Where plentiful there is often a tendency to use more stakes than are really needed or good for the Peas. Nor should they be made to meet so closely at the top as is often the case, as the haulm is apt to grow through the stakes, and unless more stakes are added it breaks down badly. Our earliest rows, or those that seldom, if ever, receive any water other than rain, are first lightly moulded up, this being necessary to prevent the wind from breaking them down. Many of the old stakes used last season are

shortened, these answering well for William I. and other medium height early varieties. When good Hazel stakes are used, four bundles are ample for a row 18 yards long. As much of the spray as possible should be saved and more obtained from faggot wood or other sources, this being inserted on each side, and just clear of the rows of Peas. The taller stakes, which are usually rather naked near the bottoms, can then be more sparingly used, and these should be inserted deeply, and from 3 inches to 4 inches clear of the rows of plants. They must be made to lean inwards, the wind having less effect on them in this position, but need not quite meet at the tops. When the rows are moulded up for the purpose of supporting the plants it is a difficult matter to give the roots a good soaking with water or liquid manure, and a free use of spray obviates this difficulty. Later on a mulching of manure should be given, this being covered with soil worked up on each side as far as the stakes. Much moisture will thus be enclosed, and the basin or trough formed will greatly facilitate the operation of watering. During most summers Peas need plenty of assistance in the shape of watering, none but exceptionally heavy and continuous rains ever reaching their roots.

SUBSTITUTES FOR PEA STAKES.—Pea stakes are a rather expensive item in the expenditure connected with very many gardens, and it is somewhat surprising that they have been employed so long. Only the best of them last two seasons; whereas coarse mesh galvanised wire-netting, with ordinary care, is available for several seasons, and in the long run is much the cheapest. Even strong diamond mesh wirework, this being made in short, straight lengths, is economical, and the Peas are kept well together by using it. Peas of medium height require one width on each side of the rows, and the tall Peas two widths, with proportionately taller and stronger stakes for supporting them. Suitable netting is frequently advertised, while the stakes may be bought cheaply in any locality. The very short Peas need no stakes, nor is it advisable to waste any on very thin rows of varieties of medium height. These after they have been lightly moulded up may be allowed to fall about the ground and take their chance. Even fairly good rows may be similarly treated, and will form shorter haulm than if staked, being, in addition, quite as early and prolific. William I., Laxton's Supreme, Dr. McLean, Pride of the Market, Blue Scimitar, Veitch's Perfection, and other popular varieties all succeed well in the open fields without the aid of stakes; and the taller-growing Telegraph, Telephone, Triumph, and Criterion, under similar treatment, form a surprisingly small amount of haulm. In sheltered positions and rich garden soil the tall Peas must be staked, or otherwise they are unprofitable.

BROAD BEANS.—These are not generally considered a high-class vegetable, and the main-crop and late supplies are the least valued. In any case, it is not advisable to give up to these a portion of the best quarters of the garden, as they can be grown nearly or quite as well in odd places, notably among bush fruit trees that do not yet wholly fill the quarter allotted to them. A double row, the seed being dibbled in about 9 inches apart each way, formed midway between the lines of bushes would yield a good crop of Beans, or single rows may be sown in the open not less than 2 feet apart. The Broad Green Windsor is the best for sowing now, this being superior in quality to the other forms of Broad Windsor. A good depth of rich and rather heavy soil is most suitable for this class of Beans.

HARICOT BEANS.—These can be bought more cheaply than they can be grown, but in spite of this many gardeners are yet called upon to grow as many as possible. The white-seeded sorts are preferred, and we find the dwarf section or Kidney Beans the most profitable, these rarely failing to mature good crops. White Advancer and Carter's Longsword may be sown in rows 2 feet apart and otherwise treated similarly to the other dwarf Beans grown for their pods only. The White Dutch or Caseknife will during a favourable season yield a heavy crop of seeds, these being rather larger than those produced

by the White Haricot. They may be sown in single rows 4 feet apart and receive 6-foot stakes. None of the pods being gathered young effectually checks luxuriant growth, and consequently there is less danger of the rows unduly shading each other.

MAIN-CROP CELERY.—Seedlings raised either in pans or boxes under glass or in frames are now quite large enough to prick out. We utilise frames taken off Violet beds, and also lights not required for covering those in pits, for forwarding the requisite number of Celery plants. Some kind of protection is necessary for the purpose, and shallow frames are the best, and these should be set on a hard ground in an open position. In the bottom form a firm bed of short manure or old hotbed material to a depth of about 4 inches, surfacing this over with 2 inches of light sifted soil. The plants may then be dibbled out not less than 4 inches apart each way. Being given a gentle watering and kept rather close and shaded for a time, the seedlings soon become well established, when more air should be given and the shading dispensed with. Before the plants are far advanced the lights should be drawn off, and, if need be, the frames can be dispensed with, the aim being to raise a number of sturdy plants which may be cleanly moved off the hard bottoms without experiencing a severe check. It is the much drawn plants that fall about the trenches when first put out, and these rarely attain perfection. Market growers raise many thousands of Celery plants in large beds with little or no overhead protection, and the sturdy, well-rooted plants thus obtained are dibbled direct into the trenches where they soon become established. In any case, the preference should be given to the red or pink varieties, these being more to be relied upon than the white Celeries. Nor is it wise to prick out and grow a great many plants that were raised early and in strong heat, these being the most liable to run to seed prematurely. Those raised in gentle heat during March are the best for the main crop, the later supplies being drawn from plants raised in April or early in May. Leicester Red, or Major Clarke's Solid Red, Incomparable Crimson, Sulham Prize, and Standard-bearer are all of great excellence. W. I. M.

Cardoons.—Few of these are grown now-a-days, and still fewer are cooked. Should they be wanted early the plants must be raised in heat, the simplest plan being to sow two or three seeds in each 4-inch pot. They soon germinate, and the plants ought to be reduced to one in each pot, hardened off, and finally planted out before they are badly root-bound, as should they be kept long in the pots premature flowering results. As a rule, the best Cardoons are obtained by sowing the seeds where the plants are to be grown and blanching. They may be grown on the level or in shallow trenches, the latter method being preferable, these being formed about 18 inches wide and 6 feet apart, and otherwise manured and prepared similar to Celery trenches. Sow the seed in small patches 15 inches apart and cover with fine soil, the seedlings to be eventually thinned out where necessary, one only being left in each group. These should be encouraged to grow as strongly as possible, and require to be watered in hot and dry weather, especially those planted out, but not so much as Celery. The spaces between the trenches may be cropped with Kidney Beans, Peas, or Lettuces, either of these being cleared off before the soil is needed for banking up round the Cardoons.—W. I.

Greenhouse fires not drawing.—There are many furnaces that give much difficulty as regards getting up a fire in them quickly. This is especially the case with cool houses, where fire is only made in time of frost. The stovehole and chimney-flue get damp, and until the air therein becomes dried the fire cannot draw well. I have known instances where it took sometimes hours to get the heat up, simply through the inability to push the fire along for some time. A simple remedy, and one that I have found to answer well, is to put a wisp of lighted straw in the flue. This drives out the damp air and at once creates a draught. I have a furnace that draws remarkably well as soon

as the fire burns up well, but I often have great difficulty in getting the material to light. Since I adopted the above plan this difficulty has vanished, and I would advise all who have to do with furnaces of this description to try it. If it is not easy to introduce lighted straw into the chimney, a good blaze made in the furnace itself before the fire is laid will be beneficial. When, as is sure to be the case, fire has to be made late in the evening, it is very annoying to have to wait a long time before the fire can be made to burn brightly. In earlier days I have had nearly a dozen fires to light after 10 o'clock in the evening, and have been nearly choked through the smoke coming back instead of going out of the chimney. Had I known of such a simple remedy I should have been glad. A very important point is to see that all dust is cleared out from between the bars. Young men are apt to neglect this, thus checking the draught and occasioning a slow draught, and necessitating the consumption of an amount of fuel much out of proportion to the heat obtained. This winter I could not understand why the pipes in a house here did not get so warm as they ought to. On examining the furnace when the fire was out I could see where the fault laid. The stoker had apparently contented himself with cleaning the front portion of the furnace. The back part of the bars was choked with dust, and at the back of the ashpit there was a hard mass of ashes. With a thorough cleansing the fire drew and the heat went round all right.—J. C. B.

STOVE AND GREENHOUSE.

THE WAX FLOWERS.

(HOYAS.)

AMONGST the numerous plants which are comprised in this family are some which take rank amongst the most beautiful of stove climbers, and yet in these days how few grow them, and how few know them; indeed, the latter fact, I presume, is the cause of their being neglected, for assuredly anyone who has a practical knowledge of this genus and has the means, would not be without a selection. I would, therefore, draw the attention of those who have never grown the varieties of Hoya to these handsome plants, and assure them that they contain some of the most beautiful species wherewith to clothe the pillars or rafters in a stove, or the surface of a wall, provided it is well exposed to the sun, as shade does not suit them. Hoyas are easily grown, and do not require much pot room; whilst if planted against a wall and kept moderately damp, roots will spring from the stems of the plants and adhere to the brickwork. The soil should consist of fibrous peat and loam in the proportion of two of the former to one of the latter, to which may be added with advantage some sand and old mortar rubbish. In addition to the climbing kinds, there are two species which are well adapted for hanging baskets. These should not have a great quantity of soil about their roots, as they are apt to damp off close to the ground level, and more particularly is this the case if the drainage is not maintained in good working order. Of the two kinds referred to, one is *H. bella*, which is a close-growing variety bearing small dark green opposite leaves on slender stems; the flowers are borne in umbels, the short scape springing from the base of the leaves; the individual flowers are thick in texture, waxy white, with a crimson centre. After they have fallen the old flower-stems should not be cut away. They are too short to be unsightly, and, moreover, they not unfrequently produce a second crop of bloom; this remark applies to all the species. The other species which makes such a charming specimen in a hanging basket is *H. Paxtoni*, a much slenderer plant than *H.*

bella, with more pointed leaves, and of a paler green; the flowers are waxy white, with a bright pink centre, and they are slightly different in shape from those of the previously-named kind. The following kinds are climbers, and produce much larger umbels, the individual flowers also being of greater size. They are very sweet-scented, and are admirably adapted for button-holes, sprays, &c.

H. AUSTRALIS is a charming kind, more leafy than the majority of the Hoyas, while the foliage is thinner and of a brighter green, the flowers being waxy white, with a pink centre. It is valuable, as its flowers continue quite late into the autumn. It comes from Northern Australia, and requires stove heat.

H. CARNOSA is the old-fashioned Wax Plant of years ago, and succeeds well on the wall of a greenhouse, although it by no means objects to a stove. Its leaves are thick and fleshy in texture and dark green, the umbels of flowers being large and compact, creamy white, suffused with pink. It is exceedingly beautiful, and comes from China.

H. CORIACEA is a very handsome, strong-growing kind from Java. It has bold, deep green, fleshy leaves; the umbels are large, flowers yellowish buff, with a crimson centre.

H. CUMINGIANA is well represented in the accompanying cut; it is a plant more adapted for cul-

need not describe it, as a coloured plate of it was given in *THE GARDEN*, March 31, 1888, which will give a far better idea of the soft canary-coloured flowers than mere description.

THE CINERARIA.

I WROTE on the history and culture of these showy and useful greenhouse plants on p. 59 of the present volume. Since that time the plants have grown into handsome flowering specimens. They are now in full flower, and certainly few greenhouse plants make a better or more lasting display at this season. Mr. James, of Farnham Royal, near Slough, exhibited an excellent collection of the more recent productions at the March exhibition of the Royal Botanic Society. His collection has been greatly improved by the addition of white and blue varieties. A rather remarkable circumstance connected with some of the pure white forms is the fact that the flowers which open first on the plants are pure white—say to the number of a dozen or so. As the season advances, the next flowers are very slightly tinged with rose on the edge, which gradually becomes a more decided tinge until the later flowers are quite heavily tipped with red. This was the prevailing characteristic of these white varieties with large flowers a few years ago; but Mr. James informs me that he has now several good pure white varieties which retain their purity to the end of the blooming season. One of these, named *Marie*, ob-



Hoya Cumingiana; flowering shoot.

tivation in bush form, as its stems are erect and bear closely set coriaceous ovate leaves, the umbels being of medium size, with reflexed flowers, which are tawny yellow, and dark brown in the centre. It comes from the Malay Islands.

H. IMPERIALIS (see illustration) is a very bold and handsome plant, and by far the strongest of the genus yet introduced; the leaves are slightly hairy, thick in texture, some 9 inches long, and deep green; flowers large, of great substance, and of a dark reddish brown. Native of Borneo. Mr. Hudson at Gunnersbury House grows this variety well. He bloomed it last year, and at the present time it is now flowering from the same scape which produced the blooms last season. This will at once show the necessity of not cutting off the flower-stalks after the blooms have faded.

H. SHEPHERDI has long and narrow deep green leaves, the umbel medium-sized, while the flowers, which are not reflexed, are waxy in texture, white, suffused with rosy pink, with red dots on the corona. It comes from Northern India.

I conclude this article, not for want of material, but because I think the above kinds will be sufficient for any one place, and all may be grown together, as they are quite distinct from each other.

W. H. G.

Canary Water Lily (*Nymphaea Marliacea*), in bloom at Kew recently, was greatly admired at the last meeting of the Royal Horticultural Society. We

tained a first-class certificate; it has large, well-formed flowers, with broad overlapping petals of great purity. Another variety certificated was named *Beauty*. This is also a novelty; the margin is pale rose, white centre. *Irene* is purplish crimson, with a white centre. All the above received first-class certificates from the Royal Botanic Society on March 21. Besides the above many more good varieties were exhibited which might well have received similar honours. One, and I think the purest white I have yet seen, was named *The Bride*. Probably it was left out because the flowers were smaller than those of the others, but they were none the less beautiful on that account. It is rather singular that size should influence the verdict before colour in a case of this kind. Another good variety was named *Favourite*, the flowers of large size and well formed; the colour not novel, but a rich crimson with white centre. *Goliath* marks the greatest advance in size yet reached; the flowers of this variety are also of a crimson shade of colour with a white centre, and are 4 inches across. Size and quality were not combined in this instance.

It will soon be the time to propagate the finer varieties of the *Cineraria* from offsets. The plants obtained in this way form quite as good specimens as those grown from seeds. We get the offsets when we can during the months of May, June, and July. The earliest, of course, grow into the largest plants, forming excellent specimens. We do not take the offsets from the parent plants as cuttings, but allow them in the first place to form roots,

which they soon do if some fresh sandy compost is placed round their base. The offsets may be either placed in 2½-inch pots singly or in 3-inch pots, three of them round the sides of the pots. The cultural details are, however, given at page 59. Seed sowing has also to be attended to during the early summer months, and the main point in the culture of the *Cineraria* is to see that the young plants are pricked out as soon as they are large enough, and repotted when they require it. They should also be kept in a cool place during the summer. Exposure to drying winds and hot sunshine checks the growth of the plants, even if no insect pests attack them, but this they will certainly do, green-fly being specially troublesome, but in hot weather thrips and red spider are no infrequent visitors. I do not like syringing the plants, but green-fly and thrips can be kept off by fumigating, and red spider will not do much harm unless there is something radically wrong in the treatment. I should like to see fixed strains of these *Cinerarias*, as we have strains of Chinese *Primulas* in white, rose, red, blue, and other colours. A pure white strain would be of great value, so also would a blue self; we might have a rose and crimson strain. As the seeds are supplied at present they are in mixtures of all colours. Rapid strides have been made towards perfection during the last few years; in the years to come something better may yet be accomplished. J. DOUGLAS.

Plumbago rosea.—I recently noted someone advising this plant to be grown for one season only, but there are now flowering profusely in the gardens at Croydon Lodge numerous plants upwards of seven years old, which are used for covering the roof of a small house. These are the same plants which I referred to in *THE GARDEN* some months ago when they were a sheet of bloom. When the latter was nearly over the plants were cut hard back, and are now again flowering profusely, promising to maintain a display at least up to midsummer, so that to treat this plant as an annual is a mistake.—W. H. G.

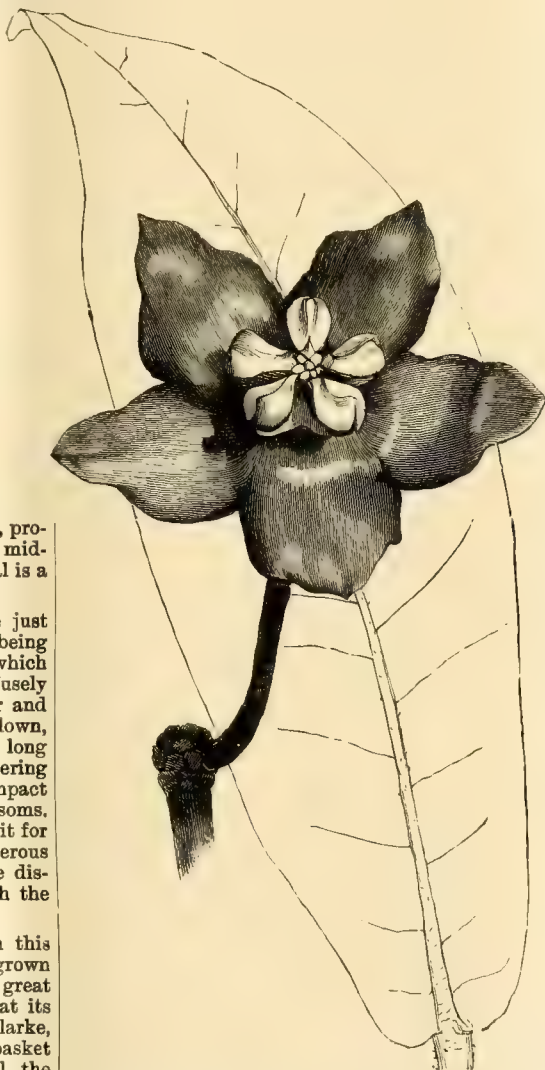
Impatiens at Croydon Lodge.—These just now are very gay in the stove, *I. Sultani* being covered with its brilliant flowers. *I. Hawkeri*, which is also largely grown, has been blooming profusely all the winter. This species being of larger and stronger growth will soon have to be cut down, when of course its beauty will be lost for a long time. Another old and beautiful kind flowering here is *I. flaccida alba*, which forms a neat, compact bush, and is covered with large pure white blossoms. It is an old garden plant, but I have not seen it for years. These single Balsams are very numerous and extremely handsome. They give a large display for little care, and as they bloom through the winter months, well deserve attention.—H.

Begonia glaucophylla.—I have known this species or variety for some years, and have grown it as a pot plant. As such it has always given great satisfaction; but I was recently surprised at its appearance in the gardens of Mr. Stephenson Clarke, Croydon Lodge, where it is treated as a basket plant. The plants were extremely beautiful, the shoots being some 3 feet or more in length, and densely clothed with foliage. From the base of every leaf a very large truss of bloom is produced, and the flowers last long in beauty, the plants at present so gay having been blooming since Christmas. It appears to be rare to find a female bloom, and this perhaps accounts for the long time in which they remain in perfection. This plant was found some years ago in an obscure garden in Dorsetshire, from whence it was obtained by Mr. Williams, of Holway; but I think, as now to be seen at Croydon Lodge, it should rank as one of our best winter-flowering basket plants.—W. H. G.

Himantophyllums in the house.—I do not think the great value of this pretty plant (whose ugly name, I am glad to see, is now changed to *Clivia*) for house decoration is sufficiently appreciated. If the plant is removed to an ordinary

sitting-room when the first two or three blossoms of the umbel are open, it will be found that all the others will expand as perfectly as in the conservatory, and the plant will continue in full beauty for fully three weeks before a sign of fading is visible if reasonably supplied with water. A small specimen with one main growth forms a most attractive ornament in a room, even without flowers, as the foliage is so bold and characteristic. The offsets, if grown liberally, soon make flowering specimens, the time of blooming depending a good deal on temperature. They will do in any ordinary greenhouse, but seem to like the warmth of an intermediate house even better.—GREENWOOD.

Acacia Riceana.—Where small bushes in pots are required, such *Acacias* as *Drummondii*, *lineata* and *armata* must be chosen, from all of which *A.*



Hoya imperialis; showing flower and leaf.

Riceana differs widely. Indeed, its loose rambling habit totally unfits it for growing into a bushy specimen, but it is suitable for clothing a pillar in the greenhouse or for furnishing a rafter. When allowed plenty of room the long pendulous thong-like branches, clothed with needle-shaped leaves, and profusely laden with sulphur-coloured blossoms, hang down for a considerable distance. This *Acacia* well repays liberal treatment, and, consequently, it does far better in a general way when planted out than in pots. So beautiful is it that it is at least an open question whether it should not find a place among the best dozen of greenhouse climbers, in the selection of which there would no doubt be many differences of opinion. I have more than once ripened seeds of *Acacia Riceana*, but the usual mode of increase is by cuttings. In the event of

seed being obtainable it should be sown at once, except it be in the depth of winter, when it is better to keep it out of the ground till spring, as should the young plants appear in midwinter the chances are they will damp off. As they are at all seasons liable to do this the better way is to pot them in small pots as soon as the first leaf is well developed. Cuttings of this, as well as of most other members of the genus are by no means difficult to strike if formed of the current season's shoots taken before they get hard and woody. The best cuttings are furnished by the weaker side shoots, as they root much more freely than the stouter ones. They must be about 3 inches long, and dibbled into well-drained pots of sandy soil, after which water them and cover with a bell-glass. A greenhouse temperature, or at most one but slightly higher, should be given them at first, but in a few weeks, when callused a little, additional heat will greatly assist the formation of roots. As soon as they are struck the bell-glass should be tilted for a few days to give a little air, and as soon as possible they must be potted off. The young plants will then make rapid progress under liberal treatment.—T.

HYBRID AZALEAS.

A VERY useful group of Azaleas is that composed of those varieties that have been obtained by the intercrossing of the pretty little Japanese *A. amoena* and some of the varieties of the Indian Azalea. In habit of growth and other particulars the majority of them are about midway between their parents, being characterised by a more or less dense twiggy growth and great profusion of blossoms, which while larger than those of *amoena* are much smaller than the comparatively large blooms of the ordinary Indian Azalea. From their relationship to the hardy *A. amoena* these hybrids are less tender than those of the Indian section, and owing to their dense much-branched habit they can be grown into neat little bushes in small pots. As *A. amoena* naturally flowers when under glass earlier than the others, these hybrids are available for forcing into bloom, for they can be had in flower in less time than most of the Indian race. Mr. Carmichael when at Sandringham was, I believe, the first to raise any of these hybrids, and he obtained a considerable number from the intercrossing of *A. amoena* with the Indian *A. Stella*. One of the finest was Mrs. Carmichael, which has blooms of a magenta-purple colour. Besides this, a few other good and distinct varieties are Duke of Connaught, which is more like an enlarged *A. amoena*, as the flowers have the Hose-in-hose character common to that kind and are of much the same colour. In Mrs. Gerard Leigh the blooms are of a pleasing shade of rose, and in Miss Buist they are white. William Carmichael, with carmine flowers over-spread with a magenta shade, is very pleasing, and so are the pale mauve blossoms of Princess Beatrice. One of the newest of this class is Illuminator, a variety which was awarded a first-class certificate by the Royal Horticultural Society some three years since. In this the flowers are of medium size and of a bright magenta-pink colour, the centre of the flower being tinged with vermillion. Besides these hybrid varieties, the ordinary *A. amoena* is a very valuable plant in the garden, for so hardy is it that it may be employed as an edging to some of the larger *Ericaceæ*, such as *Rhododendrons*, &c. Besides this it will, with just the shelter of a greenhouse, begin to flower early in the new year, and remain in beauty a considerable time. The manner in which the flowers are borne and their size enable them to be used for various purposes in a cut state, such as sprays, button-holes, &c. When employed for flowering in pots it little matters what method of treatment is carried out, for they will bloom every year with great freedom if always confined in pots, and, on the other hand, they flower just as freely if thoroughly hardened off and then planted out during the summer. Lift them carefully in the autumn and repot. H. P.

Echmea Mariæ Reginæ.—This is a large and bold-growing plant with a vasiform appearance, the leaves being deep green, from 1 foot to 18 inches long, and armed on the edges with sharp spines. The scape

is central, erect, and clothed for about two-thirds of its length with large oblong bracts, which are rich rosy magenta, and last many weeks. The upper part of the scape bears the flowers, which are small and of a blue colour, changing to rose. This Bromeliad is flowering in Mr. Bull's nursery at Chelsea.—W. H. G.

Mexican Orange Flower (*Choisya ternata*).—For covering the back wall of a cool greenhouse this is a capital plant, and only moderately rich soil should be used or the growth will be too robust to allow of the plant flowering freely. Short side growths root quickly if inserted in sandy soil at this season in a gentle bottom heat, potted on into larger pots, and grown in the greenhouse for a time. They soon make suitable plants for planting at the base of the back wall of any cool house or corridor, and this is safer than planting out in the open ground, as it is not hardy in all situations, even in the south of England. Its deep green foliage contrasts admirably with the fragrant pure white flowers, which are freely produced. Abundant supplies of water should be given both at the roots and overhead, or red spider is liable to attack the foliage.—S.

Glory Tree of China (*Clerodendron fragrans*).—The blooms of this—which are white, with a pinkish centre—are by no means so showy as those of some of the others, yet it is a pretty and distinct warm greenhouse shrub, and one very easily grown. The flowers are borne in terminal corymbs, and remain a long time in beauty. There is a variety with very double flowers which is far more common than the type, and in which the fragrant character is more strongly marked than it is in the typical species. Cuttings of either of them strike very easily, and not only grow quickly, but flower freely while quite young. If the structure in which they are growing is rather warm, the leaves are sometimes attacked by red spider, but the pests are readily eradicated by syringing. Besides cuttings of the shoots, this *Clerodendron* can also be increased from pieces of the roots, but it is seldom requisite to resort to this last mode of propagating.—H. P.

Bright-coloured Bouvardias.—The *Bouvardia Vulcan*, which is noted on p. 323 as by far the brightest coloured kind hitherto raised, should certainly be sought after by everyone when it is distributed, for it must be indeed bright if it surpasses that grand variety *President Cleveland*, which attracted a considerable amount of attention last autumn. Like *Vulcan*, the variety *President Cleveland* is also of American origin, and in the matter of brightness far surpasses such varieties as *elegans*, *Hogarth*, and *Dazzler*. It is also of good constitution and habit, and when exhibited was regarded as a plant for which there was a great future, but if *Vulcan* possesses the merits claimed for it, the *President* will no doubt soon be surpassed. Our American friends seem to be a long way ahead of us in the production of new varieties of *Bouvardia*, for many of our best forms are of American origin.—H. P.

Francisceas in bloom.—With but little or no attention than that usually bestowed upon the general run of stove plants *Francisceas* may be had in flower for months together, and that too at a time when their blooms are very valuable, viz., during the spring and early summer months. The colour of the flowers is not only very pleasing, but also very distinct from that of the majority of their associates. The most vigorous in constitution and the second to none in the beauty of its blossoms is *F. confertiflora*, which, though it will attain the dimensions of a good-sized bush, will yet flower freely in a small state. When in a healthy condition the foliage of this is handsome, being of a deep glossy green, to retain which by the way it is necessary to shade it rather more than in the case of many subjects. A peculiarity of the *Francisceas* is the great change of colour that takes place in the blooms after expansion, for whereas when first opened they are of a deep purple colour, they gradually become paler until they are almost white. The *Francisceas* are not at all difficult to propagate, for cuttings of the growing shoots taken now and put in a close propagating case will root in two or three weeks, when they may be at once potted off. A mixture of about equal parts of peat and loam

with a liberal amount of sand will suit them well. There is a form of *F. confertiflora* with variegated leaves, but it is less vigorous than the type, though in a well-grown specimen the purplish flowers stand out in a marked manner from the light-coloured variegated leaves. Other good kinds are *F. calycina*, *eximia*, *Lindeni*, and *uniflora*. The whole genus is by some authorities now included within that of *Brunfelsia*, of which, by the way, there is a plant, *B. americana*, which blooms during the summer, and is a very pretty stove flowering shrub. The flowers of this are freely borne, and in colour pale yellow, while they are most agreeably scented. This last is a very old, but uncommon plant.—H. P.

BORONIA MEGASTIGMA.

In answer to "North-west Cheshire" in THE GARDEN (p. 275), I may say that our plants get much the same treatment as the *Heaths*, *Epacris*, and other hard-wooded subjects with which they are associated. We propagate the *Boronia* by cuttings, which are obtained in the following manner: After flowering the plants are cut down, and as soon as the young shoots are about a couple of inches long they are formed into cuttings. The pots prepared for their reception are filled with broken crocks to within a couple of inches of the top, thorough drainage being secured by placing the rough pieces in the bottom and the finer ones towards the top. The soil used consists of equal parts of peat and sand. The cuttings are cut clean off at the base, and the bottom leaves having been removed for a little distance they are dibbled firmly into the pots got ready for them. Care must be taken not to overcrowd the cuttings, as it will lead to decay, while on the other hand it is as well to economise space as far as possible. When a pot is filled with the cuttings a thorough watering must be given through a fine rose, and directly the foliage dries a little the cuttings must be covered with a bell-glass. They are then placed in a small greenhouse that is kept rather closer and warmer than the generality of such structures, and without being plunged in any way they soon root. The bell-glasses are taken off every morning, thus affording a favourable opportunity of seeing if the cuttings require water, as well as of removing any signs of decay. The cuttings will, of course, need shading from the sun. Directly the cuttings are struck the top of each is pinched out in order to lay the foundation of a bushy plant. As soon as the plants start into growth after being pinched they are potted off. For this purpose we use good sandy peat, which must be pressed firmly. After they are potted they are placed in a cold frame on a bed of ashes, in order to keep the worms from the pots and also bring the plants up nearer the light. In this frame the young plants are kept pretty close for a little while till they recover from their check, and after that plenty of air must be given. The longest shoots are pinched occasionally to encourage a bushy habit, and in winter the plants are removed to the greenhouse.

The flowering plants which are most useful to us when in pots 5 inches or 6 inches in diameter are, directly their beauty is over, cut back rather severely, as if this is not done they will soon run up thin and naked. Directly they break into growth the plants are repotted, using for the purpose good fibrous peat with a liberal admixture of sand. Care should be taken not to disturb the roots more than is absolutely necessary, while, at the same time, overpotting must be guarded against. The plants are kept on the stage of the greenhouse, plenty of air being given them, when by July they are turned out of doors. I do not mean that they are exposed to the full rays of the summer's sun, as if this is done the foliage soon turns brown and some of it will fall. Ours are partially plunged in a bed of coal ashes in a frame, so that the lights can be put on should there be too heavy or continuous a rain. The position they occupy is partially shaded; consequently their surroundings are never parched up, as would be the case in a thoroughly exposed spot. So treated, the foliage is always fresh and green, while, owing to the plants

having plenty of room and fair, the shoots are sturdy, and always produce plenty of bloom. On the approach of autumn they are removed to the greenhouse, plenty of air being given whenever possible. A night temperature of 45° during the winter will suit this and the other *Boronias* well, for though our house sometimes goes down as low as 40°, it is not from choice, as too low a temperature and, consequently, a stagnant atmosphere are liable to produce mildew, which if once it gets a hold is difficult to get rid of. The delicate hair-like roots of the *Boronia* suffer greatly if they are allowed to become dry, and, at the same time, an excess of water will quickly cause the most flourishing specimens to fall into ill health. T.

Ruellia rosea.—This Brazilian *Acanthad* is a pretty free-flowering stove plant of very easy culture, like the other members of the genus to which it belongs. The flowers are like a curved tube in shape, and are about 1½ inches long, while the mouth of the blossom is of the same diameter. Their colour is a very bright rosy pink with just a suspicion of magenta, so that when a plant is studded with expanded blooms it forms a very conspicuous feature in the stove. It is of little or no use in a cut state, as the blooms quickly drop, but on the plant a succession is maintained for a considerable period. It can be readily increased by means of cuttings put in at any season when obtainable, and if liberally treated the young plants make rapid progress, and in addition they flower freely when quite small. For some reason or other the different *Ruellias* and their near allies are rarely met with in gardens, yet taken altogether they form a very interesting and beautiful class.—H. P.

The Brisbane Lily (*Euryclis australasica*).—This is a very ornamental plant, having showy blossoms, and belongs to the same family as the *Pancratiums*, *Amaryllids*, *Crinums*, and many others. This *Euryclis* is a very old inhabitant of our gardens, yet it is rarely met with, although it is such a distinct and striking plant. The bulb is not unlike that of a very large *Eucharis*, and from it a couple of prominently ribbed, heart-shaped leaves of a bright cheerful shade of green are usually pushed up. The leaves are borne on long stalks, and a vigorous specimen will produce them at least a foot in diameter across the blade. The flowers usually make their appearance slightly in advance of the leaves, and are borne in a spherical-shaped umbel sometimes as many as a score together. The individual blooms being 2 inches or more in diameter, make a goodly show when all are expanded at the same time. The temperature best suited for this *Euryclis* is that of a warm greenhouse, where after flowering it should be encouraged to grow freely, and towards the end of the summer gradually dried off. These cultural directions apply only to those that flower at this time of the year, as if they are imported in a dormant state they will if strong enough usually start into growth and flower irrespective of the season, though their usual time of blooming under cultivation here is during the spring or early summer months. A soil consisting of good loam with a liberal admixture of well-prepared leaf-mould, manure and sand will suit this plant perfectly. This *Euryclis* was, I believe, introduced into this country about the middle of the last century, but ten years or so ago when some fine examples were shown by Messrs. Veitch (for which indeed they were awarded a first-class certificate by the Royal Horticultural Society) it was almost unknown.—H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

Impatiens Sultani keeps its hold, and the newer *I. Hawkeri* is not likely to supersede it. A few plants looked remarkably bright a few days ago in the Chiswick Gardens.

A white *Amaryllis* we wish to see, and the variety *Mont Blanc*, shown recently by Messrs. Kelway and Son, was one of the nearest approaches obtained so far.

The white *Carnation* shown by Mr. John Knight, of The Oaks, Epsom, recently was a full, fragrant flower of the greatest beauty. If all the blooms were of the same quality as the one we saw, we have obtained a prize in the way of *Carnations*.

WORK IN PLANT HOUSES.

STOVE.—BOUVARDIAS.—Those who have grown Bouvardias successfully on the planting-out system in pits during summer do not require to be told the advantages attending this method over that of keeping them in pots. Under the planting-out system the plants, when properly managed, are capable of yielding double the quantity of flowers. Now is the time to plant out either old specimens that after flowering have been cut back, or stock that has been raised during the past winter from cuttings. A little heat should be turned on the pit during cold, unseasonable weather, especially when there is a number of small, newly-struck plants. With young stock stopping must be repeated until the plants have a dozen or fifteen good strong shoots, and these will be found enough, giving more flowers and larger trusses than double the number of weak growths. Cut-back plants will not require stopping further than pinching back any shoots that are out-growing the others. The soil should consist of good free loam, to which add some rotten manure, leaf-mould, and enough sand to make it moderately light, so that when the time comes for taking up the plants they can be lifted without breaking the roots. The beds should be raised so that the tops of the plants will not be too far from the glass. Do not crowd the plants too closely, as though attaining a much larger size, they will require more room than if grown in pots. Where the pit is provided with enough heating power to keep up the requisite temperature in winter, the plants may be allowed to remain where they have been grown, and in this way the trouble of potting and moving them will be avoided.

SHRUBBY CLERODENDRONS.—Young plants of such kinds as *C. fallax* and *C. Kämpferi* that were raised from cuttings or seed last year, if not already in pots large enough to carry them through the summer, should now be shifted. The kinds mentioned are free growers, and require a good deal of root room to admit of their producing their full quantity of flowers, especially during the time they are coming on to their second blooming, which with proper treatment will be towards the end of summer. They need rich soil, consisting of good turfy loam with plenty of rotten manure mixed with it. Plants that are already in the pots in which they are to flower and are well rooted should be regularly supplied with manure water; this is necessary both to support the flowers and to enable the bottom leaves to keep green and healthy, as if they turn yellow before the end of the season it spoils the appearance of the plants. *C. fragrans*, which bears highly fragrant flowers, should have the stems cut down to the bottom immediately the display is over, as when grown in a warm stove this kind blooms early enough to admit of an entirely new growth being made that will flower in autumn quite as well, if not better, than that produced in spring. To assist this the plants must not be stinted for manure water from the time they have begun to make the second growth until the flowers are commencing to open.

CLERODENDRON BALFOURI.—Old specimens of this fine plant will, when well managed, make a much better display than young ones. The time of this *Clerodendron* blooming depends in a great measure on when it is started after the rest it requires subsequent to the growth being completed in autumn. Plants that were started soon after the new year would be in bloom by the end of March or the beginning of April, and will now begin to look shabby. They should be cut close in, shortening the branches to within 6 inches or 8 inches of where they were cut back to last year. If the old stems are left 6 feet long, measuring from the base upwards, it is enough. This applies either to plants that are used to clothe a rafter in the stove or specimens that are trained on trellises. After cutting in they should have a brisk stove heat, and as soon as they have started into growth and the shoots are 1 inch long, turn the plants out of the pots and shake most of the old soil away. If larger pots are required these should be given; if the plants have already occupied such as are sufficient in size they may be replaced in them. Good turfy loam, with

plenty of rotten manure and some sand added, forms the best compost for *Clerodendron* fragrans. Do not give much water for a week or two after potting, but syringe overhead daily. This must be continued all through the growing season. Even when grown as pot specimens, the shoots must not be trained round the trellises until the growth is finished in autumn, as unless they can extend in an upward direction the plants will keep breaking back instead of throwing the strength into the first made shoots. During the time they are extending the best plan is to attach them to thin strings run up under it at the same angle as the roof. The plant does best with a high stove temperature, using a thin shade in bright weather.

CALLAS.—These remarkably handsome plants may now be planted out of doors, by which method of summer treatment they do well and some labour in attention is saved. They are best grown in a shallow trench in the way that *Celery* is treated. The soil should be moderately light; if not naturally so, it ought to have sand and leaf-mould, with rotten manure in sufficient quantity added to make it so. Under this treatment moderate-sized suckers will make strong plants before autumn. When the plants are turned out of the pots all the soil should be shaken away, and in separating the suckers a fair portion of roots should be secured to each. Plant in a single row along the middle of the trench, allowing about 12 inches or 14 inches between the plants. The weaker suckers may be planted by themselves, and if necessary put a stick to each so as to hold it in its place until the roots have taken hold of the soil. Give a good soaking with water as soon as the planting is completed, and let them have plenty during the summer, for the *Calla* is really aquatic. All that is required beyond this is to see that the plants are kept free from aphides, which if present at all soon get so numerous as to spoil the young leaves.

CLIMBERS.—The various greenhouse and conservatory climbers that flower in spring should be cut in as soon as they have done blooming. To what extent their shoots may require reducing depends on the kinds and the position they occupy. Free-growing subjects, such as some of the *Bignonias* and *Acacias*, will need their branches shortened considerably, without which they soon outgrow the space they are required to fill and shade the plants underneath them. In pruning climbers of this description it is necessary to exercise a little forethought. The branches should be annually kept shortened at different lengths from the eave of the roof upwards, or even lower than this, so as to secure enough young growth from bottom to top of the space to be clothed. Through inattention to this the plants may often be seen only flowering at the extremities of the leading branches, in place of the bloom being dispersed over the whole space they are intended to drape. The cutting back should not be delayed for any length of time after the plants have done blooming, for if this occurs whatever growth is made subsequent to the flowers dying off is a waste of strength and loss of time. Our summers at the best are not too long for plants of this kind to make their growth and mature it sufficiently to admit of their flowering well.

T. B.

Azalea Deutsche Perle.—This is the most valuable of all the white-flowered *Azaleas*, and when better known is sure to be extensively cultivated, as not only is it very pure in colour, but the flowers are of that form and substance which make them specially adapted for wreaths or bouquets. The plant, too, is of remarkably free growth and good habit, and can be easily forced, as it is naturally early-blooming. By getting it to make its young shoots as soon as the flowers are off, a very little heat will bring it on again the following winter.—S. D.

Plocostemma lasianthum.—I had much pleasure recently in finding in a friend's garden this plant, after having missed it for years. It was introduced by the Messrs. Low, of Clapton, from Borneo some thirty years ago, in the days when this firm used to introduce many fine plants besides *Orchids*. It resembles a *Hoya* in habit, with large ovate, thick, and fleshy, deep green leaves. The umbel of flowers is drooping, the flowers reflexed; the ends of the seg-

ments tipped with orange, while the centre of the blooms is profusely furnished with a thick woolly mass of hairs. It requires stove heat, and should be grown in a compost composed of a great deal of old mortar refuse.—W. H. G.

STEAM HEATING AND OVERHEAD RADIATION.

JUDGING from the tenor of the communications which so frequently appear in the pages of the *Florist*, the inference might be drawn that effectual and economical heating was one of the most important and at the same time most perplexing problems connected with the successful growing of plants under glass.

If the boiler is badly constructed or not properly located, and the pipes placed in position without regard to natural laws, the result will be disappointment and failure to accomplish the object intended; then begins a series of alterations and changes to overcome obstacles, until the whole structure becomes a constant source of apprehension and annoyance, while a little thought and study in advance of the work would have obviated all difficulties and saved a large amount of expense and labour.

In building my present houses, intending to heat with steam, I arranged the heating apparatus upon a principle which I believed to be the nearest approach to the natural laws governing steam, and now, after more than two years' successful operation, the plan adopted has proved so satisfactory to me, that I shall endeavour to give a description of that plan and my experience with steam heating.

In the arrangement of the heating surface, a 2½-inch pipe connecting with the boiler is carried up perpendicularly into the store-room above. At a point opposite the centre of each house a 1½-inch pipe connects with the supply pipe, and suspended from the ridge-pole, is carried to the opposite end of the house, where it drops down to the front edge of the end table, and branches each side connecting with four 1-inch pipes, which are carried across to and under the front edge of the side benches back to the south end of the house, where they are connected with a 1½-inch pipe leading into a 1½-inch return, placed directly under this point and below the water line of the boiler, virtually doing away with return pipes altogether.

The arrangement in all the houses is about the same, with the exception of one, where the leading pipe is suspended from the purlin over the north edge, and the lower pipes carried back on the sides of the raised border. Steam cocks are attached to the ends of the three upper pipes of the side ranges, by which means they can be cut off and the houses run with one, two, three, or four pipes on each side, as the state of the weather may require. Air cocks are placed at points directly over the return pipe, and the steam gauge is hung on the west wall of the work shed, that the condition of the fire may be noticed without going into the cellar.

Among the advantages gained by this system are, first, elevation. Plant structures necessarily cover a more or less extended area of flat surface, and where all the pipes are carried below the benches, whether the house is 50 feet or 200 feet long, both the flow and return pipes must be placed in this limited space of not more than 3 feet or 4 feet elevation, leaving but little fall to carry the condensed steam in the form of water back to the boiler and overcome the friction incidental to its passage. This cannot be satisfactorily overcome by the force of the steam. If there is any one thing at which steam rebels, it is to be forced into a cold, soggy pipe, and it is only by increasing the pressure that the circulation can be carried through the pipes; even then it often happens that some of the pipes become heated, while others remain cold and torpid, and only after the steam has slowly eaten its way through does the circulation become perfect. Carrying the supply pipe at once to the highest point attainable gives room for all the fall required; the pipes are thoroughly drained, and when the steam is started it circulates freely

with but little pressure, and every portion of the radiating surface is easily and quickly heated. Again, a more uniform temperature is preserved throughout the house. This upper radiation also counteracts the influence of the colder air before it descends from the glass and comes in contact with the plants.

Further, after more than two years' close observation and careful study, I have arrived at the conclusion that the solar rays passing through the radiation from this upper pipe are intensified to such an extent as to nearly approach those from a summer sun, and impart increased vigour to the plants coming within their range. In my study of the subject I have had abundant proofs to bear me out in my conclusions.—D. M. REICHARD, *St. Joseph, Mo., in American Florist.*

WATER SUPPLY IN MARKET GARDENS.

It would naturally be thought that in all places where plant culture for profit is carried on the arrangement of the water supply in a manner that should combine efficiency in the economy of labour would be the first consideration. It is a fact that, in a time of great heat, the watering of pot plants consumes half the day—that is, if they get the amount of moisture necessary to bring them to the degree of excellence that will render their culture profitable. It does, therefore, seem strange that just where one would expect the arrangements to be nearly perfect, they are often conspicuously defective. Looking through a large London market garden lately where culture is exceptionally good, I was astonished to observe that the whole of the water required for half a million pot plants came from one well, and had to be pumped by hand. There was, moreover, no attempt to mechanically increase the pumping power, the pump being one of the common iron pattern, with a short handle, which gives the largest amount of labour for the smallest quantity of water. All the tanks of the houses had to be filled from this pump, and the water carted, much of it to long distances. It is easy to imagine the labour that such imperfect means imposed on the staff in a summer like the past. Pumping water by hand and carting it to where it has to be used are about as laborious tasks as the gardener can have to perform, and the wonder is that any London market grower should fail to realise the loss of time entailed by such a system. Instances like the above are by no means rare in this country; whereas in France, and especially round Paris, there are few market gardens where this all-important detail does not receive the attention due to its importance. Some allowance must, of course, be made for climate, and it is doubtless the variability of ours which brings with it now and again a series of moist summers that cause English gardeners to be more indifferent on this point than they otherwise would be. Not a decade ago there was absolutely no need to water any plant in the open ground all through the summer for several consecutive seasons, so that any great outlay in improving the water supply scarcely seemed warranted. But the last three summers, with their drying winds and roasting sun, have told a different tale, and those who had water laid on to wherever needed have found their reward in the increased value of their products. To my certain knowledge, many valuable crops were last summer almost wholly ruined through the inability to give the needful moisture. Even where the crop was not spoilt its market worth was reduced to the vanishing point through the inability to get through the watering quickly enough to prevent the plants receiving a check.

Anyone conversant with plant culture knows how great is the harm done when plants in pots stand dry for an hour only in the fierce sun of July and August. Taking all things into consideration, I doubt if the plant grower for profit can spend money to better advantage than in making provision for a liberal supply of water to all parts of the garden where it may be needed in a manner that will reduce portage of the same to a minimum. There are few market gardens where the primary cost would not be repaid in a season or two. A

man with a hose will get through more watering in an hour and will do it better than three or four would do with watering-pots, and his work will equal that of six men if they have to carry all the water from a distance.

Supposing that only one man's work is saved, his wages for a year would go far towards, even if it did not suffice for the necessary outlay. In a garden on the Continent water was laid on to every portion of it. By means of a good length of hose and taps at regular intervals, every plant, not only in pots, but in the open ground could get a good watering daily. Gardening there, even under a broiling hot sun, was pleasant, and how different from carrying a couple of 4-gallon cans or pushing a waterbarrow for hours together, different not only as regards the ease with which the work was done, but also in the results. The man who has to carry every drop of water is apt at times to be sparing of it, but with hose in hand and a good pressure behind, he has no inducement to stint plants of that which puts vigour and value into them. In the instance here mentioned, the water was pumped by steam power into a large reservoir at the highest portion of the grounds, and this gave sufficient pressure to throw a jet of water 30 feet in height. There was no need to be timorous about transplanting large trees there, for evaporation could be effectively restricted by frequent overhead sprinklings. This was a private garden, and the owner utilised the steam power of his factory hard by to pump up the water. Two large glass houses 60 feet high—one for Camellias principally, the other for Palms and similar things—were watered in this way. Every leaf could be well washed. In a large garden in Germany all the water used was pumped by steam, and in one of the largest and best-managed Paris market gardens steam is the power employed to facilitate watering operations. It little matters what method is adopted so long as the dragging work of water portage can be avoided, and a plentiful supply of it ensured at critical moments.

An acquaintance of mine who grows flowers and vegetables for profit on a very light soil, where he found that nothing could be done by the ordinary way of watering, and that his profits in a dry season at least entirely depended upon the ability to water freely, has at length set up a windmill. At first he had a large pump, and the water ran through pipes into tubs in various parts of the garden. By this means he flooded his Marrow and Cucumber beds, raised Cabbages, Broccoli, &c., and grew salads remarkably well in a dry time. Now by the aid of his windmill he hopes to do more at less cost for labour. Windmills are much in vogue in France; in some parts one is to be seen in almost every tolerably large garden. They will, however, only answer in an exposed position, and to be guaranteed against a dearth of water there should be a large reservoir attached. In a populous neighbourhood it is generally practicable to have the water laid on at a moderate primary outlay, and this is what many growers for profit do, there being also a growing tendency to utilise the hose in lieu of the water-pot, not only where plants are planted out under glass, but also for those in pots. I know of two market growers, one a grower of Maiden-hair Ferns and Pelargoniums, the other of Geraniums and Camellias principally, who water everything, young seedlings and cuttings excepted, with the hose. One of them gets his pressure from the water company, the other has to make his own, which he does by means of wine casks sufficiently elevated, and into which the water is pumped. This, where there is no possibility of having water laid on, is about as simple a method as can be adopted.

I once had the management of a nursery where all the water in time of drought had to be carted into the tanks. A man and boy with horse and water-cart were employed half a day twice and sometimes three times a week, and then we had none in the open grounds. Then the owner had a deep well sunk, a powerful wheel-pump fixed with a large wooden tank above it. Inch gas-pipes were laid to carry the water to tubs sunk in the ground, and from that time we had an abundance of water everywhere. Two boys in an hour would pump

all the water that was needed. I do not doubt but that the expense incurred was recouped in a single season, and things in the open ground did not suffer. We grew a good many things for winter bloom, such as Callas, Abutilons, Eupatoriums, &c., planted out for the summer, and after we got plenty of water we could get double the amount of bloom from them. The only difficulty when the hose is used is that the water cannot be of the temperature of the house, and this is doubtless with many an insufferable bar to the adoption of this form of watering indoor plants. The question is, however, are we quite right in assuming that water given must be of the same temperature as the atmosphere in which growth is being made? Judging from my own experience and from what has been written on this subject, I am of opinion that we have hitherto attached too much importance to this detail. It is a well-known fact that Mr. Ladds freely syringes and waters such tender things as Gardenias and forced Roses with water from outside, and his cultural results are second to none, and wherever I have seen the hose used I have failed to perceive any ill effects. During the last two or three seasons I have had an opportunity of pretty accurately gauging the presumably ill effects of cold water for indoor plants. I have two long Strawberry pits both heated by hot water. In one I have sunk tubs and bored holes in the return pipe, so that I fill the tubs from it, the water being pumped in at the end. In this way I get chilled water. The other I water exclusively from a small pond. Any difference should be easily perceivable, as the plants in both frames are brought along at the same time. I can never see any, and I have therefore come to the conclusion that we are too fussy about having our water of the same temperature as that of the house.

J. C. B.

GARDEN FLORA.

PLATE 647.

THE DROOPING GLORY TREE.

(CLERODENDRON NUTANS.*)

THE subject of our present illustration was, I believe, brought to this country from India by Mr. Head, the present superintendent of the horticultural department at the Crystal Palace, Sydenham. The genus belongs to the Order Verbenaceae, the species of this Order being widely distributed throughout the tropics of both hemispheres, where they assume the proportions of shrubs, climbers, and even gigantic timber trees, the famous Teakwood tree (*Tectona grandis*) being included in the Order; whilst in more temperate regions the various members are reduced to low herbs.

The genus now under consideration includes two distinct groups, viz., climbers and shrubby plants, and contains numerous species remarkable for the extreme beauty of their flowers. The species here illustrated belongs to the first-named group, to which I will confine my remarks in this place. Clerodendrons of the climbing section rank amongst the most showy of stove plants, both for the embellishment of pillars and rafters, or when trained upon a large, balloon-shaped trellis for exhibition purposes, where, as the blooms travel well, they are displayed in all their pristine beauty. Clerodendrons are for the most part readily increased from cuttings, which should be selected from non-blooming shoots, but of strong wood and taken when it is nearly ripe, or, at any rate, when more than half-ripe. These cuttings require to be kept moist, and should be placed in active bottom heat, but shaded from the sun's rays. They also require air for a little while both in the morning and at night. The

* Drawn for THE GARDEN in the Royal Gardens, Kew, November 5, 1887, by H. G. Moon, and printed by G. Severeys.



THE DROOPING GLORY-TREE. (CLERODENDRON NUTANS.)

cuttings should not be small pieces, but may bear about three pairs of leaves, and it will be found most convenient to place them singly in tiny pots. After they are rooted they should be potted into 3-inch pots, which they will speedily fill with roots and require another shift into pots of a larger size. As the plants increase in size, if they are intended for covering the roof or pillars, it will be preferable to plant them out. The border must be well drained and filled with a compost consisting of about equal parts of loam, peat, and rich manure which is not green, adding to the whole sufficient sharp sand to render it gritty; the same material may be used when they are grown in pots. During the growing season they should have abundance of water, both to the roots and overhead, from the syringe, and strong heat, with full exposure to sun and light, and plenty of air. Towards the end of summer, however, the water supply should be diminished and air more freely admitted; this will materially assist in ripening the wood, without which bloom cannot be expected. When the wood is thoroughly ripened the plants should be removed to a cool house, in which the temperature does not fall below about 45°, and during the winter the side shoots should be cut back to about two joints, and from the young shoots the flowers are produced. In the course of my gardening experience I have found that *C. splendens* is very difficult to increase from cuttings, and have therefore used *C. speciosum* and *C. Balfourianum* as stocks to graft it upon. This operation is very simple and easily performed. Until the scion and the stock unite, they may be treated as recommended above for the cuttings. These plants, when in large pots and trained upon a trellis, will not require repotting for several years, but only a top-dressing when started into growth. It therefore becomes all the more necessary to so arrange the drainage material that it may continue in thorough working order during this lengthened time.

C. NUTANS.—The species depicted on the accompanying plate appears to have been introduced to cultivation about the year 1825, and I find it recorded as being grown by the Messrs. Loddiges, of Hackney, in 1849. Soon after this, I imagine it must have been lost to the country, as I do not remember to have seen it until recently. Respecting this plant, Mr. Head says: "I met with it in India, and as I did not know it in England, I brought it home and left the plant at Kew. Subsequently I got another from India, which I flowered and obtained a certificate for from the Horticultural Society." It bears racemes of bloom from 15 inches to 18 inches in length, the flowers being pure white and the calyx dull red, succeeded by berries of that peculiar metallic lustre seen in the fruits of all members of this genus; the flowers last about a fortnight in perfection, and are very handsome. It is readily increased from cuttings in spring.

C. SPLENDENS has opposite, oblong, smooth, and shining deep green leaves, and from the ends of the branches are produced large panicles of bright scarlet flowers, which maintain a brilliant display throughout the greater part of the summer and autumn months. It comes from Sierra Leone.

C. THOMSONI is a free-growing species sent to this country from Old Calabar by Mr. Thomson in the year 1861, and it flowered for the first time in the Botanic Gardens of Edinburgh in the following year. Mr. Thomson was engaged in missionary work in West Africa, and says he found it growing in great abundance on the banks of the river at Old Calabar, just above the range of salt water. Under cultivation, however, it grows profusely in any warm stove, its flowers, which continue for a very long time, producing a charming effect; the calyx is large and pure white, the flower itself being crimson, and long after the showy flowers have fallen the

calyx remains. It blooms throughout the spring and summer months.

C. BALFOURI.—This is a much enlarged form of *C. Thomsoni* obtained from seed in this country, and is now more frequently to be met with than the typical plant. It is a bold and rapid grower and a profuse bloomer, with dark green opposite leaves and large dense panicles of bloom; the calyces of the flowers are much inflated and pure white, whilst the flower itself is double the size of that of *Thomsoni* and of a rich deep crimson.

C. SPECIOSUM is another handsome form, said to be the result of a cross between *C. Balfouri* and *C. splendens*. The habit of the plant much resembles the first-named parent, and the calyces of its blooms are much inflated; but they are almost wholly of a deep red, whilst the flower itself is of a rich rose colour. I cannot say this is, to my mind, so strikingly beautiful as either of its parents, but it affords a pleasing variety in a collection of climbers.

W. H. G.

ORCHIDS.

W. H. GOWER.

INDIAN CROCUSES.

(PLEIONES.)

THESE plants are popularly known as Indian Crocuses, and have but little except habit to distinguish them from *Cœlogynes* (to which family they were long attached), but their appearance convinces one that they have been judiciously separated from them. These plants are for the most part natives of the high mountain ranges of the Indian mainland, not a single species, as far as I know, having been found in the numerous islands that are scattered over the Indian seas. In a natural condition as well as under cultivation, *Pleiones* are destitute of foliage at the time of flowering, and thus the contrast between their bright green plaited leaves and their brilliantly coloured flowers is lost. To remedy this, however, a few seedling Ferns should be pricked in between the bulbs just after the resting season is over, and if the seedlings are strong they will produce sufficient greenery by the time the flowers open to afford a pleasing effect. I have seen *Pleiones* a mass of beauty during the days of frost and snow, and again I have seen them so much neglected, as to present a most miserable appearance, simply because they were neglected when the leaves decayed. When growing naturally, *Pleiones* choose for themselves the trunks and large branches of the forest trees, but I have grown but one species (*P. Schilleriana*) upon a block, and that did not appear to thrive well. For all the species I prefer shallow pans, which should be well drained and nearly filled with a mixture of light turfy loam, peat, and some old dried cow or sheep manure, to which some chopped Sphagnum and a little sand may be added. The potting of these plants should commence simultaneously with the fading of the flowers, as immediately after the blooms fade growth begins and every root is valuable in producing new bulbs. After potting they should be placed near the glass in an intermediate house. Some prefer the East India house, but I always obtain the best success in an intermediate temperature. Water carefully at first, but always keep the plants moist, a greater quantity of water being supplied as the plants gain strength. During the growing season care must be taken that the sun does not scorch the leaves, as damaged foliage is sure to be succeeded by inferior bulbs. When the growth is about finished (which a careful grower realises even before the leaves show signs of decay) gradually reduce the amount of water until, when the leaves fall away, there is very little to withhold. At this time remove them to a cooler

position than that in which they have made their growth, and keep them dry until the flowers begin to push, when they may have plenty of water, and at the same time some young Ferns should be pricked in amongst them. This operation is necessary every season, so that one can easily make their pans as full as they choose, or have whatever sized pans they like by adding to or reducing the quantity of bulbs put into each. I prefer medium-sized specimens to very large ones. The following is a brief description of the principal kinds in cultivation. The foliage of all the kinds is bright green and plaited, but a considerable variation occurs in the pseudo-bulbs and flowers. All the kinds well deserve the attention of amateurs, their exquisite blossoms being serviceable for button-holes or sprays, and as *Pleiones* yield a quantity of bloom and do not require a great amount of space, they may be said to furnish a large return for a small outlay.

P. LAGENARIA has flask-shaped pseudo-bulbs with a conical neck; they are pale green, much wrinkled, and freckled with brown spots. The flowers emerge from the base of the bulbs and stand erect singly on short peduncles. The sepals and petals are rosy lilac; lip large, the basal part rolled round the column, the front portion well expanded, ground colour white, over which is distributed various bars and stripes of vivid crimson and yellow, the front margin being much undulated, and the disc ornamented with five bearded lines. It comes from the Himalayas, and usually flowers in this country during the two first months of the year.

P. MACULATA has curiously depressed pseudo-bulbs; sepals and petals pure white; lip also white, streaked with purplish crimson; disc yellow, ornamented with bearded lines, and streaked with purple between them. Assam, at 5000 feet elevation.

P. HUMILIS is another pretty free-flowering and distinct kind with blush-white flowers, the front of the lip being beautifully fringed.

P. HOOKERIANA is a species found in Sikkim at some 7000 feet to 10,000 feet elevation, and may be distinguished from the others by the fact that it retains its leaves until after the blooms are past. The flowers are of a bright rose colour in the sepals and petals; lip white, with several brown spots, and a yellow throat. It blooms in spring.

P. SCHILLERIANA, like the last, retains its foliage whilst flowering. The pseudo-bulbs are very small, as also are its blooms, which differ much in shape to those of any other species in cultivation; the sepals and petals are dull yellow, the lip being of the same colour, and curiously marked with white and deep orange-red. It comes from Burmah.

P. REICHENBACHIANA also comes from Burmah, where it is said to grow on the mountains near Moulmein, at some 7000 feet elevation. Its bulbs are large and enveloped in a network of brown fibres; flowers large; sepals and petals rose or rosy-lilac; lip white and crimson.

P. WALLICHIANA is a species found in Northern India on the Himalayas, and also in Burmah, on the mountains of Arracan, at some 2500 feet to 3000 feet elevation, where the average temperature ranges from 70° to 75°. Its flowers are large and handsome, ground colour bright rose, lip banded with pure white. Other varieties of these *Pleiones* in cultivation are *P. humilis tricolor*, *concolor*, *præcox*, *birmanica*, &c.

Oncidium Lietzei.—This is a species which I recently saw flowering for the first time in the Downside collection. In habit of growth it much resembles *O. pubes*, and, like it, it bears an erect scape and a much-branched raceme of flowers, which are of a bronzy-yellow or pale brown, saving the base of the petals, which are transversely barred with lines of white. On the base of the spade-like front lobe of the lip beneath are two curious recurved, horn-like processes. It is not a beautiful variety, but from the curious construction of the flowers a great curiosity. It has been grown by

Mr. Woolford in an intermediate house, and from its appearance I should imagine it to be of Brazilian origin.—W. H. G.

Oncidium leucochilum.—This plant is not only handsome in itself, but its flowers are a pleasing change from the yellow, which is so prevalent in the flowers of this genus. Some years ago it was more frequently met with than at the present time, and the finest examples I ever saw of it were in the then famous collection at Meadow Bank, near Glasgow, where the plants were grown with the *Odontoglossums*. It was introduced by Mr. Skinner from Guatemala, and he says it grows in positions where the summer temperature ranges between 55° and 70°, and that in the cool season it falls as low as 36°. Several plants of this species are now very handsome in the Cambridge Lodge collection at Camberwell, where they are grown in an intermediate house. The spike is of great length and erect, much branched, and bearing numerous flowers, which last a long time in beauty. The branchlets are extremely useful for sprays, &c., as they may be used without wire or mounting of any sort. The sepals and petals are yellowish white, transversely barred with bold blotches of dark brown (in some forms almost black); the lip is flat and pure white, with a small blotch of reddish purple at the base. It is a bold-growing plant and thrives best in a pot.—W. H. G.

Orchids in flower at Croydon Lodge.—I was too late in my visit to this establishment to see the beauties of the *Cattleya Trianae*, but the remnants that remained told of some extra varieties which were passing away to be soon replaced by *C. Mossiae* and *C. Mendeli*, the former being very early. There were nice blooming examples of the lovely *C. Skinneri*, which has a charm peculiarly its own, flowering in company with the beautiful richly-coloured *C. Lawrenceana*. *Calanthes* were represented by *C. Regnieri*, and in the same house were blooming *Cymbidium eburneum*, *Miltonia Warszewiczii*, *Dendrobium Jamesianum* and *fimbriatum oculatum*, and *Phalenopsis Schilleriana*, which although nearly over had been very fine. These with various *Cypripediums* and *Oncidium*s made a fine show in the intermediate house. In the cool house where the Orchids are grown in the company of Ferns were good examples of *Lycaste Skinneri* in variety, *Ada aurantiaca*, *Laelia acuminata*, *Trichopilia suavis*, *Masdevallia Lindeni*, and various *Odontoglossums*, such as *triumphans*, *Alexandrae*, a nice form of *constrictum*, and *Rossi majus*.—W. H. G.

Odontoglossum odoratum.—The true species was first discovered by Mr. John Linden, about the year 1824, in the humid and gloomy forests of the Sierra Nevada de Merida, in Venezuela. Mr. F. Sander informed me that no collectors had visited this district since that time until now, when it was again found, and a large consignment of it was received at St. Albans from the spot where it was found by Linden. The Merida plant has deep yellow sepals and petals, and is blotched and spotted with reddish chocolate or crimson. The true plant has scarcely any perfume, while *O. gloriosum* is very strongly scented. This last-named species is found plentifully with *O. crispum* in New Granada; the flowers are paler in colour, and the spots and blotches are not so highly coloured. The labellum is also different. Mr. Sander, who has large quantities of both varieties, maintains that they are quite distinct as species of *Odontoglossum*; while Messrs. Veitch, of Chelsea, state in their "Manual of Orchidaceous Plants" that "horticulturists sometimes distinguish the deep-coloured forms, which come chiefly from the Merida district, as *odoratum*, and the pale ones as *gloriosum*, the difference in the vast majority of instances being that of colour only."—J. DOUGLAS.

Dendrobiums at Downside.—Anentirehouseful of various species of this genus is just now exceedingly showy, and I would advise anyone having a stove to try some of the kinds, as they thrive well with other plants. Here I noted numerous forms of the ever-beautiful *D. Wardianum*, which is such a free-flowering species, and its blooms last long in beauty, as also do those of *D. crassinode*. These plants, although destitute of leaves during the

flowering season, are so covered with blossoms that the absence of leaves is hardly noticeable. Here also were *D. aureum*, with its beautiful violet-scented blossoms, several of its varieties, the curious *D. Lowi*, which is a plant belonging to the black-haired section, producing yellow flowers, which are ornamented with fringed lines of crimson on the lip, the Rhubarb-scented *D. superbum giganteum*, its large pendulous pseudo-bulbs bearing a large number of its rosy purple blossoms, and quantities of the old *D. nobile* in great variety, including the variety called *alba*, but which is not so pure white as the form recently noted in Messrs. Veitch's establishment at Chelsea. Of the *densiflorum* section, with their dense pendent racemes of flower, were some nice examples of *thyrsiflorum*, the purity of its white sepals and petals being so telling in conjunction with its rich yellow lip; in proximity to it was *D. densiflorum* and *chrysotoxum*, and many others, the whole forming a brilliant and cheerful display.—W. H. G.

ONCIDIUM SPLENDIDUM.

THIS magnificent species has lately been imported in quantity by the Messrs. Sander, of St. Albans, who have long had collectors searching for it without avail. There can, however, be little doubt but that the true plant has been obtained at last; the plants are not only in as fine condition as if they had been grown for a long time in an Orchid house, but the old flower-spikes still remain intact, and dried flowers accompany them. The first plant I saw in this country was brought from France by Mr. Williams, and passed into the then fine collection of Mr. Sam Mendel, of Manchester, and at the sale of these plants returned to its original owner. At the present moment I do not remember what became of that specimen, but I fancy it passed into the Londesborough collection, where a plant of this species flowered and was figured in the *Botanical Magazine* in January, 1871, where the present Sir Joseph Hooker makes it a variety of *O. tigrinum*, from which species no plant can be more distinct than *O. splendidum*. It has a short ovate pseudo-bulb, which bears a large, thick and fleshy leaf, and is of an intensely deep green when mature; in fact, in its habit of growth it is almost impossible to distinguish it from the old and worthless *O. microchilum*. It produces an erect scape, which attains the height of 2 feet or more. It is branched at the base of the raceme, and bears some twenty or more flowers. The latter are very large and thick in texture; sepals and petals recurved and undulated, yellow, with broad transverse bands of bright brown, the large flat lip being rich, clear canary yellow. According to the *Botanical Magazine*, it is found on the Irapean Mountains, in Mexico; but Mr. Sander does not disclose the locality from whence he obtained his magnificent consignment. There has been little opportunity to decide what are the peculiarities in the cultivation of this species; but there can be little doubt that it will thrive best under cool treatment. The great weight of its thick leaves will render it necessary to grow it in baskets, which should either be suspended from the roof or placed upon the front stage near the glass. The soil should be rough fibrous peat, and the drainage requires to be kept thoroughly open.

W. H. G.

SHORT NOTES.—ORCHIDS.

Mesospinidium with rose-coloured flowers.—A handsome form of this genus, somewhat resembling *M. sanguineum*, but with larger flowers than those of that species and of a clear rosy pink, is well deserving of attention. This variety was recently flowering with Mr. Penfold in the gardens at Beddington House, Surrey.

Leptotes serrulata.—Never have I seen this plant so well done as it is in the Downside collection, where I recently noted several plants flowering most profusely, the spikes being numerous, each bearing five flowers, the pure white sepals and petals and the violet blotch on the lip rendering it very effective. The plants are grown close to the glass in the *Cattleya* house.—W. H. G.

Vandas at Leatherhead.—These plants are a conspicuous feature in Mr. Lee's garden just now, consisting chiefly of various forms of *V. javais* and

V. tricolor, their graceful habit of growth and their rich aromatic fragrance being very charming. A nice example of the blue-flowered *V. Boxalli* adds to the display a lovely change of colour. There were also in flower plants of the rare *V. Parishii Marriottiana* and the curious *V. cristata*. None of the plants are kept very hot in this collection, but the Vandas are grown in a much warmer temperature than those in the Cambridge Lodge collection at Camberwell.

Epidendrum Stamfordianum.—This is a very old species, too often despised, but a fine plant of Rollisson's variety is flowering with Mr. Lee at Leatherhead. It differs from every other member of this species that we have seen, inasmuch as the spike is not terminal, but proceeds from the root, and would appear to be a young shoot to the uninitiated. The spike grows to a great length in this variety and is much branched and arching, the flowers being yellow dotted with red. It deserves more attention than it has received of late years. It comes from Guatemala, and thrives best in an intermediate temperature and treatment similar to that given to *Cattleya Mossiae*.

Orchid flowers.—Mr. Buchan, of Wilton House, sends us a beautiful basket of Orchid blooms, as a reminder that his collection still flourishes. Amongst them are several very fine forms of *Oncidium sarcodes*, a truly beautiful plant, compact in growth, with rich deep green leaves and bulbs, and a long branching spike, bearing dozens of its gay flowers; the sepals and petals are bright chocolate-brown, broadly bordered with golden-yellow; the lip large, rich golden-yellow, spotted with reddish brown. This *Oncidium* requires the heat of the Brazilian house. Next are some nice sprays of *O. leucochilum*, the colours affording an elegant contrast to those of *sarcodes*. There were also handsome forms of the lovely alpine gem, *O. Phalenopsis*, and the very finest form of *O. Marshallianum* it has been my lot to see; the petals, upwards of an inch in breadth, were clear rich golden yellow, barred and spotted with crimson, the rich golden lip being deeply bilobed in front and 2 inches across. There were also excellent forms of the mossy-lipped *Dendrobium Brymerianum*, and the ivory-white *D. Jamesianum*, *Angraecum Leonis*, *Zygopetalum crinitum*, *Epidendrum Wallisi*, *Cymbidium Lowianum*, and numerous *Odontoglossums*, for which this collection is so renowned. Amongst the *Odontoglossums* were extra fine forms of *O. Halli*, *O. triumphans*, *O. crispum*, a beautifully spotted *O. Pescatorei*, and *O. cirrhosum*.

ASPECTS OF GARDENING.

AN EXHIBITION GARDEN.

I WAS attracted to a garden about fifty miles distant the other day by the account of a sale of plants there, the collection being about to be disposed of. Advertisements and catalogues announced that the collection numbered over a thousand of the finest specimens of Orchids, stove and greenhouse plants, and which had taken the chief prizes at some of the greatest shows in the land, been admired by thousands of visitors and gardeners as examples of gardening that they might strive to copy in culture, and which were, no doubt, supposed to be typical of the garden they came from. Coming from one of those old-fashioned rambling country gardens, far too large for the means allowed, and where by huge exertions and miraculous scheming the gardener just manages to show that he has not forgotten anything, and that, however little attention he may be able to bestow on his charge on the whole, he has, at least, apportioned it as fairly as circumstances would allow that nothing might be neglected, I approached the great "exhibition place" with feelings of becoming modesty and humility. I consoled myself with the reflection that every garden could not be "kept like a milliner's shop window," and that it was a good thing, at least, to see a garden now and then where every department was well appointed and well managed, in keeping with each other, and in accordance with its reputation and pretensions. Arriving at the entrance to the mansion, and giving that swift first

look round by which a gardener takes in things at first sight, as it were, I was not greatly impressed by the outdoor flower gardening as represented by a small, threadbare, starved lawn, a few scraggy shrubs, and a row of dead Houseleeks; but, thinking the "show" must be on the other side, I passed in by the muddy path, destitute of edgings and gravel, to the glasshouses containing the "specimens." These were situated promiscuously on about an acre of ground, in which kitchen, fruit, vegetable, flower gardening, and specimen plant growing were mixed and blended in a manner indicating a high development of the faculty of order on the part of the planner of the garden—a medley of glasshouses, neglected plots, and mud paths. The garden was divided from other pretentious villa gardens by a dilapidated brick wall about 4 feet high, on which frantic attempts had been made to train fruit trees, with the result that the attempt had been abandoned in despair.

The Fern house containing "magnificent" specimens, the "finest in the kingdom," as I had been assured, stood on one side of a mud path. Into some of the houses you went down and into others you went up, and the specimens had been grown on the same principle. Some were set up on inverted pots, blocks of wood, old boxes, or anything handy, while some had been let so deeply into the ground to make room for the tops, that the purchaser had to go on his knees and peer down in order to see where the pot was and devise means for hoisting it out. The houses were without paint, green and slimy, and the paths were of mud, like those outside. The specimen plants themselves were good, and mostly equal to the description, and so they should, because everything had been neglected utterly for them. The garden was a rubbish heap, in which neither pride nor pains had been taken, and in which I did not see a single other creditable example of culture. One of the first persons I met on entering was a noted horticulturist, and on comparing notes we agreed that we had never had our foot in such a place barring the specimens.

The opportunity of showing what could be done, by way of example, to make a villa residence in a fashionable pretty suburb charming and attractive had been sacrificed to the object of making a vain display once or twice a year at a great annual horticultural exhibition, the originators of which contemplated, not the prostitution of gardening to such purposes, but its encouragement and elevation at home, where alone the art of gardening can be developed in its truest aspect. The above picture is not overdrawn in the least, and I am told by those who know, that amongst a certain section of wealthy patrons of horticulture such examples are only too common.

GARDENER.

PROPAGATING.

IPOMÆA HORSFALLÆ.—While most of its allies can be readily propagated by cuttings whenever obtainable, this species will not strike, or at all events it is so difficult to root that cuttings cannot be relied on for its propagation. Such being the case, other means for its increase have to be resorted to, and the method generally followed is to graft the young growing shoots on to pieces of the roots of this or some allied kind. Having a large plant of *Batatas paniculata* so situated that it is easy to separate a few roots, we generally use this as the stock, for the *Ipomœa* readily unites with it; indeed, just as quickly as with portions of its own roots. The pieces chosen for the stocks should be about the thickness of a straw to that of a pencil, each if possible with a few fibres. They may be from 3 inches to 6 inches in length, as when potted after the operation of grafting is performed they can be twisted around the pot so that the point of union is covered. The stocks being obtained, the point of a shoot about 3 inches long may be taken, and the base, being fashioned in the shape of a wedge, must be inserted in the stock which is split for its reception. Care must be taken that the two parts fit together as neatly as possible, and when this is done they must be tied securely in their

place. Having finished this, pot the grafted plants low enough in the soil to cover the point of union, as by doing this no wax or clay is necessary, the air being excluded by the soil in which they are potted. The grafted plants must then be placed in a close propagating case when a union will soon be effected, and when this takes place, as shown by the scion commencing to grow, the young plants must be by degrees inured to the ordinary atmosphere of the structure in which they are placed. It is necessary to resort to the same method for the propagation of the white-flowered *I. Thomsoniana*, and, as in the case of *I. Horsfallæ*, the operation is a very simple one.

ANTHURIUMS.—This is not only the flowering season of *A. Scherzerianum*, but it is also the time of the year at which the seeds (produced from last year's blossoms) ripen. It will thus be seen that the seeds must be allowed to remain on the plants for twelve months before gathering, and, indeed, when ripe enough very little gathering is necessary, as they quickly drop. When this occurs no time should be lost in sowing them, as the seed germinates much better if sown at once than if allowed to become dry. Before sowing it is a very good plan to rub them with some dry sand to remove the glutinous pulp in which they are embedded and thus facilitate the sowing. The compost for that purpose should consist of peat, chopped Sphagnum, and silver sand, as in such material the roots run very freely. The pots or pans prepared for the seeds should be well drained, and being filled to within half an inch of the top with the before-mentioned compost, the seed may be sown thereon, covering it with silver sand. If put in a close propagating case in a stove temperature they germinate more readily than in an airy structure, and besides this the young plants make more rapid progress when kept there during their earlier stages, as the close, moist atmosphere just meets their requirements. When large enough to handle without risk the young plants should be potted off into small pots, using for the purpose the same kind of soil as recommended for sowing them in. When in a partially developed state the young leaves are sometimes attacked by aphides, and if not at once got rid of they greatly disfigure the foliage. Where a plant is increased by division the best time for carrying out the operation is directly after flowering, and if the roots are much matted, so as to necessitate a considerable amount of disturbance in separating them, it is much better after potting to keep the plants close until established. Of *Anthurium Andreanum* the tall-growing form can be readily increased by cuttings, while the dwarf tufted-growing variety is propagated by division.

AZALEAS.—Where these have been allowed to flower naturally in the greenhouse, and not forced in any way, the young shoots will now be in just the right condition for cuttings. These may be taken off and dibbled into pots of sandy peat, as recommended earlier in the season for those forced prematurely into bloom, and consequently also into growth.

EPIPHYLLUMS.—The usual method of propagating these is by grafting, the stock generally employed for the purpose being *Pereskia aculeata*, which grows readily enough from cuttings. They are generally grafted at some little height from the ground, and thus form standards, though by putting on several grafts at different points up the stem, columnar or pyramidal-shaped specimens may be obtained. The operation of grafting is, in the case of the *Epiphyllum*, a very simple one, all that is necessary being to split the stock and insert the scion therein. This last should be formed from one of the smaller branches pulled (not cut) off at a joint. This may be fashioned for about $1\frac{1}{2}$ inches at the base in the form of a wedge, but only the central or woody portion of the stem need be thus operated upon, the wing-like appendages at the sides being allowed to go untouched. To hold the graft in position many use the stout spines of the *Pereskia*, but perhaps a better way is to tie the grafted plant to a small stick, which is done by putting in the stake at the back of the plant, when one tie will secure the graft in its place, and at the same

time fasten the plant to the stick. Where dwarf examples are needed for growing in suspended baskets or for similar purposes they can be easily struck from cuttings; indeed, if a portion of a branch is broken off and allowed to remain on the stage, the moisture therefrom is quite sufficient to induce the formation of roots. The grafted plants should be kept close until a union is effected, but at the same time an excess of atmospheric moisture must be avoided.

CYPERUS ALTERNIFOLIUS.—This plant, which is so much employed for decoration, can be, and often is, propagated by cutting off the heads of foliage and pegging them down into pots or pans of soil in such a manner that the base of the lower leaves is pressed closely to the soil. In this way young plants are pushed up amongst the old foliage, and when large enough they can be potted off. Though this system (as well as division of the roots) is very useful for the increase of the variegated-leaved variety, by far the better plan to obtain a stock of the green-leaved form is to raise the young plants from seeds, which can be obtained in considerable quantity, provided a few large specimens are grown on for that purpose. The seeds should be sown as soon as they are ripe, for if kept out of the ground for a lengthened period they take much longer to germinate than if sown at once. Pans of light sandy soil, made level on the surface, should be prepared for their reception, and on this the seeds must be sprinkled thinly, just covering afterwards with sand. So treated, and kept in a warm structure with a pane of glass over the pan, the young plants will not be long in making their appearance.

GREVILLEAS.—Most of these pretty greenhouse shrubs can be propagated from cuttings, though the larger-growing kinds, such as *G. robusta*, are usually raised from seeds, which can often be obtained in considerable numbers. The smaller forms, of which *G. ericifolia*, *sulphurea*, *rosmarinifolia*, and *Preissi* are examples, will in most cases, if they have been kept in a greenhouse, be studded with young shoots, which have, however, already lost their very succulent character and become moderately firm. These shoots, and more especially the weaker ones, make the best of cuttings, and they are not difficult to strike if treated as most hard-wooded subjects are, that is to say, dibbled firmly into well-drained pots of sandy peat and covered with a bell-glass until rooted. They must only be kept in a greenhouse temperature for some time after insertion, but when callused a little additional heat will greatly assist the formation of roots. A length of 2 inches to 3 inches is a very suitable one for the cuttings, which must be cut off at the base, and have a few of the lower leaves removed for the purpose of insertion. Care must be taken that the soil is well closed up around the buried portion of the stem, and overcrowding should also be guarded against. Where seeds are obtainable, they should be sown as soon as possible in pans of sandy peat, with just a dash of loam, and kept in a structure the temperature of which is rather above that of an ordinary greenhouse. Over-watering must be guarded against, more especially just as the young seedlings make their appearance, and as they are rather liable to decay just at the collar, it is a very good plan to prick off the young plants as soon as they are large enough to handle without danger. In pricking off the seedlings they should be buried deeper in the soil than they were originally, a good guide as to the depth being to put in the young plants so that the cotyledons are just clear of the soil. When sufficiently advanced after being thus pricked off, they should then be potted into small pots.

IXORAS.—This is a very good time of the year to put in cuttings of these beautiful stove-flowering plants, as just now the young shoots will in most cases be in the right condition to form cuttings, and besides that, they root more readily at this season than at any other. It matters little whether they are put singly into small pots or several around the edge of a larger one, but in either case good drainage is necessary, and a very suitable soil for the purpose is sandy peat. The cuttings must be

kept in a close propagating case in the stove until they are rooted.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Cerasus (Cherry).—Our lawns and shrubberies owe so much of their early summer beauty to the Cherries that they must be ranked among the finest ornamental flowering trees we have. There is hardly a species in the genus that is not beautiful, but as they are so numerous that only large gardens could represent them all, a selection of the finest must be made. The double-flowered Cherries are undoubtedly the most beautiful and best suited for lawns and shrubberies, as they endure longer in flower than the single forms. The finest double-flowered Cherry is *C. serrulata* (see illustration), a Chinese species which may be recognised at a glance by its peculiar growth, the long rigid branches being

names for double-flowered Cherries are *C. Lannesiana*, *serotina* fl.-pl., *hortensis* fl.-pl., *carnea-plena*, *pseudo-Cerasus* fl.-pl., but these either represent those kinds described or slight varieties of them.

The single-flowered Cherries are not so numerous in nurseries, as the demand for them is not great. An indispensable tree, because of its graceful habit of growth, is *C. Mahaleb*, and the profusion of its white flower-clusters in May make it highly attractive. The weeping variety of it (*pendula*) is one of the most elegant of all deciduous trees, and is preferable to the original. The All Saint's Cherry (described and illustrated in *THE GARDEN*, March 10, p. 228) is likewise a graceful lawn tree, and interesting because it flowers all the season from spring till autumn, and carries blossom and ripe fruit at the same time. In some years it flowers again in autumn. The dwarf-growing *C. Chamæcerasus* and *C. depressa* are useful for planting on the margins of shrub groups or associating with bold rocks, as their natural growth is graceful. The Bird Cherries, of which our native *C.*

Cercis (Judas Tree).—Of the three different kinds of Judas Tree in gardens, the commonest and the most beautiful is that from South Europe, and which for nearly 300 years has been a favourite tree in English gardens. This is *C. siliquastrum*, a tree of humble stature which makes when old a picturesque flat-spreading head, usually rising about 15 feet in height. In spring, generally about the middle of May, it is adorned with a profusion of deep pink blossoms, which garland every leafless branch and twig, and make the tree a singularly beautiful object even among the many bright-flowered hardy trees and shrubs that bloom at the same time. In some years it flowers again in autumn. After the flowers come the leaves, which are kidney-shaped and of a peculiar pale green that renders the tree in summer distinct from all others. It may be called a perfectly hardy tree in all but the north and cold parts of England, and in places where it does not thrive as a standard it makes a beautiful wall tree. In the northern counties and in Scotland it is commonly seen covering the walls of houses. It



Foliage of the Judas Tree (*Cercis siliquastrum*).



Flowering and fruiting branches of the Judas Tree (*Cercis siliquastrum*).

invariably spreading in an ascending, not erect direction, and with rarely a central leader. The flowers are very double, like rosettes, white, suffused with a delicate pink, and produced in clusters completely wreathing the branches. *C. Sieboldi* is synonymous with this species, and very similar to it, if not identical with it, is that known as Waterer's double-flowered Cherry (for illustration see p. 420), *C. Watereri*. *C. Juliana* is another very beautiful double-flowered Cherry, having large rosette-like blossoms of a delicate bluish pink. It is known as St. Julian's Cherry. The double forms of the common Cherry, *C. Caproniana* and *C. Avium*, are extremely fine, and are both known under the name *multiplex*. In both varieties the flowers are very double and pure white. The earliest to bloom is *C. Avium* *multiplex*, and this is quickly followed by *C. Caproniana* *multiplex*, which is known also as *ranunculiflora*. The names of the various double Cherries are so much confused in nurseries, that one can never be sure of obtaining the correct sort by asking for it under a particular name. The best way is to choose the kinds when in flower. Among other catalogue

Padus is the type, are valuable ornamental trees of large growth. In localities where the Bird Cherry does not grow naturally, it is quite handsome enough for planting as a lawn tree, or in shrubberies and plantations of exotic trees. Still finer are the North American Bird Cherries, *C. virginiana* and *C. serotina*, both large deciduous trees, of regular form and with dense heads. Their flowers are in long clusters, like those of our native Bird Cherry, but are produced later and last longer, especially those of *C. serotina*, which is the finest of the two kinds and preferable in every way, being hardier and more vigorous. Too much cannot be said in favour of *C. serotina* as a lawn or plantation tree, and its value is now recognised by some of our nurserymen, who are getting large stocks of it. The common evergreen Laurel (*C. Laurocerasus*) and the Portugal Laurel (*C. lusitanica*) cannot be strictly called flowering shrubs, though when in flower and fruit they are beautiful. All the deciduous Cherries thrive well on poor soils and grow to perfection in sandy districts, and this fact adds much to their value,

succeeds in most soils, but prefers a light, deep loam, and is particularly partial to a sheltered spot protected from cold winds. There are several varieties differing chiefly in the colour of the flowers. There is a white (*alba*), a very deep pink (*carnea*), besides a form with variegated leaves (*variegata*), but this is not to be recommended. It is a tree of slow growth, and though young specimens flower profusely, it is in only very old trees that the picturesque growth of the tree can be seen.

Chionanthus (Fringe Tree).—A very elegant and beautiful small tree, brought to England from North America a century ago. In some old English gardens there are fine specimens of it, but, for some unaccountable reason, one rarely meets with it in modern gardens. Fully grown in this country, it is generally a dense deciduous bush about 10 feet high, but in its native habitat, on the river banks in Virginia, it is said to make quite a tree. In early summer it bears a profusion of long flower clusters, and as the blossoms are snow white and the petals long and narrow, like a fringe, they have a charming appearance. It likes, and must have,

a moist, but not a perpetually wet, soil in order to succeed well, and prefers a sheltered nook to exposure. It is truly a neglected shrub, though easily obtainable from tree nurseries. A newer species is the Chinese, named *C. retusus*, which, though its flowers are white and fringy, is scarcely so ornamental, while its perfect hardiness and adaptability for English gardens are not so established as in the case of the Virginian species. The latter is increased by grafting and

grows about a yard high, and its strong, erect shoots have large heart-shaped leaves and are terminated by broad and dense clusters of deep rosy pink flowers, produced about August. In southern coast gardens, especially near the sea, this handsome shrub grows quite 5 feet high, and is extremely handsome for the several weeks it is in bloom. The other species, *C. trichotomum*, is less common; in fact, it can at present be seen only in botanical collections. It is a free-

Cupressus Lawsoniana.—The most lovely thing in my garden at this moment is *Cupressus Lawsoniana*. The branches are perfect pictures. I mean to send you up one or two pieces, but I fear it would be quite impossible to produce them in painting.—A. RAWSON, *Windermere*.

RETINOSPORA ERICOIDES.

IN THE GARDEN, April 7 (pp. 325-326), are some interesting notes by "T." on the propagation of various select plants. In the case of *Retinospora ericoides* some doubt arises on my part as to the particular plant "T." refers to. I know of at least three distinct varieties of Conifer that are cultivated in Britain under this name and there may be more, and until we know which one is meant, "T.'s" note on its propagation must unfortunately go for nothing. If it were a case simply of priority in nomenclature, we would know or easily find out what is meant, but unfortunately the name *Retinospora ericoides* has no longer any scientific signification, if, indeed, it ever had, unless to the man who coined it, and from a horticultural point of view it would have been well had it never been applied. The three varieties above referred to, in addition to the name *R. ericoides*, have each (not to be too exact) half a dozen synonyms. And I may be allowed to add in this connection that, with few exceptions, these names are no credit to the horticulturists who make commercial use of them. One of the last attempts to let light into this formidable synonymy has, I fear, been all but futile; the darkness in which the synonymy was shrouded has since become Stygian.

There are two popular books treating of Conifers in the hands of many British arboriculturists, viz., "The Pinetum," ed. 2, and "A Manual of Coniferae," in both of which a plant is popularly described under the name *R. ericoides*, in the former at p. 363 and in the latter at p. 243. But anyone in possession of these works, and presumably well acquainted with the class of plants therein described, may readily note that the respective authors describe under the name *R. ericoides* quite different subjects. The "Pinetum" plant has its "leaves in threes, but sometimes in opposite pairs, spread out or bent downwards, linear flat, a quarter of an inch long." . . . "The whole plant turns to a deep purplish brown colour in winter." And the author pointedly remarks, "it is tolerably hardy," as though he had been familiar with it. The plant of the "Manual" has "branchlets clothed with linear pointed leaves arranged in opposite cross pairs . . . and during the growing season the foliage is of a deep pea-green colour, which changes in autumn to a brownish violet." And the authors further state that "it is nothing more than a juvenile form" of *Biota* or the Eastern *Arbor-vitæ*. A now dried specimen of the plant kindly forwarded to me by the authors enables me to confirm the accuracy of their opinion.

But whether, as a seedling, it originated in China, or Japan, or Europe, it seems unlikely that we shall ever know. The same variety, or another "juvenile" of the oriental *Arbor-vitæ*, botanically similar, is more fully and, I think, more correctly described in the "Pinetum," p. 364, under the name *R. juniperoides*.

And, now, what is the *R. ericoides* of the "Pinetum"? I know only one "juvenile" Conifer that the description therein given would apply to, and, so far as it goes, it covers the variety perfectly. I first made its acquaintance in 1859 in a north country nursery, where I bought a plant some 18 inches or 20 inches in height. From long experience I conclude that that particular plant must have been at least six years old, and I subsequently ascertained that it was not the first of its kind, and, moreover, that the variety did not originate in the nursery. It was, however, in cultivation in Britain long before the introduction of live Conifers from Japan. I have never seen it fruit, but I have had the great satisfaction of seeing an old plant (quite 4 feet high, which was in my charge) bear several male catkins, and, fortunately, at that time—1876—I had the privilege of critically comparing some of these catkins with others of all the species



The double white Chinese Cherry (*Cerasus serrulata*).

budding on its relative, the Ash, by layers and by seed imported from America.

Clerodendron.—There are but two species in this beautiful genus, for the main part tropical, that have any pretensions to hardiness in this country, but both are worth growing, being handsome shrubs, differing from all others and flowering at a season when others are out of bloom. They are *C. foetidum*, a native of China, and *C. trichotomum*, a Japanese plant. The first is an old garden plant usually seen in greenhouses, but hardy enough for open-air culture in all southern and warm parts. It

growing shrub, rising 6 feet high or more, with large ovate-shaped leaves, and bears large loose clusters of flowers, the corollas of which are white, the calices being a deep brownish red. It blooms in September; therefore makes a conspicuous object in an otherwise flowerless shrubbery.

SHORT NOTES.—TREES AND SHRUBS.

Shrubs for the sea-side.—I should be glad of advice as to what shrubs or evergreen creepers to plant on the sea coast close here. The place I want to plant consists of nothing but sand, is open to the sea, and is exposed to cold winds, more particularly from north-west. I may say *Rhododendrons*, *Firs* of sorts, and *Periwinkles* have been tried, but failed.—E. GREGG, *Arroyo Park Gardens, Birkenhead*.

and most of the varieties of Cupressineæ cultivated in the open ground in Britain, and I had little trouble and, if possible, less hesitation in referring this small Conifer to the old well-known North American White Cedar. A tiny catkin may to some appear a small and inadequate morsel for purposes of specific determination, but, all the same, it is ample! I need not here describe it, and will only state that it is markedly distinct from catkins of other species of Bentham and Hooker's genus *Thuja*. The adult state of the White Cedar is very distinct from the little juvenile form we have been considering, but in its earliest stage from seed it is exactly like the latter. The species is seldom propagated by seed in this country, yet those desirous of studying its juvenile state may see it very well represented in the neat little shrub generally cultivated under the name of *R. leptoclada*. In this the young leaves are generally in alternating whorls of three, as in the *R. ericoides* described in the "Pinetum." I some time ago forwarded a branch of the plant I consider to be the *R. ericoides* of the "Pinetum" to the Messrs. Veitch, asking them to be good enough to name it for me in accordance with the designation given to it in their "Manual," and I had it, or another just like it, returned labelled "*R. squarrosa dubia*." This in the "Manual" is, I think, wrongly considered a probable variety of *pisifera*. I have already given my reasons for believing it a garden variety of the White Cedar, and further conclude, in view of the hints given on its propagation, that it is the *R. ericoides* of your correspondent "T." This can be propagated by cuttings in the way described by him, but certainly not so the *R. ericoides* of the "Manual." Although I have herein attempted to show that the *R. ericoides* of the "Manual" is probably not that of the "Pinetum," yet I wish to be understood that the question—which is right?—is not now before me. I would rather not risk the balance of my mind in an attempt to settle the question. But were the "Manual" proved to be wrong in this instance we could very well excuse it, on the ground of its general excellence. GEO. SYME.

FRUIT GARDEN.

W. COLEMAN.

THE ORANGE TREE AS A SCREEN.

INDEPENDENTLY of the fact that a portable Orange tree, in or out of flower, in fruit, or without either, is one of the most ornamental plants met with in English gardens; it is also one of the best sub-tropical Evergreens for planting out as a screen. For training against walls or glass partitions in lofty vineries, where a moderate amount of light is obtained from the roof in summer and early spring, it is admirably adapted, as it puts on a most cheerful appearance, and gives a profusion of flowers and fruit of excellent quality.

As a round-headed specimen, not too closely pinched or trained, as we see the numerous members of the family at Margam Park, in South Wales, where they produce enough blossom to supply all the brides in the Principality and fruit by the bushel, it is unique in the extreme. Or grown in small pots and forced as Messrs. Douglas and Rivers force the moderate growers in bright warm houses, there is no other exotic to touch it. It is not, however, of pot or tub specimens, but of planted out and trained trees that I wish to speak, and knowing that there are hundreds of blank walls and ugly glass partitions in our forcing houses, I venture to recommend the Orange, the Citron, the Lime, the Shaddock and the Lemon as cheerful coverings, which in no way interfere with the legitimate occupants. In addition to the portable centenarians under Mr. Muir's able management at Margam, there are scores of enormous trees planted out and trained up the back wall of Mr. Talbot's princely orangery. It

is generally conceded that the earth temperature of these gloomy structures is much too low, especially in winter, but this noble building is an exception, for the trees flower and fruit profusely. A few trees here subject to vinery treatment, although comparative infants both in age and stature, flower very freely, and when left unthinned carry more fruit than is good for them. My trees are planted out in brick pits 2 feet square, sunk beneath the level of the vineries, where the root temperature may range from 50° in winter to 70° in summer; they are well drained, and the compost consists of medium turfy loam, a little peat, broken brick, sand and charcoal. Manure, so strongly recommended, is not mixed with the compost, but good old rotten cow manure is used as a mulch, and warm diluted liquid is given pretty freely when the internal Vine borders are watered during the summer. The foliage on the north sides of the partitions is brightest, that of the Lime being extremely beautiful, whilst flowers and fruit are most profuse upon trees facing the opposite aspect.

Orange trees are easily produced by budding upon the seedling Lemon, and I have struck them from hard well-ripened spur-like pieces of wood put in as cuttings. The process, however, is very slow, two years being taken up in getting them well rooted and growing freely. They then make rapid progress, and appear quite as healthy as others worked upon the Lemon. I give my experience, not as an inducement to others to try their hands at budding or striking, as very nice plants of all the leading varieties can be purchased at a cheap rate from many of the best nurseries. The most troublesome insect is brown scale, but this can be kept down by an occasional syringing with paraffin and water in the proportion of a small teacupful of the first to 4 gallons of the water. Soot water in a clarified state also is an excellent insecticide, and whilst giving a deep green colour to the foliage, it acts as a root stimulant. It is needless to say that these washes should be used in a mild form and frequently through the summer months, otherwise scale soon gets ahead and disfigures the foliage, when sponging, a tedious operation, must be resorted to.

The Citron, the Shaddock, and the Lime are best adapted for covering large breadths of wall or partition, as they grow rapidly, and although they get but a minimum of direct light in summer, they set and carry fruit, and their foliage is as striking as it is beautiful. If the fruit is wanted for the dessert, a bottom-heat of 60° or 70° should be secured, otherwise the rind of the sweet Oranges will be thick and woolly and the pulp deficient in flavour. This may not make much difference where the Seville, formerly nearly the only variety met with and still one of the best for giving a profusion of fine blossom, is grown specially for the flower market; but the Citron family, like all other families of fruits, is looking up, and, thanks to Messrs. Rivers for another fat list, nearly half a hundred varieties or species are now thriving in this country. As I do not profess to know nine-tenths of these by sight, I will not infringe their copyright by inflicting on readers of THE GARDEN a long list of names, but will confine myself to the half dozen I do know; these, amongst Limes, include the Citron, Forbidden Fruit, the Shaddock, and the common, all of them mild and excellent for cooling drinks and invaluable for eating fresh from the trees by those who suffer from gout and rheumatism.

Amongst Oranges we have the delicious little Tangerine, invaluable for small pot culture,

moderately hardy, and capable of ripening its fruit to perfection in a vinery within the year. When cut from the trees with a few fresh leaves attached to each fruit, these Oranges form a charming dish for the Christmas dessert. As everyone knows the Saint Michael's Orange, I need not describe it as being excellent for eating, but I may say it is one of the best for pot culture. Also, I may add, Messrs. Rivers have several varieties of this of which they speak in the highest praise. Then who has not heard of, if he has not tasted, the Maltese Egg and the Blood Oranges? The first, my special favourite; the second, all that can be desired in point of flavour, but I do not care for the streaks and splashes of Pomegranate colour met with in the pulp. These two are good at all points and should be extensively grown both for their fine fruit and profuse blossom. As these choice varieties come from a climate much warmer than our own, they should have constant moderate heat, and plenty of light and air to ripen the fruits within the year. They will live, flower, and ripen fruit in a greenhouse or conservatory, but under this treatment the latter will not be fit for gathering until the second year.

PLANTING A FRUIT ORCHARD.

ONE of the interesting products of becoming a small landowner has just been exemplified at Farnham Royal, just beyond Slough, where that well-known florist, Mr. J. James, of Woodside, having recently become the owner of some wood and open land in immediate contiguity to the famous Barnham Beeches, has just planted an orchard of standard fruit trees. There can be no doubt but that what has been so well done in this case could be done in thousands of others were the occupiers of the soil the owners also. To plant an orchard with standard trees, especially when the planter is advanced in years, is literally to plant for posterity, but happily our progenitors thought the doing so was in their time but discharging a duty incumbent upon them, and thus we have benefited. Mere tenants of land, unless held on an exceptionally long lease, rarely care to plant orchards; whilst owners of small holdings seem to think that their first investment must be in good standard fruit trees. Certain conditions favour Mr. James's effort in this direction. The soil seems naturally to favour both Apples and Cherries; hence both are largely planted in the seven acres so laid down in fruit trees. The subsoil is somewhat chalky, and Cherries always thrive admirably on chalk. Lower down in Bucks, getting out towards the Chiltern range of hills, Cherry orchards are very abundant, and there are some small but excellent ones about Farnham Royal. The sorts are chiefly May Dukes and Bigarreans, the most favoured of market kinds generally, and Apples include many good standard keeping kinds, the Blenheim Pippin being in strong force. Mr. James has good reason for growing so many of this Apple, for in an adjoining orchard on Grass some fine twenty-year-old Blenheim Pippin trees are doing wonderfully well, sending out branches laterally some 15 feet in length, and carrying now almost every year fine crops of clean, handsome fruits. The new orchard enjoys also the shelter of thick, woody, lofty trees—Larch, Oak, and Beech—on its north side, and shelter of this kind is of the greatest value. On Easter Monday, for instance, walking into the orchard, the wind then being very cold and cheerless, I found the moment the line of shelter was reached that the temperature felt almost warm comparatively, the wood forming a real protection from cold, biting winds. Then the orchard also dips somewhat towards the south, so that altogether it seems to present the *beau idéal* of a fruit orchard site. There are, however, myriads of such admirable positions to be found in our southern counties, and were more of them in the hands of real gardeners like Mr. James they would soon be fully utilised. A stream of water perennially trickles through the wood above the orchard, and without

doubt serves to keep the sloping soil below sufficiently moist. The wood also has furnished an ample supply of stout stakes to support the newly-planted trees for the next few years.

How far the picturesque may be permitted to enter into the subject of fruit culture I will not assert, but Mr. James, when in years to come he looks from his residence across the intervening meadows to the upland orchard beyond and the noble trees which adorn the famous Burnham Beeches Wood for a background, will find in the blooming some recompense, even if the fruit be none too quickly produced. After all there are few more beautiful objects in rural scenery in the spring months than are found in orchards presenting luxuriant garlands of bloom, dotting the hillsides and lighting up the sombre woodlands with colour and sweetness. Another instance of the way in which small holdings of land has promoted fruit culture is evidenced on Mr. Robert Fenn's little farm at Sulhampstead, near Reading. When Mr. Fenn purchased that pleasantly situated home-stand, standing almost alone, as a freehold right in the midst of one or two immense estates, he found the fruit trees with garden and orchard almost a ruin. The first thing done was to grub out all utterly useless trees and to replant young ones in their places, then to behead and regraft some others, and thus renovate both orchard and garden completely. But still further, a large number of Wellington Apple trees were planted out in retired parts of the fields, because this kind finds a good market in the neighbouring town. Now all these young trees are becoming profitable, and the old ones rejuvenated are yearly cropping freely, and the fruit resources of the little farm have been greatly increased. Pears, Plums, Cherries, and Damsons also have been added, and all arising from the important fact, as seen in Mr. James' case; also that each one has been planting on his own land and for his own benefit. A. D.

VINERIES.

I HAVE a lean-to vinery (with movable front lights) 90 feet long, 18 feet wide, divided into three houses, each with an outside border 15 feet wide. The vineries, which are well heated, are well supplied with water, and have a good aspect. What would be the ideal assortment of Vines for such a run, the object being a good house supply and a sale of the surplus? what the best arrangements for forcing? when to commence? what heat to maintain? when should syringing or watering be done? Border being somewhat spent after thirty years' use, although surface-dressed annually, what is the best plan for renewal? What can be managed successfully in these houses without in any way injuring the Vines?—JOHN VIVIAN, *Cornwall*.

* * In answer to the above, the houses, which are apparently efficiently heated and ventilated and well arranged for giving a long supply of good Grapes, but presumably minus internal borders, may be treated in three ways:—

First.—The Vines being fairly good, but exhausted, may be lifted and relaid in fresh compost in September or October next, but Grapes must not be expected the following year.

Second.—If the Vines planted thirty years ago are worn out, or if the selection of varieties is not quite satisfactory, they may be destroyed and replaced with young ones, including suitable old and popular newer sorts best adapted to home consumption or market purposes.

Third.—Internal arrangements as to position of hot-water pipes, construction of front wall, whether on piers or arches, being favourable to the formation of an inside border, which need not be more than 4 feet in width to start with, a set of young canes may be planted at once and grown into a fruiting condition before the old ones are removed *in toto*. To a person who has not seen the existing Vines, this plan will appear most feasible, and for these reasons. The young canes which are planted within a foot or so of the front wall, with provision for the roots eventually finding their way outward, may be trained between or upon the old rods, from

which all the spurs, say 3 feet upward, must be cut away to make room for this year's wood and foliage. The remainder of the spurs, upon the principle that half a loaf is better than no bread, will then give nearly a full crop of fruit, and yet the young canes will have sufficient room along the front to establish themselves. When the young leaders have reached the lowest spur left on each Vine, they must be pinched to strengthen the base buds, but a few laterals or second leaders may be allowed to ramble amongst the foliage of the old ones. In December the young canes may be cut down to the lowest wire of the trellis and a second 3 feet of each old Vine, making 6 feet in all, must be relieved of every bit of spur wood. If all goes well, the young canes made the second year will be strong enough for fruiting, but again they must be pinched when they touch the lowest spur, and laterals or second leaders to encourage roots as well as to prevent the bursting of the main buds must be allowed to ramble. This process may be repeated the third year, but having 6 feet of bearing wood along the whole of the front, the old Vines, now divested of one-third their length of spurs, so soon as the Grapes are cut, should be taken away bodily. These young canes at the second pruning should be left full length, *i.e.*, 6 feet to bear fruit, when the impediment to their progress having been removed, each rod will top the rafter long before autumn.

Next as to the borders. The original one, 4 feet in width, being full of roots, an additional 3 feet of compost may be added when the leaves are ripe, but before they fall. This, under judicious management, will keep the Vines going another year, but when the old Vines are out of the way, 4 feet of the external border must be taken out, the bottom concreted if necessary, well drained, and the front wall pierced to let out the internal roots, when all will be ready for the formation of the first moiety of the outside border. In this way the conversion or transformation from old to new can be effected, and the houses each year will give a good supply of Grapes from June to January. Should wholesale removal be decided upon, the houses being wide, the upper half the first year will be available for fruiting Vines in pots or Tomatoes.

Varieties.—The selection of varieties and their distribution through the three compartments in some measure must be governed by the position of the two boilers. If, as one may assume, they are set in one stokehole about the centre of the back wall, the largest house should be planted with late Grapes, one of the smallest with Muscats or mixed sorts, the other with varieties suitable for early forcing. Taking the early house first, I would plant four Hamburgs, two Madresfield Court Muscat, one Foster's Seedling, and one Buckland Sweetwater. The second small compartment might be planted entirely with Muscats for coming in very early or for cutting at Christmas, or it might contain four Muscats and four Gros Colman, a profitable market Grape which soon repays Muscat treatment.

Home consumption and market can best be met by devoting the largest house to two Muscats and four Gros Colman at the warmest end, four Lady Downe's, two Alicantes, one Gros Maroc, one Hamburg, and two Mrs. Pearson, the best late white Grape in cultivation.

Arrangement for forcing.—All the houses being so well heated and ventilated, it matters little which of the two small ones is devoted to early forcing; but should there be any difference in the mean temperature, then the Muscats and Colmans should have the strongest heat, and, if possible, the early house, to secure protection at each end, should be in the centre.

When established, the early house may be started the first year in January, the second at Christmas, and the third the end of November. Muscats and Colmans, first year in February, second year in January, and third year in December. The late house the first year should break naturally, the second in April, the third in March, aided by gentle fire-heat.

The next question, as to watering, syringing and ventilating, cannot well be answered within reason-

able limits, neither is it necessary to devote so much valuable space to ordinary routine, when all minute details can be found in back numbers of THE GARDEN. Being deficient in these matters, "J. V." cannot do better than peruse the Vine calendar for the past two or three years and follow it up closely in the future, or, lacking the time or materials, he may get Barron's second edition of "Vines and Vine Culture," not only the best, but the most exhaustive work yet written in any language.

Next and last.—It is difficult to understand what "J. V." means by saying "necessary facilities should make a great deal possible." Without these facilities good Grapes cannot be grown, not always with them at command. Therefore, knowing that so many fail through attempting too much, my advice is this: Fill the house with good wood and an even canopy of foliage, crop to an extent that will ensure first-class Grapes, and be satisfied. I have stated that pot Vines or Tomatoes may occupy all vacant space; but once this is filled the Vines should have the house to themselves, as stuffing and crowding represent an exhausted atmosphere, wasted labour and expense, annoyance and failure.—W. C.

VARIETIES OF FRUIT FOR SMALL GARDENS.

I FIND that the question of the selection of the best varieties of different fruits, broached by Mr. Coleman in a recent article, is creating a great amount of interest, alike amongst gardeners and also amongst a class to whom THE GARDEN peculiarly appeals, *viz.*, the educated amateur gardener. I do not use the word in an ordinary sense, but mean the large and increasing number of amateurs who really not only like, but are very well versed in gardening, or who, having taken it up as a hobby, are not satisfied until they thoroughly understand it. To such lovers of a garden the selection of the very best fruits will be particularly acceptable, for the simple reason that as their gardens are not generally too large for their requirements, the varieties that are grown should be good alike as regards flavour and cropping qualities. The pages of THE GARDEN have on many occasions furnished information as to the sorts of vegetables to meet such requirements, and it will doubtless prove very acceptable to many readers if fruit is dealt with in a similar manner. It has often occurred to me that the amount of produce of all kinds obtained from such gardens might be very largely increased, for even if the owner is both a lover of his garden and a regular enthusiast in some particular flower, there is generally a negligence in the utilisation of space that is a serious negative loss to the family. Take, for instance, the most common of all fruits, the Apple. There is very seldom sufficient space to spare on a small property for an orchard; would it not, therefore, be wise to substitute in the majority of cases some good standard Apples for some of the usual tenants of the lawn and shrubbery? I do not for a moment imply they should altogether usurp the place of the orthodox tree or shrub, but contend that a handsome young specimen of Lord Suffield or King of the Pippins would be far more ornamental than a scrubby Lilac, and certainly far more useful. Then, again, take all the many bare walls that one sees in nineteen out of twenty cases, walls of sheds, outhouses, stables, walls of pits, &c. All the above may not be adapted to the high-class fruits, but they might all be covered with Red and White Currants, Gooseberries, Plums, and the like, and furnish plenty of this class of fruit for all purposes, leaving the vegetable ground proper for the necessary vegetables.

The fruits just named are all easily cultivated, sure croppers, and very useful both in a fresh state and for the preserving pan, and form in these days of cheap sugar a welcome and economical addition to the household necessities; and here, too, selection might well step in and determine the best and most profitable varieties. Thus Warner's Grape and Raby Castle are far better Currants than the old Dutch, and such sorts as Whinham's Industry, Leveller, Thumper, and Warrington amongst Gooseberries would be about the best to meet the necessities of the case in question—the greatest quantity

of good fruit from a limited area. So, too, in the case of Plums. Such varieties as Rivers' Early Prolific, Victoria, and Kirke's seem peculiarly adapted for the small garden. They may be a little deficient in quality, but they thoroughly respond to what is required of them—an annual supply of good wholesome fruit. Again, in the matter of the selection of Apples and Pears under similar conditions, it would be better to make sure of, say, half a dozen thoroughly good and reliable sorts than

they should not be more generally used, for the best places might be awarded them, and yet ample room left for the humbler and more useful fruits. Two good varieties of Peach and Nectarine for succession, and the same of Apricot, would be sufficient. It is hardly necessary for me to go into the varieties of all the different fruits suitable for small gardens, as they will doubtless be broached in good time now that the subject has once been started, and all such owners will be able to make

FRUITS UNDER GLASS.

PINES.

As few gardeners now grow more plants than they actually require for giving a continuous home supply of fruit, considerable skill and forethought are necessary to success, as their stock is too limited to admit of a glut. For keeping up this succession of ripe Pines, the old-fashioned stove, succession house and sucker pit capable of holding a hundred or more plants of uniform size and age have been found wanting; consequently, those able to shape their means to their requirements have divided them into compartments large enough to hold twenty or thirty plants each. Others having a set of light, snug pits in every way suitable have rung the changes by devoting the large houses to Muscat Grapes or other purposes, and in this way they have been able to keep up a succession of plants, from which at any time they can draw a few fit for starting. When this plan is well carried out, the second batch will now be throwing up, and as these, like the first Queens, will be valuable in proportion to early maturity, they should be helped forward by a maximum of heat top and bottom, a minimum of shading, close proximity to the glass, and plenty of atmospheric moisture. A bottom-heat of 85° to 90° will answer admirably, and that of the house may range from 75° at nightfall to 70° at daylight, thence upward to 85° or 90° with air, and another 5° after closing with sun-heat and moisture. As the sun gains power, these fruiting plants, also the earliest batch now swelling fast, will take more stimulating liquid, not in dribblets, but in liberal supplies when absolutely necessary. Overhead syringing, which tells so upon the size of the crowns and the pushing of suckers, should not be too freely indulged in, at least for the present, as more genial conditions can be secured by damping the surface of the bed on fine afternoons and keeping the pans regularly charged with clear diluted liquid. The latest summer and early autumn fruiters, consisting of mixed varieties, will now be on the move, and as they are expected to give very good results, they should be well packed about the necks with lumps of turf, and generously treated as soon as they are sufficiently advanced to require feeding. If old winter fruiters are still monopolising a compartment, they should be pushed into close quarters, and when the pit has been cleansed and renovated with fresh leaves or a little new tan, it will be ready for the reception of the pick of the earliest spring-potted

Successions, which must have plenty of head room, as they will have a long growing season before them. By head room I do not wish to convey the impression that they must be kept low down in the pits; quite the reverse; as they cannot be plunged too near the glass, provided the leaves do not touch it, and space is allowed for their natural curved or lateral development. The crowding of too many plants into a given space has been the greatest bane to success, as no amount of after attention could possibly restore the attenuated examples formerly met with to specimens worth keeping. And yet, although this evil has been seen over and over again, it is still necessary to warn young beginners not only in the pinery, but in all other departments, against attempting too much. Pine growers who are plantmen never fall into this error, but treat each plant as a specimen, and in this way secure a select stock worthy of the space and attention devoted to them.

Young stock.—Suckers potted early in the spring weather at the close of winter and plunged in a sharp bottom heat from fermenting leaves will now be making good growth, and many of them will be forward enough for shifting. It is not, however, a good plan to shift too soon, as Pines often do well in small pots where they fail in large ones; therefore to be on the safe side, it is well to bear in mind that a plant should never be potted on until it has roots in sufficient quantity to prevent the exposed ball from falling to pieces. When this stage is reached potting should not be delayed, otherwise cramping and want of water may throw some of the best of this batch into premature fruit just when they ought to be growing vigorously. Here, as in the fruiting and succession pits, the



Water's double-flowered Cherry (*Cerasus Watereri*). See p. 416.

to extend the list at the risk of obtaining a large proportion of shy, partial croppers that would but encumber the ground to little purpose. The same remarks apply even in a more restricted sense to the Strawberry. Everyone likes a few rows of this favourite fruit if the garden be ever so small, and one thoroughly good sort is better than a dozen that are seen at their best only under special conditions and in particular localities. The best fruits—the Peach, Nectarine, and Apricot—are not often seen in the amateur's garden; but there is no reason why

the necessary selections to meet the several requirements.

CLAREMONT.

E. BURRELL.

Grafting old Apple trees.—Would someone kindly inform me if it would pay to behead and graft Apple trees from thirty-five to fifty years of age with such sorts as Blenheim Orange, Cox's Orange Pippin, and Claygate Pearmain? if so, how long would they be before they began to bear again? The orchard is situated in Herefordshire, and is now planted with cider Apples.—A. P. S.

selection of a dozen or a score of the best and treating them as new plants is not only an important step, but really and truly it is the first stage towards that success which ought to be secured without a single failure. It is needless to say fire heat should be avoided as much as may be consistent with safety, and this very often can be dispensed with altogether by the use of linings and systematic coverings as applied to frame Melons and Cucumbers.

PEACHES.

The mild, bright and genial weather with which at last we are favoured is all that can be desired for Peaches in every stage from setting to stoning, and especially good for early fruit now commencing the last swelling. Although some time has been lost, no one has much reason for complaint, as crops generally are extra good, and the trees being in fine condition, the steady pace at one period prudent may now be quickened under judicious treatment as to sun heat and moisture. Where the fruit is thoroughly on the move, it may be considered quite safe from dropping, and the final thinning by lightening the load will give still further security. But who is to decide when Peaches have been properly thinned? and by what rule must the person who works under written instructions be guided? Scores of times I have stated that a Peach to every square foot of foliage is a good crop; but still the question comes, a fair proof that the most important parts of the calendar are not committed to memory. Such being the case, I must repeat that all drooping fruit should be elevated, that is, turned point upward to the sun to secure perfect colour when ripe. Every Peach upon a large tree cannot be so managed, but the bulk of the crop can be got up, especially where thinning throughout the season has been performed by a person who understands his business, and the most promising have been kept constantly in view.

Water, at all times an important element just now and for some time to come, must be very freely used both above and below the surface of the border. Soft water free from lime or sediment is to be preferred for syringing purposes, as it does not leave a deposit on the woolly coat of the Peach, and occasionally an afternoon bath of soot-water will do good service, not only as a stimulant, but also as an insecticide. Indeed, so useful is this water in all forcing houses, that I cannot refrain from again advising the maintenance of a continuous supply by sinking small bags of the raw material in the tanks about once a fortnight. Whatever is used, the trees will stand and benefit by two thorough syringings on each fine day at least for some time to come, and when the fruit shows signs of changing the use of the syringe must be discontinued gradually. The roots in like manner will take copious supplies of tepid water, either in a pure state, tinged with liquid soot, or guano, according to the strength of the trees and the weight of the crop, or pure water once a fortnight may be passed through a generous mulch of rotten manure.

Tying down during the stoning period having been allowed to fall slightly into arrears, must now receive more careful attention, but on no account must a crowded condition of the young wood be allowed to exist. A shoot at regular intervals of 6 inches and on the top of all stems and strong branches will be found ample, and as many of these will have performed their office, as soon as the fruit is gathered they may be pinched, first, to throw size into the Peaches, and, secondly, to force the sap from the most robust into the weakest parts of the trees. Leaders, as a matter of course, unless they are running away, weak and other shoots which will give the next year's crop must not be pinched until they have filled the allotted space, but this is a matter which requires great judgment, as many weak and intermediate shoots have only two wood buds—one at the base, the other at the point, which cannot be dispensed with.

Ventilation, commencing in the evening, say, after a bright, forcing day, must be on a moderate scale, at least, for the present, but still the trees will be greatly benefited by a gentle circulation of air, especially through the front lights or openings.

If put on at 9 o'clock at night and taken off at 6 o'clock in the morning, the trees will have rest when it is most needed, and they will be in the best possible condition for sharp forcing through the hours of daylight, when air, top and bottom, must be regulated by external warmth and the gradual rise of the mercury. Air, it must be understood, should always be given with a rising glass, and when the maximum of 75° to 80° is reached, the first indication of a decline should be the signal for reducing or final closing.

Succession houses.—Follow up the usual routine of syringing, watering, and airing, and pay timely attention to tying down and thinning. An experienced person can tell to a nicety what weight of fruit his trees will carry to maturity, and knowing how severely they feel the strain of stoning, he thins accordingly. Ten to twenty per cent. after this time is ample to leave for the final thinning, but the snowy weather in February and early March having been so unfavourable to setting, trees in flower about that time should not be stripped too close until the Peaches are the size of Hazel Nuts.

Trees in late houses and having their roots in external borders are unusually late in flowering, but they are setting well, and the spring being so far advanced, they will require prompt attention as to disbudding, fumigating, and other operations which rush to the front under bright genial weather and powerful sunshine. As fruit from these houses is valuable in proportion to its lateness, there should be no attempt at forcing, unless, as may yet happen, there is danger of sharp morning frosts, when early closing, with sun-heat and relaxing the afternoon moisture, may be a prudent precaution against injury.

FIGS

now approaching ripeness may be kept somewhat drier, at least so far as direct syringing goes, but they must still have plenty of atmospheric moisture, which readily can be created by damping the floors and bare stems without wetting the fruit, also by drenching dry, hot corners, so frequently the stronghold of red spider. Heat, light, and fresh air being so essential to colour and flavour, a steady circulation upon the pipes at all times when the sun is not shining will be necessary to the maintenance of a tropical temperature, with the top and bottom ventilators more or less open. Tying, regulating, and stopping where any of the shoots show signs of grossness will also be necessary and highly advantageous, as many of the finest fruit by this means may be fully exposed to the direct influence of light and sun-heat. The Fig being such a gross feeder, the usual top-dressing of light, rich turf, bone-dust, or rotten manure must be placed over the roots as often as they appear on the surface; whilst warm diluted liquid or plain water must be given in sufficient quantity to keep the balls and borders in a healthy growing condition. If well drained, it is hardly possible to overwater Figs when in full growth and swelling off crops, but once allowed to become dry, they invariably cast their fruit. As days increase in length and the sun gains more power, spider must be kept in check by an occasional syringing with pure or clarified soot water. The best time for this afternoon bath is immediately after a general gathering of the ripest fruit has been made, when the advancing crop will take no harm. As Figs will stand quite as much, if not a little more heat than would be good for swelling Grapes, the temperature in the early house may range from 70° in the evening to 65° the following morning, with a chink of air, and 75° to 85° by day under favourable solar influences, when an extra 5° will do no harm after closing for the afternoon swelling. To compensate for this speed, a minimum of 60° and a maximum of 75° may suffice on dark cold days and frosty nights.

Succession houses.—The fruit upon trees in restricted borders will now be swelling fast if it has not reached the flowering stage, at which it will stand for four or five weeks apparently stationary. Such, however, really is not the case, as Figs, like Peaches when stoning, must have time, and any attempt to hurry the process of fertilisation may result in turning yellow and falling when they ought to be on the eve of swelling for ripening. To

prevent this, no uncommon disappointment, their treatment as to heat and air must be steady, and there must be no relaxation in syringing, feeding and early closing. Young pot trees intended for next year's forcing cannot be kept too near the glass, provided the leaves do not touch it, in light snug pits with gentle bottom-heat beneath them, and a continuous circulation of fresh air to prevent the shoots from becoming drawn. If they have not received the final shift no time should be lost, as future success depends upon getting the short spur-like growths thoroughly ripened early in the autumn.

CHERRIES.

As the fruit in the early house will soon be changing for ripening the very important process of cleansing the trees from fly must not be neglected. Spider, owing to the low temperature, does not often attack the trees, but when it does, really good syringing for a few evenings with soot-water will settle the account without hurting the fruit, and light smoking on alternate days when the foliage is dry will ensure freedom from green fly. The black aphid being more persistent, I have always found dipping the points of the shoots affected in diluted tobacco-water the most efficacious. A clean bill of health secured, the next consideration is a moist growing condition of the soil. Therefore, as heavy supplies cannot be given without subjecting the ripening fruit to cracking, the compost in the pots or borders should be made properly moist with tepid water without delay, and well mulched with dry and rather short manure to prevent evaporation. The best mulch for the Cherry house is the remains of an old Mushroom bed, which may be kept moderately moist on the surface both before and after the fruit is ripe when dry bright weather favours free ventilation. Later sorts, including the Bigarreus, may be syringed for some time after the Dukes and Circassians are ripe, but some discretion as to time of day and weather will be necessary. And on no account must the water hang about on dull days or after the house is closed for the purpose of dispensing with fire heat. Birds being keen participators in the consumption of the produce, all doorways and ventilators must be netted, otherwise the wary blackbird will step in, as the fruit cannot be expected to hang for any length of time where ventilation is not continuous and liberal.

PLUMS.

Where these and Cherries, as a matter of course in pots, have been brought on together, they should be separated as soon as the fruit upon the latter begins to show signs of ripening. The temperature and general treatment might suit the two, but the Plum being slower requires syringing when the Cherry must be kept quite dry. Beyond this difference, the management of the two fruits as to heat, ventilation, mulching, and manipulation is identical. Black and green fly, too, seem happy with either, and the small lively grubs which so quickly destroy the Cherry crop are well represented on the Plum. Hand-picking is the only sure mode of getting rid of these pests, which, fortunately, do not remain in the destructive form very long, but, left alone, quite long enough to pierce every fruit in the house. Good syringing with pure soft water which is quite free from sediment is an important factor in culture, and this may be plied very freely twice a day down to the change for ripening. The manipulation of these trees is precisely the same as that followed in the orchard house, viz., a general pinching of the shoots at the fourth or sixth leaf, and the re-pinching of laterals and sub-laterals throughout the season. A timely step in this matter is imperative, otherwise these trees even in pots are very apt to run into strong shoots representing so much waste or valuable matter in the wrong place. Trained trees in like manner must be constantly pinched to keep down breast-wood, side shoots, when required, neatly tied in; whilst leaders or terminals may extend 2 feet or more, when nipping the points benefits the fruit and induces the formation of spurs. W. C.

The fruit crops.—Everything is so late, that at one time a full fruit crop appeared a certainty, but the weather up to nearly the end of April has continued so bad and winterly, that one almost despairs

of seeing many Peaches and Nectarines. The trees are at last in full flower, or will be so before May begins, and unless we get an immediate change there will be but a poor chance for the blossoms to set. Cold nights would not hurt them so much if we could only have some sun during the day to warm up the walls and strengthen the flowers, which are abundant, as the wood made last year is very short-jointed and thoroughly ripened. Apricots have fared badly, as the first blossoms that opened were all destroyed, and though later ones set, the embryo fruits have not been able to swell. The Cherry blossoms on trees on good aspects, such as east and south-east or south-west walls, is just expanding. Pears are variable, as the flower-buds are thin on those trees that had much fruit on last season, while others that had a light crop are full. From present appearances it will be nearly a fortnight before the buds open, and it is to be hoped that we shall then be free from frost. The Apple trees will not be in bloom till towards the end of May—at least, they look like that now; but a change to warm weather will soon make a great difference, and will hurry them on. The foliage of Strawberries has been much browned, but the plants where they have been thickly mulched with light manure during the winter are now pushing up strongly. It is a good plan to litter these down early with short straw, as not only may this operation be done much more quickly before the foliage and flower-stems get far advanced, but by having the ground well covered weeds are smothered, and the moisture the earth contains is kept in for the roots.—J. S.

Vintage Pears.—Should you feel disposed to add to your lists of choice Pears a small group specially adapted for perry, the following includes the names of a few varieties most in favour in our Herefordshire orchards: Taynton Squash, Thorn Pear, Barland, Yellow Huffcap, Moorcroft, Longlands, Chasely Green, Aylton Red, Red Pear, Rock Pear, Dymock Red, Oldfield. Although these Pears are of no value whatever for cooking or table, they are well worth cultivation for converting into perry. I will confine my remarks to one quotation, simply to show the commercial value of our Herefordshire wine when properly manufactured and bottled. At a sale held in this county in 1880, Taynton Squash perry fetched 28s. a dozen, and Oldfield sold for 21s. a dozen. The Red Pear makes a beverage equally valuable for draught or bottling, and Barland is a general favourite with all consumers when drawn direct from the wood.—W. C.

SHORT NOTES.—FRUIT.

Easter Beurre.—Mr. Gribble informs us that the above Pear does well in Durham. Will any reader say how it does in other countries? The specimens we mostly see are very poor.

Apples for beauty of flower.—Will any of our readers kindly notice this year those Apples that are remarkable for beauty of flower? All Apples are pretty when in bloom, but there are some better than others, and more striking in colour, or later or distinct in flower.

Pear Comte de Lamy.—I, too, like "Delta," have been surprised this Pear has not been taken notice of in the discussion going on in THE GARDEN. Here it does remarkably well as a pyramid, bearing freely annually a good crop, while the flavour is delicious. Its only fault seems to be its small size.—E. MOLYNEUX, *Hants.*

Preserving choice fruits whole.—Can anyone inform me what is the best mode of preserving choice fruits, such as fine varieties of Apricots, Peaches, and Plums, not making them into jam, but so that they may be used during the winter and spring months for dessert as nearly as possible in the same condition as when gathered?—X. Y. Z.

* Perhaps some of our French or American readers will tell us the best methods now in use for this purpose.—Ed.

Forcing Strawberries.—Your correspondent, Mr. W. Crump, inquires in THE GARDEN, April 21 (p. 356), respecting Vicomtesse Héricart de Thury. I picked the first dish of fairly good fruit of that variety on February 7, and my first batch threw up the flower-stalks fairly well; but a later lot, now commencing to colour, has just the defects that Mr. Crump alludes to, and with me for the first time. I cannot

account for the cause, as the plants were strong and had good natural treatment all through the period of their growth.—R. M., *Yattendon Court.*

Filberts.—It seems likely, from present appearances, that there will be a very poor crop of these, as, owing to the frost and wretched weather that prevailed up to the middle of April, the catkins have become injured, and many destroyed altogether. It would, therefore, seem impossible that there can be any pollen to fertilise the flowers, which in a general way do not show until the catkins are forward.—S. D.

COPYRIGHT OF SEEDLING FRUITS.

The interesting and instructive letter of T. Francis Rivers in THE GARDEN, April 7 (p. 305), fails to show how such a copyright could become practicable, or be made to work either to the advantage of the public or of the raiser. It is conceivable how it might benefit the public by protecting it from novelties far inferior to older sorts, for, of course, no attempt could be made to establish such personal rights in fruits without subjecting them to a far more stringent test of merit than any that have yet been devised. A mere certificate of merit by any fruit committee, however distinguished, could never be accepted as the basis of such a far-reaching legal right as a copyright in novel fruits. A council of experts would have first of all to be established to determine and appraise merit. The first canon of such a council should be that no fruit should be certificated that was not superior or earlier or later than existing varieties in the same class. With all due recognition of the great doings of the late Thos. Rivers, so happily continued by his son, among fruits, how many of those new fruits would have passed such a test rigidly enforced? For it must be borne in mind that, however valuable earliness or lateness is in fruits, no council of experts whose decisions would merit confidence would dream of certificating fruit for such adventitious merits as times of ripening alone unless accompanied with substantial and reliable quality.

As to mere novelty without any improvement in quality, experienced cultivators desire none of it. Thousands of these declare that the Black Hamburgh and Muscat of Alexandria Grapes, the Royal George and Noblesse Peaches, the Elruge and Pitmaston Orange Nectarines have never yet been equalled, to say nothing about being superseded.

But this only by the way, and to show that a great national system of registration for new fruits can hardly be justified as a matter of public policy. As already hinted, it might be useful to the public to furnish an additional protection against their being flooded with novel fruits inferior to the older sorts; but how it is to benefit the raiser, no one, not even Mr. Rivers, has shown. The stricter testing and more thorough proving would interpose yet further delay and a longer interval of time between the raiser and the public. Mr. Rivers complains that comparatively few new fruits are purchased. Fewer still would change hands when the price was raised by registration and the protection of the raiser by higher prices for a given time. And how long could the raiser be protected without an army of surveillance over the new fruits in their new homes? Every bud would have to be guarded by some means, or it might become a new and an independent centre of life and of distribution.

It would be impossible to establish a reasonable time for raisers to maintain a right of property in their productions. Raisers themselves would never agree to the evolution of such a legal period. What some would hold to be necessary, others would pronounce unnecessarily slow. And how the patentee could offer his goods at a lower price through keeping them longer before parting with them, is what no horticultural Fellow can understand. But if that be so, there is no law to prevent him keeping them as long as he lists now. Why do not the raisers of novelties do so now and let the public have them cheaper, and also with a longer character in consequence?

I beg most respectfully to impress upon Mr. Rivers that the question of character alone would prove a stumbling-block to the adoption of any

system of copyright in fruits. I note as a case in point the two early Peaches that Mr. Rivers cites as establishing or altering the character of old Peach trades at Lyons, Marseilles, and Montreuil. Supposing these two Peaches, the Early Beatrice and Early Louise, had had to run the gauge of quality before a council of experts, is it at all certain that either of them would have passed? And yet we see they have brought a fair profit and an abundance of honour to their originator. A similar fate might have overtaken the Plum that is creating a new industry in New Zealand, as also many other new fruits. In fact, rightly read, Mr. Rivers' letter is the most powerful argument that has been advanced against establishing a copyright in seedling fruits, for it reveals to us the stupendous work that has been done by a single firm in the originating and distributing of new fruits without any such cumbrous and burdensome aids. New markets have been opened, new industries established all over the world without any such protection, and whether the firm has made a colossal fortune or not, it certainly is not in a distressed condition. In fact, Mr. Rivers demands copyright for his new fruits, not for himself, but that he may supply the public better and at a cheaper rate. Nothing prevents him doing this now unless it be the knowledge that the public are so well satisfied with the goods they get for their money at Sawbridge-worth, that I have never heard a single member of it ask for more or better trees for less money.

I trust, therefore, that Mr. T. Francis Rivers will be content to let well alone, and drop the cry for legal protection or copyright in his seedlings, when Nature, by committing such to his sole charge and keeping, already affords all the power over them that his wisdom and interest deem to be either profitable, expedient, or possible. Possibly, the honour of such successful raisers of new fruit might be wisely enhanced by diplomas from our reconstituted horticultural society, or orders of merit or honours from the Government so soon as our joint ministry of horticulture and agriculture gets into working order, and our rulers recognise that peace not only has its victories as well as war, but that the former are the more worthy of national recognition and substantial honours. HORTUS.

SOOT AND PHYLLOXERA.

If the use of soot will not actually destroy the Phylloxera, it will most assuredly arrest its progress. Some years ago when I had the Phylloxera in several vineries here I tried several experiments with a view to eradicate this dreaded pest, without at the same time destroying the affected Vines, and removing to a safe distance every particle of soil in which they were growing, and recorded the results and impressions based thereon. Those recorded in reference to the use of soot in connection with Phylloxera are as follows: Having in the end of August, 1879, detected the Phylloxera on the leaves in the gall form, and subsequently on the roots of Vines planted in four vineries the previous spring, a week or ten days later I had the mulch and surface soil removed from the narrow strip of inside border in each house, thus laying bare a network of Vine roots, over which a thickness of 2 inches of dry soot was placed. The Vine leaves were then thoroughly washed with a double-barrelled irrigating engine worked by four men, the force of the water being broken by placing the fore-finger partly over the nozzle of the delivery pipe, so as not to damage the leaves; the Phylloxera so washed off the Vines falling into the soot beneath were destroyed. This done, the borders were watered so as to wash the soot down among the roots with the object, if not quite killing the Vine louse, to at least temporarily arrest its progress, which it did. Then the soot and soil were levelled with a rake. After which several incisions were made in and around each Vine at its base, placing a double handful of silver sand around each to encourage the emission of young roots therefrom. The surface of the border was also covered with sand, thus forming a division between the layer of soot and that of sound fibry loam, which followed to the thickness of 3 inches. This was done with the obvious object of obtaining

a fresh and clean set of roots apart from the old and affected ones, acting on the supposition that the strong application of soot would not only kill the Phylloxera, but at the same time cripple the Vine roots. So far this supposition was realised, but towards the fall of the leaf the result of a close inspection of the Vines disclosed the Phylloxera thickly embedded in the inner bark of the stems of the Vines between the ground and the trellis. This discovery led to more radical means being adopted to rid the Vines of the Phylloxera.

Longford Castle.

H. W. WARD.

SOCIETIES.

ROYAL HORTICULTURAL. Scientific Committee.

Daffodil, fringed.—Mr. Burbidge gave the following further particulars about the remarkable form described at the last meeting. He said that there existed but a single clump in the lawn of Rev. Mr. Gabbett, Croom Rectory, by Limerick. The flowers had come true for several years. It was associated with *N. spurius* and *N. Telamonius* (plenus), the former seeding itself. It appears to be a sport from *N. spurius*, but nothing certain is known of its actual origin.

Hyacinths, self-mutilation of.—Specimens of this not uncommon phenomenon were sent from Colonel Urquhart, of Rosebay, Broughty Ferry, for information as to the cause. The spikes have the appearance of being pinched off when first emerging from the bulb. The cause is apparently twofold: on the one hand, the bud-scales at the top are too rigid, while on the other the spike was well nourished, the result being that the insufficient expansion of the scales checked the development of the spike at the place where it becomes decapitated. The probable explanation was the excessively fine season of 1887, the "ripening off" bringing about the rigidity of the bulb-scales, at the same time favouring the formation of the spike within. Mr. Burbidge observed that it is a noticeable fact that the Chinese gash their bulbs with three slits at the top, to allow of the free escape of the spike, and to prevent such constrictions.

Hazel catkins, proliferous.—On a further examination of the Hazel brought to the last meeting by Dr. Masters from Mr. Syme, Mr. Henslow observed that, besides bearing female catkins at the base of the male, the latter were proliferous, the basal branches being covered with staminate flowers resembling the so-called Egyptian Wheat, a variety of Rivett's, on which several of the spikelets grow out into ears; so that five or more may proceed from one stalk. These two peculiarities—the proliferous state of the male catkins and the presence of female ones—corroborated the conclusion arrived at by Mr. Meehan, of Philadelphia, who observed in various declinuous trees that the female flowers were always associated with a relatively greater degree of vigour; or conversely, that an increased vigour produced female flowers, when normally nothing but male would have appeared.

Eucalyptus, hardness of.—A communication was sent by M. Naudin, in which he spoke of the hardness of *E. unigera* at Brest and elsewhere, where it is subject to occasional severe frosts. He said that *E. coccifera* will compare favourably with it, as also *E. viminalis* (falsely called *E. amygdalina*) which is nearly as hardy. The last severe winter has shown the different degrees of hardness among the various species of *Eucalyptus*. He says that a considerable number, even of very young trees, were absolutely insensible to the frost, while others, much larger and older, have had their foliage scant or less damaged. Even *E. globulus*, usually so hardy, has had some of its leaves frozen, principally through the melting of the snow by the sun's heat. Mr. Burbidge remarked on the general presence of bloom or wax on the young leaves, and its absence on the older—probably a provision against too great transpiration in the young state. Mr. Henslow offered a similar interpretation of the scimitar form of the older leaves to that of the obliquity of Pears and Fir

cones. When the stalk stands at an angle with the vertical, the weight of the leaf acting vertically downwards, the tension being along the stalk, the leaf consequently grows much more on the outer side to meet the strain of the resultant of these two forces—the vertical position, as of that of the stipules of *Acacia*, being probably adaptations to avoid too great radiation in the dry climate of Australia.

Plants exhibited.—*Anemone Fannini*, from South Africa, a large plant, with lobed orbicular hairy leaves and large greenish white flowers. *Befaria glauca*, from Colombia, and called the Andean Rhododendron; the flowers are pink, nearly regular, with seven petals and fourteen stamens. It is the representative in the southern of the Rhododendron of the northern hemisphere. These two were received from Kew, and botanical certificates unanimously awarded to them.

Plant sent for name.—*Nymphaea tuberosa* var. *flavescens*.—A protest was made against the name "*Marliacea*," furnished with the specimen, as tending to establish a confusion with the true name as given above.

Centenary of the Linnean Society.—The centenary of the Linnean Society occurring this year, a special celebration will take place in connexion with the annual meeting on Thursday, May 24. The foreign members of the society, including many distinguished naturalists in Europe and the United States, are invited to be present, but it is not yet known how many will attend the celebration. The occasion will be marked by two particularly interesting features. The first of these will be the presentation of the Linnean gold medal, instituted by the society on the occasion of its centenary, to Sir Joseph Hooker, K.C.S.I., formerly president of the Royal Society and director of Kew Gardens, and to Sir Richard Owen, K.C.B., so long superintendent of the natural history department of the British Museum. In subsequent years a medal will be presented to a botanist and a zoologist alternately. The second feature of great interest will be the delivery of eulogies on Linnaeus by Professor Fries, the present occupant of the chair of botany at Upsala, and on the following deceased members of the society: Robert Brown (one of the foremost botanists and a former president of the society), by Sir Joseph Hooker; Charles Darwin, by Professor Flower; and George Bentham (joint author of the great "*Genera Plantarum*," and many years president of the society), by Mr. Thiselton Dyer, F.R.S. These proceedings, with others incident to the anniversary, will occupy the afternoon of the 24th, and in the evening the annual dinner will take place at the Hôtel Métropole. On Friday, the 25th, the president, Mr. W. Carruthers, F.R.S., will hold a reception in the rooms of the society at Burlington House, when the Linnean collections and relics will be exhibited.

The Gardeners' Orphan Fund.—A meeting of the committee took place at the Caledonian Hotel, Adelphi, W.C., on the 25th ult., Mr. George Deal presiding. After the minutes of the last meeting were read, the chairman moved a vote of condolence with the family of the late Mr. John Woodbridge, a member of the committee. This was seconded by Mr. Herbst, supported by Mr. A. F. Barron, and carried unanimously. The secretary reported that since the last meeting of the committee, the names of 136 new supporters had been received, the donations being £32 18s. 6d., and subscriptions £36 8s. The total amount of donations to date is £1174 0s. 6d., of which £1063 3s. have been received; and subscriptions £386 11s. 6d., of which £294 0s. 6d. have been paid. One local secretary had sent in the names of sixty 5s. subscribers. Mr. A. L. Brown, local secretary for Lindfield, Sussex, who was present as an *ex officio* member of the committee, handed in the sum of £7 as the proceeds of a concert given at Lindfield on behalf of the fund; and a sum of £2 2s. 8d. was sent by Mr. Wildsmith, local secretary for the Heckfield district, the proceeds of a lecture delivered in that neighbourhood. A hearty vote of thanks was passed to each. The time for nominating candidates for election on July 13 having closed on the

23rd ult., the ten nomination papers received were examined by the committee and approved, and a sub-committee, consisting of Messrs. Deal, Roupell, Wynne, and Barron, were appointed to prepare the voting papers. All the cases appeared to be of a decidedly deserving character. The dinner arrangements were further considered, and the preparation of a circular referring thereto to be sent to subscribers was referred to a sub-committee. A further letter was read from the president, Sir Julian Goldsmid, Bart., M.P., in which he definitely announced his acceptance of the post of chairman of the dinner on July 13. A vote of thanks to the chairman closed the proceedings.

PUBLIC GARDENS.

A new recreation ground was opened last Saturday at Maida Vale by the Duke of Cambridge. The residents of this neighbourhood may well be congratulated upon having such a free and open space in their locality. The ground, which is some 21 acres in extent, has been secured, although not entirely paid for, mainly through the efforts of Mr. R. M. Beachcroft and a committee of residents, and has been appropriated to various athletic sports, cricket matches, &c.

The parks of London are becoming gay with spring flowers, which, though late, are none the less welcome. In the Temple Gardens Crocuses flowered splendidly, and a few days ago Hyacinths were in remarkably good condition in the strips of open ground by the side of the Embankment. Notwithstanding the uncertain and cold spring weather, such things as Tulips and Hyacinths are very little affected. We prefer the spring display to that of the summer in our London parks, as there is still too much of the stereotyped pattern bedding to please those who admire hardy flowers and a more natural and simple type of beauty.

Opening of the Tower Gardens.—Londoners have now the advantage of another open space, which was opened on Monday last. It comprises the long, narrow slip of garden that circles the moat round the Tower of London, and contains about an acre of land. The regulations are to the effect that in cases of fire, riot, fog, or any other similar necessity, the Constable of the Tower should have complete control over the gardens; that they should be open from the hour of 10 a.m. up to half an hour before sunset, and should so remain open from April to September; and that the gardeners and caretaker should be provided by the association. The opening of these gardens is still further evidence of the work that is being accomplished by the Metropolitan Gardens Association. Fresh air and a glimpse of flowers and leaves tend more than any other one thing to promote health, vigour, and an appreciation of beauty in those whose lives are cast in dirty slums and amid unwholesome surroundings. Our parks and gardens are national blessings, though we do not always realise the fact.

Vitriolic acid.—Can anyone tell me of what strength this ought to be used for killing weeds on gravel walks, and how it may be safely mixed with water without injuring the hands or damaging the clothes of those applying it?—S. D.

Cultivation of Violets in pots.—Will somebody kindly give an outline of the culture of Violets in pots?—VIOLET.

Names of plants.—*F. Lubbock.*—Not uncommon.—*Jf.*—*Dendrobium Pierardi.*—*A. Chapman.*—*Cocculus laurifolius.*—*Furly.*—*Lycaste Harrisoniae.*—*Thomas Ryan.*—Looks like a large form of the common Daffodil; the scarlet Orchid is *Saccolabium curvifolium*, the other being *Dendrobium Cambridgeanum.*—*Ic. small box.*—The spotted flower is *Vanda suavis*; the other *Dendrobium tortile.*—*H. J. Bennett.*—*Crimum Moorei.*—*E. M. Henderson.*—We do not name florists' flowers.—*H. R. C.*—Examine the border; the roots of the *Camellia* seem to be in a bad condition from the sample of leaves sent.—*F. Dowding.*—The bright-coloured flower is that of a *Billbergia*; the other is *Cypripedium venustum*, but the specimen was almost beyond identification.—*Charles Stuart.*—We quite agree that the small forms may have had their origin in *Narcissus nanus*, but the larger ones are certainly forms of *N. obvallaris*, two of which have become double.—*W. J. Mitchison.*—*Odontoglossum luteo-purpureum.*—*R. A.*—Next week.—*J. R. Née.*—*Narcissus cernuus.*—*C. M. F.*—*Maillaria* sp.; *Narcissus* is apparently a form of the common Jonquil; the other is a Cowslip.—*Mandarin.*—Send specimen when in bloom.

WOODS & FORESTS.

MR. AUBERON HERBERT ON THE NEW FOREST.

I WISH to say nothing unfriendly of our New Forest powers that be, but it is of the highest importance that the old concordat of a few years ago should not be departed from, and that those who in different parts of England care for preserving a very beautiful, if not unique, thing should help us to maintain the terms of that agreement. The position is very simple. There are so many thousand acres of enclosed plantation; there are so many thousand acres of unenclosed forest, in which latter are encrusted, like the last jewels of a spendthrift, a few scattered fragments of old historical wood. As regards the first, the enclosed part, let the Crown follow its fancies, of whatever kind they may happen to be. Let the authorities plant, cut, experiment, instruct themselves or others to their full hearts' content. These woods are, and may safely be, placed entirely at their mercy. All that was beautiful and of historic interest they have long ago destroyed, as far as these enclosed spaces are concerned. . . . but as regards the old unenclosed woods it is altogether different. These still remain the glory and beauty of the forest. They are one of the very few bits left of an old England which has almost entirely passed away. They are rich with the associations of the past. It is in these fragments of old wood—they are now so few that you could almost count them on your fingers—that lovers of the forest learn to realise something of that charm of "the greenwood" which once stirred the imagination of our people and found expression in so much of their ballad poetry. Oak, Beech, now clustered, now separate, tangle of Holly and Fern, smooth lawns of the closest-fed turf—the beauty of the whole lies in its naturalness and simplicity, in effects produced by the untended, undirected growth of trees that have struggled into existence as they best could, by the passage of cattle, wandering and grazing where they would, forcing tracks through the undergrowth, and by their bite and tread opening out and preserving the Grass glades. And to this natural beauty are added not only historic memories, but the strange charm of a most pathetic past. . . . But the charm that recalls the past may easily be broken. At present these fragments of forest link us on to the old days and the old feelings just because they have been left to take care of themselves, and because they remain the very same, with their lovely and ever-varying succession of natural thicket, stately tree, and open space, to-day as in those old days when they knew so many of the hopes and secrets of men and women.

I know well, however, that all these things wear a different complexion to the official eye. The official mind—and I wish to speak only in the abstract of this august organism—measures a noble Oak with the comfortable and soothing reflection that it has already passed its prime, and it had better fall by the official axe than remain to decay. It looks with horror on an unfilled space—one of those natural breaks which are to be constantly found in the old woods—and it longs to send men and seedlings at once to restore Nature's omission. It looks with a jealous and suspicious eye upon the commoner's cattle, believes that they are destroying the young growth, and notwithstanding that the old woods have never failed in the past to reproduce themselves, and notwithstanding that we claim—those who are far more competent than myself have claimed—that we could satisfy an impartial person, within 300 yards, if it were necessary, of where I am now writing, that, speaking generally, in the old woods the young trees are to be found as strong and vigorous and as many in number as are to be desired, it seems to be possessed by a melancholy conviction that only the official hand can arrest an ever-spreading evil, and save in these latter days a forest that has lasted some 800 years since, and an incalculable time before, the great William chose it as his hunting ground.

Of course, the official hand means the axe, the man with the seedlings, and, what is still worse, the

theory of tree preservation or tree destruction which happens to be in favour at the moment, and which will probably last just long enough, before it is replaced by some other theory, to produce results which are altogether irreparable. As the Act now stands, no licence is given either to the official axe or the official theory as regards the oldest woods.

Unfortunately, some old (not the oldest) woods were left outside the protection of the Act; and we none of us forget that a few years ago, in the face of a strong and largely-signed protest (of which I hope presently to enclose you a copy), the wood called Burley Old was Crown annexed, and soon after advantage was taken of such enclosure to cut down some—I do not know how many—of its Oaks. I repeat that I do not wish to make a personal attack upon the powers that be. No special holder of power is likely to be much different in this matter from another. As far as I know, those who have filled the office have all been courteous, pleasant, well-meaning men, proud of the forest in a certain fashion, but we should be wrong not to expect each in turn to have his theory of wood-craft, and to fret at the restraints of an Act that prevents the carrying out of such a theory at the cost of the old woods, which, as the framers of the Act saw clearly, above all things, require to be protected from their State protectors.

We have all known something of what the restoring energies of the authorities have done at Venice and at Rome, and of that fatal official perversity which is said to have restored an immense number of old pictures at the Louvre—restoring them out of existence, as far as their old real selves are concerned. We have learnt to know that it costs but a very little misdirected energy to destroy once and for ever these national relics. The still existing fragments of old forest, as they now are, are the most beautiful things that the heart of man can desire. There is nothing to take away from them, nothing to add to them. You may, indeed, spoil them, but you cannot improve them. As far as these few special woods are concerned, let us forbear to play the part of landscape *flâneurs* and dabbblers in tree culture. All new forms of vegetation that can be introduced are simply in their case an unpardonable impertinence. The bare spaces which are complained of are part of a natural and ever-varying beauty. There are, as we all know, spaces where Fern-cutting is allowed, where the young seedlings must be doomed; there are open, unsheltered places where the chances of forest life go against the young trees; there are dense bits of old Beech wood where young trees are not to be found, but under their shade the young trees would not grow even if planted. With each year inroads into these few dense bits are being made, and must be made more and more, by the fierce gales which blow over the forest, and wherever light and air come with the fall of the older trees the young trees spring into existence. There is no good to be gained, but only the prospect of irredeemable harm, by interfering. The beauty of the wood in large measure consists in its own natural decay and its own natural re-growth. To go and massacre old trees in order to help forward the young trees—as I have known done elsewhere, and I feel convinced would presently be done here if licence existed—is about as barbarous a method as that of eating or burying the old and helpless members of the tribe which prevails among certain races. The Act preserving the old woods should be jealously watched and strictly maintained as a concordat between the Crown and the English people, and for once in its existence red tape may be commended if the official axe be completely and securely swathed in it.

The questions of the expediency of State ownership of woods and forests, and, as long as there is State ownership, of increasing the usefulness of the forest both to the many who want a holiday and, with fair consideration to other local interests, to the class of small holders, must stand over.—*Times*.

Underwood for coverts.—In my experience I have always found the common Spruce Fir the best evergreen tree for thriving under the shade of larger trees in open places. As shrub growth, the

common Yew, Laurel, Mahonia, and Box in clumps may be planted, leaving open spaces, as all sorts of game like partly clear ground. Too much Privet is a great enemy of winged game, as when planted thickly it soon runs all over the ground, and makes it a thick mass of cover. I have seen acres of Privet in this form where nothing but rabbits could enter.—W. T.

FORESTRY.

MANY thanks to J. B. Webster for his most instructive and useful reply to my inquiries about the proper distances to plant to enable trees to prune themselves, and to make the most and cleanest timber in the least time and at least cost. Mr. Webster also dwells on the effect of local conditions on the modification of general rules, a point far too generally overlooked alike in arboriculture, horticulture, and agriculture. For daily in all parts of the kingdom these local conditions counteract, and in not a few cases wholly neutralise, what seemed the sure and legitimate results of general principles skillfully carried out.

On the other hand, it is most essential to formulate and, so far as practicable and profitable, to adhere to general principles. Now, in this note I wish to formulate two general principles. These are thick and group planting. As to the former, I would recommend planting just as close again as Mr. Webster suggests, that is, 3 feet for Larch, Scotch Fir, and Spruce, on Heath or Heather ground, instead of 6 feet. This is not so presumptuous nor different from Mr. Webster's advice—with whom I mostly agree in forestry matters—as may appear at first sight, as he suggests that on poor and exposed positions the trees may grow as closely together as from 3 feet to 4 feet. Now the result of planting them equally close on better soil, and closer still, if desirable, on a thinner and poorer one, is to draw the plants up quickly with straight, clean stems, all the lower side branches being smothered off in a few years. Now, this seems 'the one thing needful in the early growth of timber, for its future value may be said to be determined by the length and cleanness of the boles. These two conditions once secured, profitable growth follows from judicious thinning as a matter of course. As to the latter, extensive observation and considerable experience in the matter have alike convinced me that thinning is mostly begun too soon and is carried too far. What may be called a crush in a young state promotes height and cleanness of bole, and if the transition from a crush to more room is made at the right time and never carried too far, the trees receive no check afterwards from this rushing treatment through their earlier stages.

Perhaps Mr. Webster, too, would favour us with a few particulars of the age and extent of thinning he would recommend for plantations of Larch, Scotch Fir, and Spruce, and the final distances he would recommend for a crop of timber of each of these trees in the two sorts of soil he refers to. I have seen numbers of plantations well started, rapidly pushed forward, and then suddenly and finally thinned into stupidly and severely checked unprofitableness through excessive thinning.

As to group planting, it is generally practised for permanent plantations of Firs, and might also be for Oak and other hard or deciduous woods with manifest advantage. For instance, what possible advantage can there be in mixing any other trees with Sycamore, now rising in value? Planted as thick as Larch, or nearly so, these grow like Willows and straight as darts—the very qualities that enable them to form valuable clean timber with the greatest rapidity; and the same is true, to a less extent, with many other deciduous trees. Of course, Fir nurses are cheaper in the case of Oak plantations, but the saving of first cost here is not all gain, as it is at least doubtful whether the dead roots and resin of the Firs do not prove ungenial to the roots of the Oak. But Mr. Webster's views are, on the whole, so sound and catholic on the grouping system, that there is little or nothing to object to; while it may readily be granted that the mixing to accelerate the speed of the permanent crop that he suggests is probably as good as can be.

CALEDONICUS.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

WILD FLOWERS IN DEVONSHIRE.

I CAME to-day in the course of my walk upon a perfectly natural garden as beautiful as anything I have ever seen, extending over the whole of a large wood of many acres. The ground was curiously tossed about into hills and ravines, and everywhere damp, the Moss still in beauty there, and Ferns making fresh fronds, prominent among them being the dilate Shield, our handsomest English one, I think. There were also grand tufts of Primroses, such as only grow in Devon, as far as I know, the separate flowers so large on fine stiff stalks—a May Primrose has generally a limp stalk, which does not properly hold the flower up—beds of the exquisite wood Sorrel, patches of Whortleberry with delicate pink bells and green and russet leaves, yellow sheets of Moschatel in the low, wet bottoms, and here and there a marsh Marigold. The winding path gave no very extensive view, and at each turn there was a fresh surprise; in some places after an expanse of Primroses it narrowed in between steep walls of Moss and Ferns; the edge of the wood was gay with Stitchwort, and there was a patch or two of a favourite of mine, the honey-scented Pilewort, a poor little thing to look at, but so sweet, just like the Buddleia. I only know it in Devon, but I daresay it grows elsewhere. They have two good local names here, one Parson-in-the-pulpit for the wild Arum, and Snapjack for the Stitchwort, the ripe seed-vessels of which snap on being pinched. Do you know how sweet the branches of Larch with the young pink cones are? If not, put a few in your room and you will discover a new merit in your favourite tree. The scent is wonderful.

W.

NOTES FROM SHIREHAMPTON.

FRITILLARIES are charming this year, and the large yellow *F. Moggridgei* is one of the finest, as a slug soon found out and destroyed my hopes of a cross. This year I have some double forms which I never noticed before. In August last I moved a number of plants of *Lilium colchicum* raised from seed. They all bloomed last year, but were too crowded. I am glad to note that all are throwing up strong stems. Some one spoke of the difficulty of moving these. I notice *L. polyphyllum*, *superbum*, *excelsum*, *Humboldtii*, *Hansonii*, &c., are all throwing up strong stems. Some one asked about the hardness of *Primula obconica*. It is in bloom now on a grave in my churchyard from seedlings raised and planted last year. The new *Chrysanthemum*-flowered *Anemones* are blooming well here, and are very lovely. *Pæonies* are full of bud, but some of the new kinds from Japan were very much injured by frost. The

growth of the stock is a great perplexity to me. Should it be cut off in any case, whether officinalis or Moutan, which is certainly used in some cases by the Japanese? I cannot see that seedling Daffodils are in the least increased since their last year's appearance, and they look as if they would take seven years to bloom. *Eremuri* are growing up strong, but only two show spikes of bloom. Seedlings of *Ostrowskia magnifica*, from Max Leichtlin, are growing very strongly. I cannot make up my mind to touch them, though I was warned of the difficulty of moving them when they were ready for transplanting. I should be glad of advice. *Puschkinia* has seeded very freely. What indicates that these seeds are ripe? Last year I was moved to collect seeds of *Datura metaloides* before they were quite ripe and none germinated, though dried off with some care. I find this quite hardy here. I find it a good plan to sow seeds of this along with those of some other plant. This *Datura*, for instance, was sown in the same pot with *Alstroemeria*, and the two grew well together, the *Datura* blooming after the *Alstroemeria* had died down. I have a bed of *Alstroemeria pelegria alba*. For two years I have had no bloom through slugs, but this year I shall defeat them. Why do slugs like this kind so much, and never touch *A. aurantiaca*, which grows luxuriantly here against a warm wall? The first *Gladiolus* is nearly out—*grandis*, a tiny flower on a Rush-like long stem. This has been out all the winter with only a bit of glass over it.

C. O. MILES.

CONCRETE FOR FRUIT TREE BORDERS.

THERE prevails a very general opinion that the bottom of all fruit tree borders should be concreted, and many go the length of saying that a man who presumes to plant stone fruits or Vines where this foundation has not been laid knows only half his business. Others, again, having concreted or paved the bottom, rest quite content, so far as the roots are concerned, as they fully believe their going wrong is an impossibility. Fully alive to the great value of concrete upon certain soils and in low-lying districts, I have always advised planters to incur the expense where the roots of their trees are likely to run below the surface of the surrounding subsoil, or water pressing in from neighbouring hills may reduce a shallow excavation to the condition of a stagnant rubble drain without an outlet; but when we come to high and dry land or loamy soils resting upon rock or gravel, this preparation is worse than the simple waste of labour. Worse because it cuts off natural drainage into which modern cultivators, who lift and relay in a horizontal position, never allow their roots to descend; worse because it keeps the bottom colder than the stratum below it, and prevents the escape of water impregnated with liquid manure and decaying vegetable matter, which soon becomes stagnant and putrid.

Years ago before subsoil drainage was so well understood and so extensively practised as it is now, deep excavations were made and a most expensive system of paving and concreting capable of carrying the walls of a castle was looked upon as a masterpiece on the part of the gardener, but the only good which could possibly follow was the prevention of cold spring water from rising. This advantage, it is hardly neces-

sary to say, was more than counterbalanced by the omission of intercepting drains beneath the concrete kept constantly cold by the water pressing upward, by the detention of stagnant water, as I have just stated, above it, and by allowing the roots to creep down into a medium whence they commenced forcing a crude watery growth which could not ripen, as the past year's spongioles had perished, and the main roots lying at so great a depth new ones were not formed until after midsummer.

Concrete to be useful in cold, damp situations should not be laid much below the surface of the adjoining subsoil, and this operation should always be preceded by a series of sectional tile drains leading into a main drain a foot or so below the bottom of the concrete or pavement. Upon this pavement falling, say, 1 foot in 12 feet, I would again lay 3-inch tiles running 3 feet apart from the wall to the front of the border; fill in with about 9 inches of broken stone, brick, or rubble, and raise the borders well above the general level of the garden. This is, perhaps, an extreme case, but one, nevertheless, in low-lying gardens subject to flooding or constant underground pressure from surrounding hills or streams not infrequently met with; indeed, to prove that my theory is supported by facts, I may state that some years ago a deluge from melting snow placed a portion of this garden under water, which forced its way upwards into two Vine borders. These at the time were resting upon 18 inches of drainage, with a deep barrel drain along the front, but so baneful was this cold water, that many of the roots of the Vines with which previously I had been well pleased were completely destroyed, the Grapes the following year falling off fully 50 per cent. in quality. Early in the succeeding autumn I commenced separating the living roots from the pasty compost, and after adding another 18 inches to the rubble, I relaid them, and ultimately they recovered. Here, then, we have positive proof that concrete and ample drainage are of use; but when we come to high and dry gardens in which the subsoil is good and not over-moist, paving is superfluous, unless it be to prevent the roots from getting too much food upon deep soils where root-lifting is considered unnecessary. In some parts of Kent, for instance, on the warm, sunny slopes near Bath, where Alderman Chaffin grows such magnificent Grapes, and even in this county where an amateur produces first-class Grapes and Peaches in loam 2 feet in depth resting upon sandstone, concreting is as baneful as it is superfluous and expensive. Let those, then, who pin their faith upon paving and concrete consider whether good or harm is likely to follow. Let them first of all ascertain if there is any possibility of cold water rising out of the subsoil; if there is not, and they intend holding the roots under control, they may safely plant without incurring this expense, as a preparation of this kind upon warm, well-drained soils in nine instances out of ten is worse than useless.

Herefordshire.

W. C.

Gaelic name of Daffodils.—As I see that no one has answered the questions asked by "Veronica" as to the Gaelic name for Daffodil, I venture to attempt it. Ayrshire is not a Gaelic-speaking county, and I do not know what Daffodils are found there, but they abound in this district where Gaelic is still largely spoken. I asked an old highlander about the name of the plant, and he told me that the Gaelic bards called it by no other name than "Lilìbh," pronounced Lily, as the people here always do in English. However, the name given for Daffodil in the Gaelic dictionaries of Armstrong and of Dewar and Macleod is *Lus-a-chrom-chinn*, the plant of the bent head; *Lus* plant, *crom* bent,

ceann head, is the derivation—very descriptive of the mode of growth of the Daffodil flower. It is wonderful how the soil and climate of the Highlands seem to suit the *Narcissus* tribe, and, indeed, bulbs generally. I suppose the purity of the air makes up for a great many defects of climate.—E. C. M., *Lochaber*.

CHRYSANTHEMUMS.

E. MOLYNEUX.

DWARF CHRYSANTHEMUMS.

IN continuation of my notes on the above subject from p. 222, I may mention that preparations must soon be made for cutting down the plants. This is the method adopted to secure dwarf plants for grouping, either for exhibition or conservatory decoration, and by this means specimens ranging from 2 feet 6 inches to 6 feet in height, including the pots, can be obtained. Dwarf Chrysanthemums are gradually finding favour both at home and at the exhibitions, and they will generally carry from three to six good blooms, which can be easily examined. Smaller pots can be used than is generally required by plants grown for the production of large exhibition flowers, so more specimens can be arranged in a given space. They are also better adapted for using in mixed groups of foliage or other flowering subjects. If a stock of plants has not been specially prepared on purpose, any surplus ones over the number required to produce exhibition blooms will answer. Most varieties will succeed under this method of treatment, and pay regard to a good selection of colours, as by having a variety of colours a more effective group is obtained. The two richly-coloured reflexed varieties, *Cullingfordi* and *King of the Crimson*s, are almost indispensable in a group, and look particularly well when associated with pure white flowers, such as *Elaine* and *Mrs. G. Rundle*. Cutting down the plants should be performed at three distinct periods, regulating these according to the varieties to be operated upon. Naturally, late flowering kinds should be cut down first—about the 20th of May—as they require more time to perfect their growth. Varieties that come under this head are, of the Japanese section, *Meg Merrilies*, *Yellow Dragon*, *Boule d'Or*, *Grandiflorum*, *Ralph Brocklebank*, *Pelican*, *Duchess of Albany*, *White Dragon*, *Stanstead White*, *Ceres*, *Domination*; while late-flowering incurved sorts are *Hero of Stoke Newington*, *Princess of Teck*, *Mrs. Norman Davis*, *Cherub*, *Barbara*, *Lady Carey*, *Noupareil*, *Lord Eversley*. In the southern counties, the early part of November is the ordinary time for the plants to flower, while in the northern counties the same kinds will bloom naturally about the middle of the month. The kinds that should be cut down about the 1st of June are, of the Japanese class, *Mme. C. Audiguier*, *Fair Maid of Guernsey*, *Baronne de Prailly*, *Mlle. Lacroix*, *Peter the Great*, *M. Astorg*, *Val d'Andorre*, *L'Adorable*, *Triomphe du Nord*, *Criterion*, *Jeanne Délaux*, *Mme. de Sevin*, *Album plenum*, *Simon Délaux*, *Mons. Henri Jacotot*, *Belle Paule*, *Triomphe de la Rue des Châlets*, *Thunberg*, *Mrs. J. Wright*, *Carew Underwood*, *Marguerite Marrouch*, *Maiden's Blush*, *M. Burnet*, *Martha Hardinge*, *Mr. John Laing*, *Comte de Germiny*, *Mme. Laing*, *Balmoreau*, *Hiver Fleuri*, and *M. Délaux*.

As the last-named section is so fast increasing in numbers, a rather long list is necessary so that all classes of growers may be suited. Incurved varieties coming under this head are *Princess of Wales*, *Jeanne d'Arc*, *John Salter*, *Jardin des Plantes*, *Beverley*, *Mr. Bunn*, *Em-*

press Eugénie, *Refulgence*, *Mr. Brunlees*, *Lady Slade*, *Lady Talfourd*. Reflexed varieties, with the exception of the two previously named and *Mrs. Forsyth* and *Dr. Sharpe*, are not well adapted for grouping, as the colours of the flowers are somewhat dull. The varieties of the newer race of Japanese Anemones, owing to their graceful character when their guard florets are allowed to hang in a natural manner, are well suited for grouping, and some of the older type of large Anemone kinds are also useful for their distinct colours. Both sections may be treated the same as for those named above for the second section for cutting down. Japanese Anemones are *Fabian de Mediana*, *Mile. Cabrol*, *Sœur Dorothee Souille*, *Mme. Ghys*, *Margoulaine*. Show Anemones are *Lady Margaret*, *Fleur de Marie*, *Glück*, *Grand d'Alvéole*, *Acquisition*. The last batch to be cut down are naturally early-flowering sorts, such as *Elaine*, *Mme. Bertie Rendatler*, *Dr. Macary*, *Bouquet Fait*, *Lady Selborne*, *L'Africaine*, *Prince Alfred*, *Lord Wolseley*, and the *Rundle* family; these should not be cut down before the middle of June. If the plants are required in bloom from the early part to the middle of November, none should be cut down later than the last-mentioned time. It is well to consider whether the plants are required for large or small groups in determining the height at which they are to be cut. For large groups, where taller plants are of necessity required, the cutting down should not be so severe as for smaller groups. Always select for the front of the group those kinds which are naturally dwarf. As a rule, they possess the best foliage, being short-jointed; thus the leaves overlap each other, which is a decided gain in the end, as the front part of the group in particular is much influenced in its appearance by the general foliage of the plants. Where groups of this kind are placed in competition with others the condition of the foliage has considerable weight; therefore every means should be taken to gain this end.

Dwarf-growing varieties best suited for front rows of groups may be cut down to within about 4 inches of the soil; the others to 6 inches, 8 inches, and 12 inches. Small-flowered varieties which are intended to have more flowers should not be cut down so low as varieties with larger flowers, as more new breaks will be required to furnish the additional branches. After being cut down, if the plants could have the protection of a cold frame for a time so much the better, as they will not require much water at the roots for a time until new growth begins. Syringe the plants once a day to assist the shoots starting into growth from the eyes below where the top of the plant was severed. As soon as the new growths are long enough to determine if they are perfect and the leading points not deformed, disbud to the number required. Three branches suffice for most large-flowering kinds, but the smaller flowering varieties should have six each. When the new growths are well started transfer the plants to the pots in which they are to bloom, presuming those they now occupy are 5½ inches across. When the roots have run freely into the new soil remove the plants to their summer quarters. Give plenty of space between each to prevent a weakly growth. At this stage the new shoots being brittle are easily snapped off by winds, so care should be taken to prevent these mishaps by placing a stake to each for security. As soon as the pots are filled with roots stimulants may be applied, changing the kind occasionally, not forgetting the use of soot water. The plants should be regularly syringed in hot, dry weather in the evening and early morning. Mildew

must be kept in check by applying the usual remedies—brown sulphur scattered on the parts affected; also keep those leaves that become attacked by the Celery fly or leaf maggot picked off, or the foliage will be quickly disfigured by its ravages.

In nearly all cases the best blooms are obtained by selecting the first buds produced on the shoots after cutting down. They will appear from the middle to the end of August. In the case of the *Queen* family, it will in the majority of cases be early enough if the plants show their buds the first week in September, and the blooms will be of better quality than if the buds are formed during the middle of August. Sometimes buds of this type will show during the first week in August, in which case it is too early to produce other than large rough blooms, which are much more likely to reflex their petals than incurve. The remedy then is to rub out such buds and wait until the next one appears, which will be about the middle of September. When this occurs the plants will be a little taller, owing to the terminal growth made after the crown buds were removed being formed too early. Such plants are suitable for the back part of the groups. The formation of the buds induces a number of side shoots to form. When the buds are selected for flowering, remove all other buds and growth clustered around the point of each shoot. The side growths from the stems will have been removed as fast as they made their appearance, with a view to concentrating the whole energies of the plant into the selected branches. Varieties which formed flower-buds late should be housed early, along with the late-blooming kinds, such as *Meg Merrilies*, *Boule d'Or*, and *Hero of Stoke Newington*. This should take place about the 25th of September if the weather at that time is dull or cold. Such plants have to make up for a loss of time owing to late bud formation. Of course, in competition much depends upon having all varieties in flower at one time. If properly managed, varieties which form their buds the first week in August can be had in bloom at the same time as other sorts which do not set their buds for fully five weeks later. Some varieties require so much more time to unfold their florets than others.

In all cases it is unnecessary to leave the plants outside after the buds begin to expand, as such buds are sure to be spoilt by the rains and moisture from heavy dews. Local circumstances must be taken into consideration, as early frosts are more prevalent in some localities than in others. The plants in any case should be under cover before frosts are likely to occur, or the flower-buds will receive a serious check by the points of the petals being blackened as they develop later on. Early-flowering sorts should have some temporary shelter given them, so that they may be retarded as much as possible until the middle of October.

When housed, place the plants as near the glass as possible, giving sufficient space to prevent loss of foliage. Fire heat and ample ventilation both night and day in favourable weather should be supplied to prevent mildew spreading and the blooms from damping off. The shoots should be kept staked upright, preserving the flowers in the same direction as they expand, as a much better effect is obtained when the foliage and flowers face one way, as they should do in grouping.

Reflexed Japanese Chrysanthemums.—The classifying of these was a necessary step to take, and Chrysanthemum exhibitors will doubtless find the list of varieties given in last week's GARDEN (p. 406) a great boon. Until now almost hopeless confusion has existed.

PROPAGATING.

TACSONIAS.—These beautiful greenhouse climbers can be readily struck from cuttings of the young growing shoots, and for this operation the present is a very suitable time, as they do not take long to root, and if potted off at once there is sufficient time for them to get well established before winter sets in. The strongest shoots make by no means the best cuttings, as they are far more liable to decay than the weaker ones, and even if they ultimately root, the very stout cuttings take a much longer time than the others. In speaking of the more slender shoots, I do not mean such as have grown under unfavourable conditions, but rather the short, sturdy side shoots from a well-exposed part of the plant. One very necessary precaution is to see that they are quite clear of insect pests, as the Tacsonias are, when growing near the roof, somewhat liable to the attacks of red spider, and if in a close case for a short time the pest makes rapid progress and plays havoc with the young foliage. A length of about 4 inches is a very suitable one for the cuttings, which should, if possible, be cut off at a joint. After being dibbled into pots of sandy soil they must be kept close in an intermediate temperature until rooted, which will not be long. Directly they are struck more air should be given, and the young plants quickly inured to the ordinary atmosphere of the greenhouse, as if left in a warm and close structure for any length of time they are greatly weakened. Though I mentioned that all the Tacsonias are easily struck from cuttings, exception should have been made in the case of *T. insignis*, as this beautiful species does not readily conform to the same conditions as the others. Such being the case, it is usually grafted on to one of the strong-growing kinds, and where this is desired it can now be done. Side or whip-grafting is the method usually employed, and if the parts are joined well together a union will soon take place. If tied securely in position no protection other than that of a close case, such as is used for cuttings, will be needed by the grafted plants. Not only is this a good time of the year for the propagation of Tacsonias, but nearly all greenhouse climbers will now strike readily from cuttings.

COBEA SCANDENS VARIEGATA.—Many fail in striking this pretty climber. The clear markings of its foliage cause it to be much admired when festooning the roof of a good-sized structure. While the ordinary green-leaved form can be increased to any extent by means of cuttings or seeds, this variety does not lend itself to such a rapid mode of propagation. I have many times tried to raise it from seed (as we have a large plant that fruits occasionally), but always without success, for though the seed germinates readily enough, the young plants die off before the first leaf is fully developed. The only course available is to grow them from cuttings or layers, and of these two methods cuttings is that generally practised. By far the best cuttings are furnished by the short sturdy shoots, as they are less liable to damp off than the longer ones. Where a plant is so situated that a shoot can be brought down to a stage or some other spot convenient for layering, it may be propagated in this way. It can be layered at every joint, the buried portion of the stem having been tongued for the purpose, when rooted shoots will be pushed up from the buried joints, and as soon as sufficiently established, they can be separated from the parent plant.

OSMANTHUS ILICIFOLIUS and its Myrtle-leaved variety are two very pretty shrubs. They can be easily struck from cuttings, and make quick growth during their earlier stages. The best place for their propagation is an ordinary frame in a sheltered part of the garden, and if so situated that it is shaded from the sun during the brightest part of the day, so much the better; if not, other means of shading must be resorted to. The most convenient method of putting in such cuttings is to prepare some pots 5 inches or 6 inches in diameter for their reception in the following manner. Some broken crocks are put in the bottom of the pot for drainage, then the pot is filled up with soil consisting of

loam, well-decayed leaf-mould or peat, and sand, in about equal parts, the whole having been passed through a sieve with a mesh half an inch in diameter. The rougher portions that do not go through the sieve may be put in the bottom of the pots immediately over the crocks, when the soil must be put in and pressed down fairly firmly. The cuttings, which may be put in anywhere during the summer and early autumn months, should be from 4 inches to 6 inches long, the bottom leaves having been removed for about half that length for the purpose of insertion. In putting in the cuttings, care must be taken that the soil is well closed around them, especially at the base, and as each pot is finished a thorough watering must be given, sufficient, in fact, to settle everything in its place. As cuttings of this class are not very liable to decay, they may, if space is limited, be put in somewhat closer than more succulent subjects are, for if these last are too much crowded sometimes the whole will be lost. The frame in which the plants of *Osmanthus* are placed should be kept quite close and shaded from the sun, as, if this is not done, the heat will be too great for the cuttings. As above mentioned, it is best when in a position shaded from the mid-day's sun, as even if a mat or two be thrown over it the frame gets too hot when the sun is shining with its full strength. Such a frame may be utilised for the propagation of many other subjects; indeed in a garden it is always useful. Though some of the *Osmanthus* so much resemble the Holly, they belong to quite a different class of plants, their nearest allies being the Privets. It is interesting to note that on the oval-leaved Privet the *Osmanthus* makes rapid progress. Such a mode of propagation is, however, but little needed, as cuttings strike so readily, but it may be and often is utilised for the propagation of a near ally, viz., the remarkably sweet-scented

OLEA FRAGRANS, which grows in a very satisfactory manner when grafted on the Privet. This operation is best carried out towards the end of the summer just as the current season's growth is partially ripened. It little matters what method of grafting is employed provided the union is good, but it is quite as well to have it as near the ground as possible, as in time it will be quite buried. After the operation of grafting is carried out, the plant will need to be kept close until a union is effected. This Olive will also strike from cuttings, but it does not grow so quickly by this means as when grafted. T.

THE RECONSTRUCTION OF THE ROYAL HORTICULTURAL SOCIETY.

TO THE EDITOR OF THE GARDEN.

SIR,—As one of the very few practical gardeners who have served and suffered for this society, perhaps you will allow me space for a few sentences in relation to its past and present policy towards practical gardeners. I solicit this favour the more readily as you have already permitted Mr. George F. Wilson—than whom few could be better qualified to speak with authority on the subject—to appeal through your pages for 500 guinea subscribers or Fellows of the society. I am in such hearty sympathy with this movement, and also with the lowering of the franchise by one half, while maintaining all the rights, powers, and honours of fellowship to the guinea subscribers, that I write to urge the wisdom, policy, justice, and safety of proceeding a step further in the same direction, viz., the admission of practical gardeners to similar privileges in degree, though less in kind, for half a guinea. Though personally I would be willing to rejoin the society at a guinea subscription, and I know several of our best gardeners who have done so; yet I accept the dual fact that Mr. Wilson has not directly appealed to us through his guinea scheme, and that the society has established a half-guinea associateship specially for practical gardeners, as sufficient proof

that gardeners, as a rule, cannot afford a guinea a year for the honour and privilege of belonging to the reconstituted Royal Horticultural Society. Many people, however, are so devotedly attached to horticulture, and so anxious to the extent of their ability to assist any truly national horticultural society to extend its knowledge and practice and popularise its usefulness, that they would willingly contribute half a guinea a year for these objects.

Then why do not they hasten to come in? Permit me to explain in a sentence or two. The present council, aided by a popular and powerful committee, took one bold step by lowering the fellowships from two guineas to one guinea. They hesitated to take the final one needful to complete their work of lowering the terms for practical gardeners to half a guinea, and so they hit on a compromise, which savours far more of the narrow exclusiveness of the old regime, that, speaking broadly, shut all practical gardeners out of the Horticultural Society, than of the new spirit and practice that profess to be anxious to gather them in to the National Horticultural Society.

That compromise attached such degrading conditions to the half-guinea terms of admission as no honourable class of men ought to have been asked to accept. The class was to be duly checked, carefully ticketed, and separated from all others at every step. The very name of Fellow was to be denied, and gardener associate substituted for it. Other privileges are so curtailed until little or nothing remains; and, as if this were not sufficient humiliation, the associates, before they are admitted, are directly deprived of all voice or vote in the management of the affairs of a society that must live and flourish, if at all, by the brains and hands of horticulturists.

Neither is there the slightest pretext or excuse for offering these fresh insults to practical gardeners. We have heard that the charter was responsible for much of the exclusive and stupid policy that kept gardeners aloof from or made them even antagonistic to it in the past. It will surprise most readers of THE GARDEN to learn there is not an atom of truth in such charges. The old charter is dumb upon terms of admission; and, so far as appears, there is nothing to hinder any number of practical gardeners receiving the full privileges of Fellows or admission to the council without any subscription at all. As to bye-laws and supplementary charters, they have been rough-rode over or set aside at will, repealed wholesale by the irresistible logic of facts, or wholly dissolved through the bitter irony of fate.

No; no definite sum, but wisdom and discretion are demanded by royal charter, and it may be opportune to repeat that these are still the essential qualifications alike for Fellows and councillors of the Royal Horticultural Society. The most recent action of the council and committee in lowering the money terms of admission to full privileges of fellowship from two guineas to one proves all this beyond controversy. The same body possess equal power neither less nor more to lower the terms for a special class to half a guinea if they will; hence the urgency and timeliness of the present appeal.

Lest its nature and scope should be misunderstood, permit me to recapitulate the privileges claimed by gardeners for a half-guinea annual subscription. Name of Fellow with all its privileges, including a seat at the council if considered sufficiently wise and discreet by the other Fellows; free admission to the garden (if any), library, premises, and shows of the society; a copy of the rules and publications

(if any) of the society; and a free vote and voice in the management of all its affairs. Till but recently no one was sufficiently wise and discreet to be admitted to a fellowship or a seat on the council who was not able to pay two guineas or four guineas a year for the honour or privilege of doing so. To-day similar social honours and horticultural privileges may be enjoyed for a guinea. My suggestion, which claims the solid merit of finality, and can hardly be thought revolutionary in these days of educational progress and household suffrage, is simply that similar privileges should be placed within reach of horticulturists for half a guinea.

No claim is made to obtain as much for half a guinea as others pay double, four times, eight times that sum for. The present widely divergent rates of subscription prove equally varied scales of personal and relative privileges. These may be continued, or even accentuated, if thought desirable. All that practical gardeners claim for their half-guinea subscription is an equality of name, honour, and power with the other Fellows of the Royal Horticultural Society. If these are refused, two honourable courses are open to them: Stedfastly standing aloof from a society that offers them emasculated fellowships shorn alike of all honour or power, or become guinea Fellows, and use their powers as such for the advancement of horticulture and the admission of their brothers of the craft on easier conditions and principles at once honourable, equitable and profitable to the society.

For twenty or more years I have worked and dreamed by turn that a truly national horticultural society might yet do something—perhaps much—to improve the education, raise the status, and improve the condition of practical gardeners. To acquire the power needful to achieve such great and good purposes, it seems needful first of all to gather them into its fold on such popular and practical conditions as the half-guinea subscription here and now advocated.

Thanking you for the privilege of laying these views before your readers and thus bringing them to the notice of the committee of the Royal Horticultural Society.

D. T. FISH.

NOTES OF THE WEEK.

Chinese Plum (*Prunus triloba*) is a mass of bloom now. There is a fine plant on the wall facing the herbaceous department at Kew. Every twig is covered with the large pinky flowers, which are especially fresh and beautiful when just expanding.

Royal Horticultural Society.—The exhibition to be held next Thursday and Friday in the Inner Temple Gardens promises to be a most interesting affair. We learn that special efforts have been made to make it a success both financially and otherwise.

Gardeners' Orphan Fund.—We learn that the Duke of Bedford has given his consent for the holding of a fête in the flower market, Covent Garden, in aid of the Gardeners' Orphan Fund. This will take place as soon as arrangements can be made.

Tulips at Kew.—Those who are especially interested in Tulips, whether species or otherwise, will find a wealth of them just now in the Royal Gardens, Kew. On the bulb border such kinds as *retroflexa*, *viridiflora*, *suaveolens*, *stellata*, *fulgens*, the common *sylvestris*, and the rich crimson *elegans* are in flower or approaching that stage. The beds of florists' varieties are brilliant in colour, and very effective by reason of the tasteful grouping. Queen Victoria, *Proserpine*, and *Duchess of Parma* are kinds largely used. A small bed of the richly-coloured *Sun's-eye Tulip*, *T. oculis-solis*, is in perfection near the Lily house.

Primroses, Oxlips, and Cowslips from Cork.—Mr. Hartland, of Cork, charms us with a gathering of these beautiful flowers. He sends a

dark crimson-maroon Oxlip, named Sparkler, a Hose-in-hose variety said to be very brilliant at a distance. A giant sweet-scented Oxlip, William of Orange, is of a telling yellow, the centre orange and extremely bright; and the Danesfoot yellow Hose-in-hose we admire for its brilliancy of yellow. A very deep double crimson Primrose is the old double Pompadour, and we wish that we had a few more such rich selfs; the flower is large, full, and perfectly double.

Viburnum plicatum.—The Japanese Snow-ball Tree, though perfectly hardy enough for open-air culture, is a most beautiful shrub for the greenhouse at this season. It requires little or no forcing to bring it into flower by the beginning of May, and well-flowered bushes covered with numbers of snowy white balls of bloom are very ornamental. It is not yet generally included in the list of hardy shrubs suitable for the greenhouse in spring, but it will undoubtedly soon become popular for that purpose. It may be seen in bloom now in the temperate house at Kew where the shrubs are planted out.

Violets from Ireland.—I send you a gathering of the Violet Coolcronan Hybrid. I find it a most profuse bloomer and a very useful variety, continuing to flower after Marie Louise has shown signs of giving up, while it blooms quite as late as the Neapolitan and begins months before it; indeed, it has been blooming since September. I see in your paper many people complain that they find the Neapolitan is troublesome from its habit of throwing so many runners. Now this is very strange. I find all my plants grow round like great rosettes; indeed, I grow them to an enormous size in pots, and I am obliged to divide roots for want of runners.—J. P.

Magnolia conspicua is the flower of the week in the shrubbery, as during the last few days it has been a mass of the Lily-like white flowers that charm us with their rich fragrance and beauty. In the gardens of Gunnersbury House, a large tree of it some 35 feet high and of proportionate width was a few days ago a perfect picture, as the flowers had expanded unmarred by frosts or rains. It is backed by a Horse Chestnut just bursting into leaf. The fresh delicate tint of green against the white makes a lovely contrast. There are two excellent specimens full of flower in the arboretum at Kew, and as seen through the trees look like mounds of snow. Mr. Hudson informed us that, notwithstanding the exquisite beauty of the flowers of *M. conspicua*, there was no demand for them in the market. This is surprising considering the time they remain fresh.

Alpine Auriculas.—I send you a gathering of Primroses and garden alpine Auriculas. I wonder both are not more generally grown, for they are as easy to cultivate as Cabbages, and form a lovely edging to the herbaceous borders. Primroses I grow more in quantity together. The golden yellow in a mass is very showy. This I divide, as it does not come true from seed, although I have one or two seedlings this year from it fairly true. My garden is brilliant with the Primroses, Daffodils, Auriculas, and the old-fashioned Crown Imperial.—REV. CHARLES H. WOOD.

* * A beautiful gathering of alpine Auriculas. We admire the rich crimson and purple-maroon selfs, but not those flowers that show any pale shading, lacings or washy marginal edges. The yellow was particularly bright. Such hardy flowers as these are certainly not grown so much as they ought to be.—ED.

The Canary-coloured Water Lily.—The lovely new Water Lily known as *Nymphaea Marliacea Chromatella*, otherwise *N. tuberosa flavescens*, is, in the opinion of many, one of the best additions to aquatic plants that has been made for a long time. Previous to its appearance we had but one yellow-flowered Water Lily—the North American *N. flava*, but this even is a weakly-growing and small-flowered plant compared with the new variety, which rivals our common white Water Lily in size of bloom. The delicacy of the yellow colour of the blooms is not easily described, the tint not being pronounced enough to call it a true yellow, and therein lies its charm. The large round leaves lie flat on the water

and the flowers stand up a few inches above the surface. Amongst the white, pink, red, crimson, and blue varieties, all of which colours we now have among tropical Water Lilies, *Marliacea*'s novelty stands conspicuous, and the contrast and distinctness of its colour add to its charm. Botanists, we believe, are not certain as to its origin or relationship; at Kew it is labelled as a variety of the North American *N. tuberosa*, but it is in growth different from that species. We hope that it may yet prove hardy enough for our open-air lakes and ponds, and we should then, besides white-flowered Water Lilies, have pink and yellow forms. The flowers of this beautiful Water Lily shown at a recent meeting of the Royal Horticultural Society from the Royal Gardens, Kew, were much admired.

Echium arboreum, or the Tree Bugloss of the Canary Islands, has been for some time past one of the chief ornaments in the temperate house at Kew, where there is a fine specimen some 8 feet or 10 feet high, and with a broad spreading head carrying a large number of erect dense spikes of flowers of the deepest blue; in fact, much the same colour as that of our native Bugloss (*E. vulgare*). The specimen is a beautiful sight, and the silvery grey foliage serves to contrast with the rich colour of the blossom. It is not a plant for general cultivation, as it requires so much room to grow full size. It is named at Kew *E. callithyrsus*.

Polyanthuses and Primroses.—The fresh, simple beauty of these gay spring flowers has ensured for them a lasting popularity. One of the great points to obtain a tufted plant full of vigour and leaf is to give them a good strong loam and a moist, fairly sheltered position. A large border of them at Broxbourne shows of what immense use these homely flowers are for adorning our borders and beds in the spring season. There is a great variety of colours amongst the fancy Polyanthuses, from the brightest yellow to the deepest crimson, and those who grow this class of *Primula* should also have the double yellow, white, and purple Primroses, all lovely flowers, and perfectly rosette-like in shape.

Twin-leaf.—*Jeffersonia diphylla*, or Twin-leaf, is a plant one rarely meets with now-a-days, and yet it is one of the most beautiful flowers at the present time. When associated with *Trilliums*, *Heaths*, *Epimediums*, and such plants as love peaty soil, it stands almost unrivalled as an early spring flower. The flowers are about 1 inch in diameter, pure white, with bright yellow stamens, and the leaves are glaucous purple. It is a native of shady woods in North America, and a good companion for the better known Blood-root (*Sanguinaria canadensis*). It can be increased by division, but unless the clumps are large it is not advisable to do this. Seeds, however, sometimes ripen, and if these are sown within a few days after being gathered they will invariably give a good result.

Cape Pond-weed in Kent.—These few flowers are from some *Aponogeton distachyon* that were planted in our stream garden last spring. They have had no protection whatever during the late severe winter, and have been in bloom now for about eight weeks. I do not know if they are at all exceptional as regards size or early flowering, but having seen those at Kew, it struck me they might be, and that you would be interested in seeing them. The plants in our stream are all extremely healthy, and seedling *Aponogetons* are springing up in every direction. Some *Arum Lilies* have also stood the winter, and are throwing up fresh leaves. We hope soon to be able to gather flowers from them also.—A. M. GOODHART, Langley Park.

* * * Some of the finest flowers we have seen of the fragrant Cape Pond-weed.—ED.

Anemone palmata.—This early spring flower is rich in colour now, as the glistening golden yellow flowers, something like those of *Adonis vernalis* in expression, are in full splendour. The white variety is a chaete flower, but both should be grown.

Fritillaria latifolia is a Fritillary that has a large nodding flower, deep rich brown, with large spots of a similar colour on the inside of the fleshy segments. It is dwarf, strong-growing, and with glaucous leaves. It was recently in bloom at Broxbourne.

ROSE GARDEN.

T. W. GIRDLESTONE.

JEAN DUCHER.

JEAN DUCHER, one of the greatest gains of the late successful raiser whose name it bears, and sent out by his widow Mme. Ducher in 1874, is unquestionably one of the best six non-climbing Tea-scented Roses. Indeed, exhibitors generally consider it to be Ducher's *chef-d'œuvre*, and how much this means will be realised when it is borne in mind that the moiety of the selected half dozen most valuable Teas almost invariably consists of that raiser's seedlings; for few growers, in picking out the six best

full flower, with the conspicuous venation and gracefully recurved margins of its petals. An immense number of blooms were produced last June on some dwarf plants on Brier cutting stocks that were planted on a piece of sandy ground in November, 1885; and the plants thus being thoroughly established by the summer of 1887, the flowers then were quite in character, and some of their portraits were secured. The plants, which grow completely in the open and quite unsheltered from cold winds, were pruned right down to the ground during the first few days of April and soon broke strongly, appearing to make better headway through the chilly spring than many Hybrid Perpetuals. It was anticipated that

without coarseness, full without rotundity, erect and firm-stemmed, yet most graceful in form. Indeed, this is one of its chief recommendations as a desirable Rose in the garden, that owing to its sturdy growth every flower is well displayed and held upright to be admired instead of hanging pendulous and but half seen. It is a good grower and hardy, makes a handsome bushy plant, is immensely free-flowering, and a thorough autumnal. Its deep orange yellow colour is better developed in a cooler season than that of 1887, as in very hot weather the rosy shade in the flower becomes more predominant; but in all its varying and mingled tints of rose, buff, tawny yellow, and orange it is always attractive; and, taking it all round, for habit, vigour, freedom, form, and colour, there are few Tea-scented Roses as yet that can be said to surpass Jean Ducher.

DO ROSE BUDS SLEEP IN WINTER?

"E. H." in his fresh and suggestive article on the pruning of Roses, page 355, asserts that they do, and implies that the best ripened ones sleep the soundest and the longest. Be this latter as it may, it is really more important first of all to determine whether they sleep at all. If not, of course we need not discuss the question of which sort of bud sleeps best, or what truth there may be in the analogy of a sleeping man and a sleeping bud, which this writer considers perfect.

Now, as one of the first to insist upon the fact that the roots of Roses rest not from their labours summer nor winter, night nor day, while life lasts, I am equally assured that neither can their buds sleep, unless with one or many eyes open or opening. The rest of plants is a beautiful fiction, nothing more nor better. The tide of life is never at rest unless through drought, famine, or frost. It is quickened by heat and lessened by cold, but it is ever on the move. It may have its ebbs and flows; it is more certain that the current or counter-current of life is continuous.

More; there is less apparent rest in the life of our Roses than there used to be. What with the intercrossing of species, the intermixture of Indian and Chinese blood into the more restful Roses of more temperate climes, most of our Roses are more restlessly on the move alike in winter and spring, summer and autumn. Stimulating food, concentration of force, the extension of the blooming period to the confines or into the domains of winter, all have tended to arouse our Roses more thoroughly and to keep them more wideawake throughout the year. Would there were more, or at least some modicum of truth in the analogy of "E. H." between his sound sleeper and the state of our Roses throughout the winter and spring. The former goes to bed at the proper time, sleeps calmly the whole night, and then gets up fully prepared for work. "E. H." says he cannot see that the analogy is at all far-fetched. Well, literally that depends on the distance between the sound sleeper and his fidgetty Rose bushes; but a question or two will show "E. H." how inapplicable it all is to our Roses. What is the proper time for Roses to go to rest for the winter? and what means have we to force them to go at the proper time? What grounds have we for supposing that they will sleep soundly the whole night—that is, through all the cold—if they did rest at the proper time? And what resources have we for forcing sleep in the event of a week or a fortnight's mild weather varying again and again the dreary monotony of a cold winter? The exciting warmth of the sun, the wooing embraces of the genial air, have more rousing, awakening



Rose Jean Ducher. Engraved for THE GARDEN from a photograph by Messrs. Byrne & Co., Richmond.

and most reliable Teas would fail to include Anna Olivier, Jean Ducher, and Marie Van Houtte, even if they were not admirers of Innocente Pirola; and beautiful and in every way admirable as are the first and third, the individual flowers of Jean Ducher are even finer.

The accompanying engraving was executed from a photograph taken by Messrs. Byrne & Co., of Richmond, on June 26, 1887, of a flower grown at Sunningdale, Berks. By the date mentioned all the finest blooms were past, so that the example shown, and which is represented exactly life-size, is not a particularly large one; but it is quite characteristic, and gives a fair idea of the erect, somewhat pointed,

the blooming would have been late, but in spite of all pains to fix the day for taking the photographs so as to catch in perfection the finest flowers, the burning sunshine of the previous week rendered, after all, June 26 too late for the handsomest of Jean Ducher. A few of the earliest flowers, though very large, were somewhat rough, owing to the most forward growths having been caught by spring frost; and while waiting for better finished blooms the sudden hot weather forced them on and off so rapidly—no shading of any kind being practised—that only young and medium-sized flowers were available.

Jean Ducher at its best, however, is one of the finest and handsomest of the Teas; large,

effects on these semi-dormants than would a discharge of artillery in the ears of the soundly sleeping man. What battalions of buds feel the opening touch of the sunshine, and open out the citadel of their life to the wooing of the soft, sweet air, whilst we helplessly marvel and repine over the fickleness of the season. Hence I trust even "E. H." will see that his pretty analogy fails utterly in all its essential features.

Neither do I admit that immature buds, like fidgetty sleepers, are the first to awake or break into leaflets. There are two varieties of such early buds, one the lingering products of last year's growth and the other the early growth of the current year. It is astonishing how many of the former are left over all unnoticed until pruning comes, and of course the whole of them are, according to "E. H.'s" theory, semi-awake or fidgetty sleepers throughout the winter. As to early spring breaks, "E. H." is by no means the first writer on Roses who has mixed up the size of buds with their maturity. Hurriedly and without proof the biggest buds are taken to be the ripest. It is often just the very reverse, and when those weakling buds break into leaflets, the fact is accepted that the least ripe buds are the first to break. I utterly deny it. Wherefore do buds break? Two main causes compel them—external heat and internal superfluity of vital force and growing material. Without the aid of the latter, even the semi-omnipotent energy of caloric would be powerless to open the bud-sheaths and let the imprisoned leaves, shootlets, and flowerets go free. And those buds most powerfully assisted by these internal forces are of necessity the first to open. And why? Simply because they are the ripest—that is, the fullest—of living, growing, and consequently irrepressible material.

It seems as if "E. H." and many others found dormancy with maturity. Among Roses such terms are the very reverse of synonymous; they often mean exactly opposite states and conditions, and all too often we have to sacrifice maturity for dormancy in order to force our Roses into bloom at a time when the weather will prove propitious, or when their flowers will be most useful.

It affords me pleasure to add, in conclusion, that I agree with "E. H." that summer Roses are less precocious than Perpetuals, and also that they may safely be pruned early; indeed, any time after the fall of the leaf.

D. T. F.

CLOTH OF GOLD ROSE.

IN a note in *THE GARDEN*, April 14 (p. 337), it is stated that this Rose "is seldom seen now-a-days, as we have so many better things to take its place." Singularly enough, the writer contradicts the latter half of this in the last sentence of his note, where he says of a plant growing in a tub at the nurseries of Mr. Wm. Paul, Waltham Cross, "that it will be in bloom again in a few weeks, and those who love old-fashioned Roses will then have an opportunity of seeing its yellow flowers, which are even more refined than those of *Maréchal Niel*." This last is exactly my verdict of its worth and beauty, and, consequently, the first reason assigned in the note for its not being grown—viz., that we have so many better things to take its place—cannot be also correct. Is it not rather that we cannot grow it now? Some twenty-five years ago it was no uncommon thing to meet with plants of *Cloth of Gold Rose* in the open air equally large, or larger, more luxuriant, and, what may seem far more marvellous and incredible to those whose experience has been confined to the period of the modern degeneracy of this Rose, equally free-flowering with most modern examples of *Maréchal Niel*; and now, if found at all, it seems struggling for existence, or if it grows it refuses to bloom or blooms most scantily.

It seems, in fact, to have passed into a state of debilitated or degenerated constitution. One thing about it, it has not reverted into a state of weakness, uncertainty, or degeneracy as far as the blooms are concerned—when they do appear—as I quite agree with the writer of the note that these are equal or superior to those of *Maréchal Niel*, and, if so, to any golden-coloured Rose which we yet possess.

HORTUS.

Books.

ROSES AND ROSE CULTURE.*

THE demand for a sixth edition of a handbook not only proves that it appeals to a very considerable public, but may be taken to be a very substantial indication of the fact that it is very good and reliable of its kind; and few manuals could be cited with which this is more actually the case than Mr. William Paul's shilling book on Roses.

Here, in some ninety pages, every phase and department of Rose growing (with perhaps one exception) is ably dealt with, and full directions and advice of the soundest kind are given.

It is satisfactory to find a rosarian of so wide experience as Mr. Paul adhering to his long-since expressed opinion as to the superiority of the native Brier to the *Manetti* as a stock (p. 21); and the attention of Rose-growers at large cannot be too forcibly directed to the admirable chapter (pp. 28-30) on summer Roses.

But why should there be any hesitation about the inclusion of yellow (p. 33) among the colours characteristic of the Tea-scented Roses? Are not *Perle des Jardins*, *Comtesse de Frigneuse*, *Mme. Chedane Guinoiseau*, *Perle de Lyon*, and *Amazone* of the purest yellow?

It is with reference to the Teas that the exception above noted anent the cultural directions is made. It has proved over and over again that the Tea-scented Roses may be grown out of doors with the utmost success in the southern counties of England budded on dwarf Brier stocks, and that even if they are exposed to a severe winter without any protection, and are killed to the ground-line, they nevertheless will make fresh growth and be in flower before the end of June. It is therefore to be regretted that anything should be said or written which might tend to check the extension of the out-door cultivation of these loveliest and most invaluable of Roses. The remarks on page 33 may have been written a good many years ago, especially as some of the names of varieties enumerated on the succeeding page are those of Roses no longer generally cultivated, but which are decidedly tender. If so, however, the complete success of the recent widely-extended cultivation of dwarf Teas out of doors might well have claimed somewhat fuller recognition, instead of the almost apologetic reference (pp. 33-7) to their outdoor culture only as a doubtful supplement to plants grown under glass.

The only other point to regret in Mr. Paul's valuable little book is the nature of the illustrations, which are in no way worthy of the text.

In the chapter on pruning Mr. Paul says (p. 48):—

While I recommend the thinning out of supernumerary shoots in autumn, and the shortening of those that are left in spring, as the safest and best practice, yet if the shortening is also done in autumn the flowering will take place a few days earlier. The objection to autumn shortening is that the mild days often prevalent in winter induce the dormant eyes to push into growth, in which state they are liable to be more or less injured by subsequent frosts.

These late spring frosts are now-a-days so much a matter of course, that it might almost have been said that plants completely pruned in winter with a view to obtain an earlier flowering are likely, through getting their young growth cut, to bloom as late as, or even later than, those not pruned till spring.

In reference to the paragraph at the foot of p. 55,

* "Roses and Rose Culture." A shilling book on Roses, By William Paul, F.L.S., author of "The Rose Garden," &c. Sixth edition. Kent & Co., 23, Paternoster Row.

it may be mentioned that a considerable amount of evidence has been collected to show that seedlings raised from the crossing of two quite full Roses are liable to produce flowers so full that they can never expand at all.

Mr. Paul does well to deprecate the practice—nearly always undesirable from every point of view—of shading Rose blooms grown for exhibition. The selection of types, however, might well be a little more modernised, those given on page 64, for instance, being varieties now rarely seen in an exhibition stand; while the advice just below, to revert to the almost forgotten practice of adding foliage, would bring a novice in exhibiting to grief and disqualification at any Rose show of any pretensions.

In the selections of Roses suitable for various purposes (pp. 79-89), there are one or two points worthy of notice. Thus, in the first list of 100 good show Roses, there are included a few which have certainly not been conspicuous at shows, in the south, at any rate, of late years, namely, *Abel Grand*, *Black Prince*, *Eclair*, *Emilie Hausburg*, grand as a maiden now and then, but delicate and not reliable; *Harrison Weir*, *John Hopper*, *Mme. Charles Wood*, very tender; *Marshall P. Wilder*, too much like *Alfred Colomb*; *Masterpiece*, *Paul Neron*, *Céline Forestier*, *Gloire de Dijon*, and *Sunset*. *Gloire de Margottin* is a grand forcing Rose, but has not yet been seen in the exhibition tent, and among the Teas are included three hybrids—*Grace Darling*, *Lady Mary Fitzwilliam*, and *Waltham Climber No. 3*—not admissible in classes for Teas and *Noisettes* only.

On the other hand, the omission of such standard sorts as *Alphonse Souper*, *Auguste Rigotard*, *Henri Ledechaux*, *Heinrich Schultheis*, *Hippolyte Jamain*, *Duke of Wellington*, *Anna Olivier*, *Amazone*, *Caroline Kuster*, *Hon. Edith Gifford*, *Innocente Pirola*—to mention only a few names at random—cannot but cause surprise. That anyone should recommend such a dismal Rose as *Felix Genero* for any purpose, that it should still even be in cultivation anywhere, is a mystery. In the list of Teas on p. 86, two other hybrids, *Camoens* and *Mme. Alexandre Bernaix*, are included in addition to *Lady Mary Fitzwilliam*, which, by the way, seems an odd Rose to suggest for massing, a purpose for which the following are not generally thought best adapted: *Duchess of Bedford*, *Queen of Queens*, *Rosy Morn*, *Star of Waltham* (a grand Rose at its best, but dwarf and uncertain), *Victor Verdier*, the dreary *Sir Joseph Paxton*, the coarse *Etandard Jeanne d'Arc*, and *Vicomtesse de Cazes*.

The list of Roses raised by English growers is an interesting addition, and, with a good index, completes a most valuable manual in which Rose growing is set forth, according to the intention expressed in the preface, "in a nut-shell."

PERSONAL DECORATIONS.

PERMIT me to thank M. A. Robb for her suggestions about head and dress sprays (p. 329). They possess the great vital merits for these purposes of brilliancy, neatness, and durability. It is astonishing what good use is made of the foliage, berries, and seeds of such shrubs as this writer points out. Autumnal Carrot tints, for example, are not only among the choicest material for head-dress or bouquet work when selected with judgment, but also for drapery for table decorations, and the fruit and choicer foliage of the common *Barberry* and the *Berberis Darwini* are also charming. Exquisite twiglets of the different *Pittosporums*, singly or two or more contrasted, are among the choicest material at command, and so of many other *Coniferae*, such as the beautiful seeds of *Cupressus Lawsoniana* on its own twiglets just at its prime of beauty in full bloom. Also the strikingly beautiful bloom of *Pinus Pinsapo*. But almost any hardy plant taken at the flood of its beauty in leaflet or flower is suitable for decoration, and many of them in bursting buds or dying leaflets, in catkins, flowers or seed, not only delight the eyes of taste, but may well puzzle the knowledge of even accomplished botanists. The mystery and much of the charm lie in meeting common things in uncommon places and their application to new and unexpected uses.

Some object to the resinous or other odours of coniferous trees. But, on the whole, most of these are at least specially wholesome, and not unpleasant on head or dress. In bouquets it is easy to so manipulate and mount such leaves or twigs that the warm hand should not touch them and so increase their odour. And then in the race of English and Japanese Maples and other deciduous trees and climbers, we have foliage of every size, shape, colour, almost wholly odourless, to satisfy a veritable queen of taste and of beauty. Now, what is needed most in such matters is not more nor better material, but eyes to see what is within our reach especially in the open air, and more catholic and cultured taste to make a more provident and therefore more skilful use of what we possess. CELESTE.

FLOWER GARDEN.

NOTES FROM SUFFOLK.

THE spring has been so tardy in making its appearance, that in view of the bright green foliage and in the joy of welcoming the budding flowers one is tempted to forget that, considering May is in, Nature is not very much out. The little Banksian Roses are showing in their budding stage, the Wistaria has clusters of soft, pinky grey undeveloped flowers, Fortune's Yellow Rose displays the slender elegance of its dainty buds, but the merrie month will be well on its way to June ere we may hope to gather these floral treasures. Owing to the singular season, too, we have an unusual mixture of blossoms; the dark blue Squills (*Scilla sibirica*) bloom with the Forget-me-not (*Myosotis dissitiflora*), a few belated Crocuses linger on the bank where the nodding Daffodils are beginning to fade, the single Violets are in full beauty, and the *Cydonia japonica* remains still lovely and covered with buds as well as blossom.

The fruit gardens will soon be very beautiful, so rich are the trees in promise of bloom. Among the Pears which have donned their spring garments I notice Marie Louise, Louise Bonne of Jersey and Gratioli of Jersey (on the walls); Bon Chrétien, too, has hoisted the white flag, as if to make a truce with adverse winds and frosts. Pond's Seedling Plum and the purple Plum, both standard trees, are covered with snowy flowers, while the Green Gage and Rivers' Plum will soon be wreathed with garlands of blossom. On the walls the Apricots are fairly well set, and Peach and Nectarine bloom will soon be past. But the Mulberry, "wisest of trees," has not as yet unfurled its folded leaves, although the tips of the buds are quite green. So long and dreary has been the winter this year, that one cannot help hoping the Mulberry is only cautious and not prophetic.

The bulbs are particularly fine this year; everywhere one speaks in praise of the pretty Squills and their lovely relatives the Chionodoxas. Lily bulbs and Fritillaries, Crown Imperials and Martagon Lilies, all are breaking strongly; while those welcome spring favourites, Primroses, single and double, and gay and rich-coloured Auriculas are also displaying their beauties. The Roses, too, promise well. It seems as if the greatest sufferers from the past winter had been the Rhododen-

drons, and here and there evergreen shrubs have been cut by the frost; but, considering the length of the winter, the garden looks better than one dared to hope. The nightingales are singing in the shrubbery, and the swallows are flitting past the windows; the cuckoo has been heard, and the wood pigeons are building, or have built, their nests in the high Firs, so we may rejoice that spring is here, even though the Mulberry tree has not yet assumed a garb of welcome.

Some few weeks since a writer in THE GARDEN enumerated the prettiest button-hole Roses, and I think one or two were omitted. May I venture to speak a word for the sweet delicate tinted bud of Celeste, a very old fashioned Rose, but so beautiful, its petals of the softest blush tint, and calyx and foliage of glaucous hue. As the Rose is only semi-double, the form of the bud is more elegant and slender than that of the double, show, or garden varieties. And another sweet claimant for button-hole popularity may be found in the tiny De Meaux. SUFFOLKIAN.

NOTES ON NARCISSI.

So far as I have seen, the present season has been fully up to, even if not actually above, the usual average so far as the blooming of these flowers is concerned. At Cork, a fortnight ago, I saw a splendid collection of the white varieties, including some forms not as yet generally known. A border of the variety now known as Leda, containing 5000 bulbs and some thousands of the little white *N. moschatus* of the Pyrenees, formed an interesting study. So variable is this species from the Val d'Arras, that I more than surmise that it may be the stock from which all our white Daffodils have originated. Another view is that the white Daffodils are simply albinos of some of the yellow varieties. One thing is certain, viz., that so variable is the wild *moschatus* of the Pyrenees, that we may select from it many forms quite as distinct as are the larger whites of gardens. Nearly all the old authors allude to the "smaller Spanish white Daffodils," and John Evelyn in his "Kalendar" especially recommends that their seeds be saved in June for sowing, these giving, as he informs us, much variety.

It has been a matter of especial note amongst careful cultivators that the wild plants, be they species or varieties, produce seed much more freely than do the hybrid or cultivated kinds; and one noted grower, who has an enormous stock, tells me that while the garden hybrids enjoy high culture, and even a richly-manured soil, the collected wild kinds do not do so. *N. pallidus præcox* seems especially tender, and there are many complaints as to its dying out on cold, rich soils. The fact is, all wild Narcissi, whether from low altitudes, as *N. pallidus præcox*, or from high ones, as *N. nobilis* or *N. Bernardi*, require a course of special treatment in our gardens. The hybrid kinds may enjoy high culture and even stimulating manures, but the wild species and their forms best enjoy a course of judicious starvation in gravelly or sandy meadow soil, or even on banks or on land that is permeated by the roots of hedges or trees.

The paper which Mr. James Walker read quite lately before the members of the Horticultural Club is, as I believe, one of the most valuable contributions on the culture of these flowers in recent times, and those who wish to grow these flowers well should read it with

attention. In our light, sandy soil, John Horsfield's Daffodil is much finer than Empress, but on a rich loam at Whitton I observed that the case is reversed. Speaking generally, the English soil and climate do not suit Narcissi generally as do those of the sister isle. In Ireland nearly all the naturalised Narcissi seed and reproduce themselves freely in the Grass of the meadows or on old neglected lawns now, alas! too frequently met with in that country. Even the white Daffodils seed freely in Ireland, and on the rectory lawn at Croom, near Limerick, where *N. spurius* (? Ard-Righ) seeds freely, a very curious frilled trumpeted Daffodil appeared apparently as a natural seedling about six years ago, and this flower excited considerable interest when brought before the scientific committee during the present season. The common Lent Lily, or English Pseudo-Narcissus, is a rare plant in Ireland, and does not generally succeed well under garden culture anywhere. In Ireland it is represented by *N. princeps*, which is, as I believe, a seedling from the type species which suited the Irish climate, and is now abundant in gardens and in fields near houses in the south more especially, although I have found it abundantly naturalised in Co. Dublin also. So also in Wales Sir Watkin, the king of the Peerless, or Chalice flowers, cropped up as a seedling or hybrid, its parents being doubtless some form of *N. incomparabilis* crossed with the Daffodil. I do not agree with "X.," in a late issue (p. 394), when he preaches the now exploded "too-much-alike" gospel. As a grower of nearly 600 forms of Narcissi in a public garden, I know something of the variability of Daffodils, and also of the taste of those who see them. Often and again will one visitor condemn a particular form which the very next will stop to admire. Some will even tell you that there is none, or but little difference between John Horsfield and Empress; whereas the differences are very marked in size, height, colour of trumpet, and of foliage, and in the date of blossoming. As I have said, taste is a shifting index, and there is room for all the varieties we now possess and more. Of course, I know that all the kinds are not desirable in any one garden, and in this sense I will freely acknowledge that the flowers are too much alike; but so are Apples, Pears, Orchids, Pansies, Roses, and a hundred other things freely reproduced in our gardens from seeds. When "X." (p. 394) tells us that in raising so many double varieties we are indiscreet and really spoiling a flower, &c., it becomes difficult to understand what he means, and one is forced to the conclusion that he is not well posted as to the history of the double Narcissi. As a fact, not a single double Daffodil or Narcissus has been raised in our time, and the only one of which any authentic record exists is that of Parkinson, which he tells us he raised from seed in 1618. Dr. Brown, of Hull, is said to have raised a single bulb of *nanus plenus* in 1883-84, but Mr. Ware, of Tottenham, also possessed the same variety at the same time, and we have no authentic knowledge of its origin. I distinctly assert that no double Daffodil has been raised from seed in English gardens for the past 200 years, and that the origin of those we now possess is buried deep in obscurity.

Speaking of the double Narcissi reminds me of the enormous preponderance of fully double or rose blooms produced this year, and in many cases the old *N. Telamonius plenus* has been of a greenish hue rather than of its usual pure golden yellow colour. This season is remarkable for the nearly total absence of the elegant double trumpet phases of development, which I admire more than the fully expanded or

rose-shaped flowers. No doubt the explanation is, that during the last hot summer more material was sun-woven and elaborated than is usual during ordinary years, and so the trumpets of the double kinds were obliged to burst by the pressure of the crowded mass of petals inside its radius. Can anyone suggest a reason for the flowers of *N. Telamoniensis* being greener than usual this year?

There are some remarkable new *Narcissi* of Dutch origin not generally known. The *Daffodils* *Glory of Leyden* and *Madame de Graaff* are most noble additions even to the imperial kinds *Empress* and *Emperor*. *N. cyclamineus* is a hardy little gem, its flowers defying both snow, sunshine, rain, and wind. It is a true *Daffodil* (*Ajax*), with reflexed or *Cyclamen*-like perianth, and should not be compared with the hybrid *N. Johnstoni*, a totally distinct plant (? *N. triandrus* × *N. Pseudo-Narcissus*). Mr. Tait has kindly sent me several other hybrids of this group, and forms of *N. triandrus* not in cultivation in this country and rare even in their native habitat. I believe *N. triandrus* to be a short-lived bulb, and remember M. Blanchard, of Brest, telling me long ago that we must raise seedlings every year in order to enjoy its beauty permanently in our gardens. Before me is a photograph of a splendidly-grown pot of *N. triandrus albus* as grown by that most successful amateur, Mr. Rawson, of Windermere, who was one of the first cultivators who succeeded in blooming the lovely *Corbularia monophylla* from Algeria, even at a time when its introducer, the late Mr. Giles Munby, himself failed to induce it to flower in his English garden.

In conclusion, I would ask all growers of *Narcissi* to examine the root-growth of all *Narcissi* carefully. Some have thick, fleshy, prong-like roots, and these will grow anywhere, even in manured soils; but those having thin, short bunches of fine wiry fibres will not do so, and must be grown in sand or gravel and pure, fresh meadow loam only. Manure is fatal to all the wild imported kinds having thin fibrous roots. As this paper is merely tentative, I hope other growers will give us their opinion on the points herein raised. VERONICA.

Hoop-petticoat Daffodils.—These are flowering freely with Messrs. Barr and Son, of Tooting, and though many consider them delicate, doubtless through their frail aspect, they are in full bloom, not only in pits, but in the open air. There is a large patch of the type and *N. Bulbocodium citrinus*, in both cases the seed having been sown in a cold pit in 1884. The bulbs were planted in an open spot and bloomed last season, while this year, owing to their increased strength, the flowers are more plentiful. The type seems to be much freer than the primrose-coloured *citrinus*, as the last-mentioned showed but comparatively few blooms, while the other made a golden carpet with its clear, rich, basket-shaped flowers. From this it may be gathered that the *Basket Daffodils*, with perhaps the exception of the lovely white *monophyllus*, are truly hardy; in fact, proving by the growth and display they make that even pot culture is unnecessary and unnatural treatment. Besides the beds of them in the open air, there were several pits filled with bulbs in flower, testifying to the interest that is taken in this small, but beautiful group. Most of the readers of THE GARDEN must be well acquainted now with the history of the several forms of *Corbularia*, as many notes have appeared within the last three or four years, so that it would be mere repetition to travel over the same ground again, but we may urge their still more wider culture, as things so frail and delicately coloured should not be passed by. The *Corbularia* is a small group, yet there is considerable distinctness amongst them, from the pure white *monophyllus* to the primrose-tinted *citrinus*. Those who are *Daffodil* enthusiasts

will also not forget such gems as *nivalis* or the large-flowered *conspicuus*. All may be easily grown in pots, but except in the case of the more tender kinds, as *monophyllus*, it is not necessary to do so. Grow them in the open air, making clumps of them on the rockery, border, or in quiet nooks where we can see them amid surroundings as natural as it is possible to make them in an English garden.

FLOWER GARDEN NOTES.

HERBACEOUS FLOWER BORDER.—This is the first time we have intermixed in these borders ordinary spring-flowering bulbs such as *Tulips*, *Hyacinths*, and *Narcissi*, also clumps of *Primroses*, *Pansies*, *Wall-flowers*, and *Silenes*. They produce a charming effect now that there is such an abundance of leafage from the new growth of the perennials. Weak or badly-furnished places in the borders can now be seen, and ought to be remedied forthwith by planting additional plants, which, if not in stock, can readily be obtained by lifting and dividing the larger clumps, the major part of which may still be transplanted successfully. Japanese *Anemones*, perennial *Sun-flowers*, *Acanthuses*, *Everlasting Peas*, *Pæonies*, *Potentillas*, *Spiræas*, and *Poppies* are amongst the most important of those that should not be removed at this late period. *Phloxes*, *Pyrethrums*, *Delphiniums*, *Geums*, *Asters*, *Day Lilies*, *Rudbeckias*, and other tufty growers may be transplanted for another fortnight or three weeks. Should the plants not be sufficiently large for division, all vacancies can just as effectively be furnished by sowing hardy annuals, or, better still, planting the said annuals out from the stock of seedlings in frames. The showery weather has lately been favourable to this work and this labour we have completed, having formed clumps of *Asters*, *Stocks*, and *Everlastings*.

BEDDING OUT.—By the introduction of hardy plants, bedding out has in most gardens been reduced to reasonable proportions. Ours is about half of what it was a few years since, and yet we have just as much ground occupied with flowers, but as they are hardy we can do the work more leisurely, or rather at odd times when other work is not pressing. We are now planting the groundwork and lines of design with hardy plants, such as *Cerastiums*, *Antennarias*, *Herniarias*, *Veronica incana*, *Sedums*, and *Eleverias*; and of plants for lines and masses, *Violas*, *Calceolarias*, *Gnaphaliums*, and *Leucophytos* are being put out, also small *Retinosporas* and *Junipers* as "dot" plants. All upright edgings to beds are planted with *Herniaria glabra*, which in dry weather requires to be kept regularly watered, otherwise the soil cracks and the plants die off. Of course, when once the soil is covered by the growth of the plants, water may then be discontinued, but on no account until then. Some narrow edgings to flower-beds of variegated *Thyme* that have been planted three years are as good to-day as ever, and anyone in search of a plant to form a permanent edging to flower-beds should use this *Herniaria*. It requires clipping once a month during the summer, and care is requisite that the operator does not cut into old wood, from which part of the plant new shoots do not start well.

TUBEROUS BEGONIAS.—All plants of these that are intended for the flower beds are being grown on slowly in a cold frame, and are planted out in a compost of light loam and leaf-soil, equal parts. They are throwing up shoots of great strength, due, I think, to the cool weather and being protected from harsh winds. Weak growths have been pinched quite back to the crown of the tuber, and not more than three stems or growths are left on each plant. These three stems will, of course, maintain the lead of any other shoots that throw up after they are planted out permanently and give character to the plants the whole of the summer, as they are, as it were, the pillars round which the smaller shoots cluster, ensuring a bushy habit of growth in addition to successional flowering. I know no bedding plant that better repays special preparation of the soil, and, therefore, this ought not to be begrudged. Given cow manure and light loam, well incorporated together and at least 18 inches in depth, together with a surface mulch-

ing of cocoa fibre, and the severest drought will not appreciably check the well-doing of the plants.

STANDARD PLANTS FOR FLOWER BEDS.—To avoid undue formality and evenness in our bedding-out arrangements, we have of late years used in quantity what for want of a better term I call standards. The plants are planted in single file at regular intervals according to the design or pattern of bed. They are of varying height, colour, and habit according to the character of plant with which they are to be associated, as, for instance, we have pyramidal-shaped plants of *Iresine* for the centres of small circles of variegated *Pelargoniums*, small specimen variegated *Pelargonium* *Lady Plymouth* for the centres of dark foliage plants, and so on throughout the entire series of formal arrangements. The rule followed in the dispersion of the various sections of plants used as standards is to have them as opposite in habit and colour from the plants forming the general arrangement as is compatible with the harmonious blending of the whole. The plants of *Iresine*, variegated *Pelargoniums*, and *Fuchsias* are now being potted into 5-inch pots, and for some time yet they will be grown on in warmth, and be kept compact by pinching out the points of any side shoots that show a tendency to outrun others. If they have a good stem to start with, *Fuchsias* naturally develop a pyramidal habit, and plants of this form are not only excellent for standards in beds of other plants, but make a very handsome bed if planted a sufficient distance from each other. We have frequently planted them in this way, and to fill out the beds at once planted as undergrowth *Gnaphalium lanatum*, variegated *Mesembryanthemum*, &c., the said groundwork plants being pulled out as the growth of *Fuchsias* progressed.

GENERAL WORK.—Potting *Dahlias*, *Marguerites*, *Cannas*, *Castor-oils*, *Solanums*, *Tobaccos*, and other foliage plants for sub-tropical arrangements into larger pots. Except *Alternantheras*, which we strike on manure beds, propagation is now finished, and the pits are being made use of for pricking off seedling *Petunias*, *Verbenas*, *Phlox Drummondii*, *Mimulus*, *Cupheas*, &c. Annuals sown in a frame are now strong enough for planting out, and the first warm, showery day this work will be done. The ground has already been prepared by a dusting of lime and soot, and a rough rake over at the time of planting is all that is now needed. Mowing, clipping edges, weeding, and rolling of walks must be noted as amongst the most pressing duties at the present time. If the first clean up is thoroughly done, it will be comparatively easy work to keep the garden tidy all the summer. W. WILDSMITH.

SHORT NOTES.—FLOWER.

Dondia Epinactis is a compact, dense-growing, and neat rock plant, interesting on account of the profusion of its greenish flowers. It is flowering in several places, notably on the rockery at Chiswick.

Hedera conglomerata is a curious little kind, not free and graceful, like our English Ivy, but with twisted stems and leaves, that give it a contorted appearance. It is a choice thing to use if variety is wanted on the rockery.

Allium paradoxicum is a quaint flower, growing about 9 inches high. It has small bell-shaped, drooping, paper-white flowers. The leaves when bruised have a strong Garlic smell. A plant is blooming freely at Chiswick.

Anemone nemorosa bracteata is one of the loveliest spring *Anemones* we have. A large plant of it at Broxbourne is smothered with the clear white flowers which peep up modestly above the rich profusion of leafage.

A Narcissus that we might regard as the true cernuus is in flower at Broxbourne. It has a long, straight, cylindrical trumpet, the perianth twisted, and the colour far whiter than the majority of the varieties of the *albicans* group.

A large Side-saddle Flower, named *Sarracenia exoniensis*, sent a few days ago by Messrs. R. Veitch, of Exeter, seems to be a giant American form. It has a strong stem, supporting a flower twice the size of that of our common *S. purpurea*, and of lighter colour.

Fuschkinias are charming hardy flowers. *P. Ibanotica* is a great favourite, but the variety *compacta* is known as yet to the chosen few. It is a delicate flower, the raceme loose and elegant, the colour being blue, with deeper veins of the same clear tint.

Houstonia cærulea alba is a neat, dense, compact little plant, now a mass of pure white flowers in Messrs. Paul's nursery at Broxbourne. It does admirably in small pots under cold frame treatment. The blue-flowered type is a Virginian plant.

The Bloodroot (*Sanguinaria canadensis*) is a lovely American flower that delights in a peaty soil and partially shaded position. It does well behind a hedge, as there it is protected from keen winds and heavy rains. In this way it is grown at Broxbourne, where a clump of the almost pure white flowers, but faintly tinged with pink on the outside, makes a pleasant feature.

Marsh Marigolds are flowering now with their wonted freedom and brilliancy. These water-loving plants are most useful for bog gardens, and the best are the double variety and that known as *monstrosa*, which has larger and even more brilliant blossoms than the common kinds. A white *Caltha*, named *C. leptosephala*, a Californian plant, was flowering recently at Broxbourne. This is a rare and interesting form.

Oxlips.—The Oxlips in some of the Sussex woods are finer than I have ever seen them. Large, strong tufts are throwing up stems nearly 1 foot high, having from twelve to eighteen expanded flowers, whilst the colours vary from the softest primrose-yellow to those of a deeper hue, and some are exceptionally bright, the eye being quite orange. The scent, too, is much stronger than that of the Primrose.—A. H.

Fritillaria Moggridgei (Golden Fritillary).—This is most distinct, the blossoms being large (2 inches long and $1\frac{1}{2}$ inches across), golden-yellow, with a greenish yellow indistinct band down the centre of each of the divisions of the flower. The latter is prettily chequered with brownish crimson; especially in the interior of the flower. In the York Nurseries this early spring-flowering bulb is grown in quantity and hundreds, if not thousands, of its blossoms may now be seen there.—R. P.

Daffodil major superbus.—There has been some doubt as to the identity of this Daffodil. Would anyone having a bulb of the variety Vicar of Lulworth compare the bloom with that figured in the *Gardeners' Magazine of Botany*, iii., 169, the woodcut of which appears in the Conference List of Daffodils, 1884? From my standpoint, I fancy the Vicar may be the lost plant. The same woodcut has since been doing duty for a large flowering yellow Daffodil of some distinctness. It certainly resembles what I know as Vicar of Lulworth.—W. B. H., *Cork*.

A few choice Daffodils.—The Daffodil is essentially the flower of the season, and as there are many admirers of this gay flower, a few notes may be welcome. The following were all flowering a few days ago with Messrs. Paul and Son, of Broxbourne, and seemed to have special points of beauty. Amongst the double forms there was one named Sulphur Crown that deserves mention; it is looser, more elegant, and larger than the Butter and Eggs kind, in size and aspect showing an affinity to the double Poet's Narcissus. The colour is of a delicate sulphur-yellow, shading to a deeper tint towards the centre. Amongst the Poet's varieties there were Burbidgei, with its bright orange cup and white segments; poeticus angustifolia, narrow Grass-like leaves, and exquisite fragrance; and Burbidgei Marie, with broad segments and chalice, and excellent form. A gem of the tortuosus or albicans section is N. Leda, a drooping, creamy white, and exceedingly beautiful Daffodil. N. odoratus rugulosus is a Jonquil all should have; it has the delicious fragrance of our common Jonquil and a wrinkled cup; the colour is rich self yellow. N. Nelsoni major is an exceedingly handsome Daffodil, the flower bold, vigorous, and the colours pure; the crown is rich yellow and the perianth white.

What is an alpine?—In answer to "J. H." in THE GARDEN, May 5 (p. 405), the word alpine is a general term for plants that grow in the alpine or mountain regions of the world. By alpine regions are meant high mountain ranges. Vegetation is varied on these mountains according to their situation and altitude. Plants of wide distribution will inhabit high mountains in one part of the world and grow down to the seashore in another colder region. Plants that are quite common in the meadows in our own country are alpine in other regions. The term in gardens is applied to any diminutive plant that grows in such countries. Generally all small plants under the stature of bushes are included. On the mountains above a certain line no trees are found; whereas, under the snow and protected by it, there is often a world of beautiful flower-life. This varies infinitely, bulbs

being very usual, and therefore the smaller Narcissi are properly termed alpine. They are, in fact, true mountain flowers. But "J. H." must not expect that any such term can be more than generally helpful. Man makes definitions for his own convenience, but Nature works with infinite gradations, and does not sympathise with man's longing for exact definitions. It is better to say "alpine plants" than "alpinæ."

ORCHIDS.

W. H. GOWER.

ANGRÆCUM SESQUIPEDALE.

THIS plant, introduced first by Mr. W. Ellis from the island of Madagascar, is one of the most majestic species in the genus. Mr. Ellis,



Angraecum sesquipedale. Engraved for THE GARDEN from a photograph sent by Mr. Erskine Beveridge, St. Leonard's Hall, Dunfermline.

in the narratives of his journeys in this island, frequently speaks of plants in such terms as to lead one to suppose that had he not been a missionary he would have made an excellent plant collector. Since that time several firms have obtained supplies of this and many other *Angraecums*, which genus appears to abound there and in the neighbouring islands. A short time ago I noted a very large quantity of plants of this species in the Messrs. Low's nursery at Clapton. The plant here illustrated was grown in the garden of Mr. Erskine Beveridge, St. Leonard's Hall, Dunfermline. As a species this plant is thoroughly distinct

from any other kind. It has closely-set, distichous, broadly strap-shaped leaves, which have a peculiar blue-green hue; whilst its large flowers, which are thick, waxy in texture, ivory-white, and very fragrant, are produced on a somewhat pendent scape, three or four together, the flowers being some 6 inches or 7 inches across, with a greenish white spur upwards of a foot in length. It is not found in the cool districts of the island, nor in the thickly-wooded parts, so that it requires the heat of the East India house and an abundance of light and air. The plants usually bloom in mid-winter; some forms, however, are much later, which has led to the inference that there are two varieties, an autumn and winter and a spring-blooming kind. In my travels this season I have seen an unusual number of plants flowering late.

Cypripedium Lawrenceanum.—This magnificent species of Lady's Slipper, named in honour of Sir Trevor Lawrence, even as a small plant is one of the most remarkable for beauty of foliage and flower; but seen in the condition in which I recently noted a specimen at the Castle Nursery, Norwood, it is grand in the extreme. The plant was over 2 feet across, and bore nearly half a hundred flowers. This was one of Mr. Burbidge's lucky gains in Borneo, a land which appears to yield new Orchids to every fresh collector.—H.

Yellow-flowered forms of Odontoglossum Pescatorei.—A remarkable and very handsome plant, resembling very much that called *O. excellens* of Reichenbach, and figured in THE GARDEN for April 1, 1882, was recently offered for sale in Messrs. Protheroe's rooms. The sepals and petals were clear lemon-yellow, the former ornamented with large spots of crimson, petals also spotted and white at the base; lip pandurate, pure white, with a broad blotch of crimson immediately under the crest, which is yellow. Another plant offered for sale at the same time as the above was more highly coloured, and appeared to be a hybrid, its lip being different in shape to that of *O. Pescatorei*. Whether hybrid or not, it was exceedingly handsome, the sepals and petals being rich golden yellow, passing into white towards the base, and all broadly barred with crimson. The lip is white, profusely blotched with crimson; crest yellow. Its growth appeared to resemble that of *O. crispum*, but its lip was like that seen in the form of *O. Halli* figured in the *Botanical Magazine*, t. 6237. The two plants did not come from the same establishment. Both of them are exceedingly handsome and distinct from each other.—W.

Laelia harpophylla.—This Orchid is making a display in our collection with its rich orange-coloured flowers, and is quite distinct from most other kinds. It lasts in bloom for fully eight weeks, its time for flowering being from February to April, and it does well in an intermediate house. I cannot call it a strong grower, but a healthy plant grows freely. *Laelia harpophylla* requires a long rest after flowering, in order to better prepare it for growth, otherwise the latter becomes irregular and the flowering is likely to be disappointing. During the resting season, water ought not to be entirely withheld. I grow my plants in pots filled three parts full with a mixed drainage of potsherds, charcoal, and broken bricks, covering these with Sphagnum; then for potting, turfy peat with some lumps of charcoal is used. Care is taken that the plant is firmly fixed and slightly elevated above the rim of the pot. Afterwards surface the whole with Sphagnum. The plants will also grow well in baskets, but I prefer pots, as the roots cling firmly to the sides of them, and this is beneficial to the plants. Potting should be done as soon as the buds are beginning to swell at the base or crown, and in most cases when the plants have been rooting well the pots will have to be broken, taking care not to injure the roots that cling to them. The plants, owing to their slender habit, enjoy a moist atmosphere while growing and plenty of water at the roots, sometimes twice a day if the weather is hot and dry. But there must be ample drainage to

allow the water to pass quickly away, and a shady position should be selected.—T. RECORD.

Odontoglossum vexillarium leucoglossum.—A very large-flowered form of this species is now blooming in Mr. Partington's collection at Cheshunt, and appears to be this variety. As before remarked, the flowers are very fine, sepals and petals deep rose colour, the lip being pure white. It is very handsome, and stands out distinctly from those of the ordinary type and a very dark form which is flowering beside it in an intermediate house.—G.

Oncidium obryzatum.—This is an old and much neglected species. Years ago it was highly prized, as being of a compact habit of growth, free flowering, and very showy. The spikes are much branched and bear an abundance of flowers, which are bright yellow, barred with chocolate, with a blotch of orange-red on the crest. The blooms are deliciously sweet-scented, and last a considerable time in perfection. It is a native of Peru, and thrives well in a cool house. Some good examples of this plant were recently blooming in Mr. Partington's collection at Cheshunt.—W.

Odontoglossum aspersum.—This is a supposed natural hybrid between *O. maculatum*, and *O. Rossi*, partaking of the former most in its habit of growth. In many collections I have seen plants called *O. aspersum* which I cannot but believe are *O. Rossi*, with a creamy white ground. I observed recently, however, an unmistakable specimen of this form flowering in Mr. Shuttleworth's nursery at Clapham, from amongst a recent importation. The sepals and petals resemble those of *O. Rossi*, but have a yellow ground, whilst the lip is broadly heart-shaped, yellowish white, with the crests yellow.—W. H. G.

Cattleya Lawrenceana.—I herewith enclose you a spike of *Cattleya Lawrenceana*, and should feel much obliged by your opinion as to whether you consider it a good variety. At present we have other plants of the same *Cattleya* in flower, but this is by far the best of the lot in appearance, owing to its having a much larger lip and broader petals. The spike I forward you opened its flowers three weeks ago, and of course is not quite so deeply coloured now as in its early stages of flowering. We have grown the plant on a Teak-wood raft hanging close up to the roof. In that position it rooted freely, but, strange to say, very few of the roots laid hold of the raft, but hang down from it a considerable length. *C. Lawrenceana* seems both a good growing and free-flowering variety, and the high colouring of the flowers is very telling in contrast to the lighter shades of *C. Trianae* and others. I may also mention that it does equally well in pots and baskets.—JAS. ROUTLEDGE.

* * A richly-coloured and excellent variety of this delightful *Cattleya*.—ED.

Odontoglossum Harryanum.—By far the finest form of this Orchid that has flowered in the London district, and probably in the country, I recently noted in The Woodlands collection at Streatham. The spike had been produced from an imported bulb, so that a correct estimate could not be formed as to what this variety will become, but should it never be finer than it was recently, it will be a superb and grand form. The spike bore six flowers, each one being fully 6 inches in length, and well open, not half expanded, as is the case with some plants that have flowered. These sepals and petals were broad and full, rich chestnut, profusely barred and streaked with golden yellow. The lip was of immense size, somewhat hastate, front portion pure white, the remaining part being heavily streaked and fringed with lines of purple. There is every probability of *Odontoglossum Harryanum* being a far grander plant than it was ever supposed to be, although in comparison with this variety many of the typical size will be considered poor. It was named by Professor Reichenbach in honour of the present head of the firm at Chelsea, Mr. Harry Veitch, who said of it, "It is a fresh type, a grand and unexpected surprise." The plant was first obtained by Mr. Horsman, of Colchester, and the stock passed into the hands of the Messrs. Veitch.

The present variety, however, is from an importation of Mr. Sander, of St. Albans. I have seen the plants growing freely with *O. Alexandrae*, but in Mr. Measures' collection at Streatham *O. Harryanum* is kept slightly warmer, being grown in a house with a north aspect against the back wall, the front portion being occupied with *Lycastes*, *Celogyne cristata*, &c., all of which appear to enjoy their quarters, as they are growing very freely.—W. H. G.

Epidendrum rhizophorum.—When one calls to mind the grand examples of this plant which used to be grown and bloomed by Mr. Wolley, of Cheshunt, in years gone by, and the exceptionally fine example of it which formerly grew upon the back wall of the Orchid house at Kew, it is a source of regret that the plant is not more generally grown at the present day. Naturally, it appears to scramble amongst Grass and other low herbage on the high mountains of Mexico and Guatemala, and produces upon the apex of its shoots large corymbose racemes of dark orange-scarlet flowers, the front lobe of the lip being deeply fringed. The blooms last about three months in beauty, and a large specimen will be nearly always in flower throughout the year. A nice form of this plant is now to be seen in Mr. Partington's collection, growing in a cool house.—W. H. G.

Cattleyas just now are abundant at Cheshunt, but they are largely cut for the embellishment of Mr. Partington's town house. On the occasion of my recent visit, I noted *C. Skinneri*, *C. speciosissima*, *C. Lawrenceana*, *C. citrina*, *C. Trianae* in variety, several forms of the showy *C. Mendeli*, and *Lælia purpurata*. Some of the forms of *C. Mendeli* were remarkable for the gorgeous colouring of the lip, but one variety named *pulcherrima* was remarkable for its grace and elegance. The flower is very large; sepals and petals pure snow-white, without tinge or shade of colour; the lip is very large and beautifully crisp round the edge; the ground white, stained in front with soft lilac, through which run numerous radiating lines of white; the throat pale lemon-yellow. It is at once a chaste and charming variety.—W. H. G.

Epidendrum vitellinum majus.—This is another species of the genus which appears to grow and flower well with Mr. Searing, who has charge of Mr. Partington's establishment, where it is grown in the coolest position in the cool house. This is the most natural treatment it can receive, and wherever I have seen it doing well it has always been grown cool. Lindley's assertion that it is very difficult to cultivate was made before the cool treatment of Orchids had dawned upon the horticultural world, and only those who try to grow it in heat will agree with his statement. Skinner says that he found it on cloud-capped mountains, amidst continual mists, in the regions of Lichens, &c., clearly indicating its choice of a cool temperature and a moisture-laden atmosphere. Its foliage and bulbs are of a glaucous hue. The spike is erect and bears a large raceme of brilliant vermilion-orange and yellow flowers, which last nearly three months in beauty. It is one of the first Orchids I should advise an amateur to invest in.—W. H. G.

SHORT NOTES.—ORCHIDS.

Cypripedium Sallieri.—This is, I believe, a Continental hybrid obtained between *C. insigne* and *C. villosum*, and, like all seedlings, there appears to be considerable difference in individual plants. A form of this kind now flowering with Mr. Shuttleworth at Clapham is simply magnificent; the flower is larger than that of *C. villosum*, the pouch and petals being almost identical with those of *villosum*, whilst the dorsal sepal is similar to that of *insigne* Maulei, but superior, thus combining the beauties of both parents.

Odontoglossum Lindeni.—Some plants of this rare species have recently been received by Mr. Charlesworth, of Bradford. It appears to have first flowered in the country about ten years ago with Mr. Buchan, of Southampton, who found it thrive in a very low temperature; indeed, the atmosphere of the house in winter never exceeds 57°. It forms very large bulbs, and produces a long, bold spike, which attains a length of about 3 feet, and is much branched. The flowers are numerous, 1½ inches across, wholly of a clear

lemon-yellow, and with the sepals and petals undulate at the edges.

Lælia Schilleriana.—A most brilliant form of this plant is now flowering in Mr. Shuttleworth's nursery at Clapham Park. The sepals and petals are pure white, whilst the lip is of a vivid rich crimson-magenta. This is the first to flower from a fine importation of *Lælia* recently received by Mr. Shuttleworth from his partner and collector, and leads one to the hope that some new forms may eventually be found amongst them.

Masdevallia ignea.—*Masdevallias* are well grown by Mr. James at Norwood, and the chief requirements appear to be a low temperature well charged with moisture. Of the species here named I recently saw a fine example bearing some forty flowers, which quite dazzled the eye by their brilliancy. There were also blooming some excellent forms of *M. Veitchi* and *M. Harryana*. The blooms of such plants afford a pleasing contrast to the white flowers of *Odontoglossum Alexandrae* and *O. Pescatorei*, and, moreover, the two genera may be grown together.—W. H.

KITCHEN GARDEN.

WEEDS.

LAST season being hot and dry, much less difficulty than usual was experienced in the extermination of weeds, but apparently this had no very appreciable effect upon the much-to-be-desired complete riddance of them. A few species may be less plentiful than they were last year, but, on the whole, there is no marked falling off in the number of seedlings of the worst pests. Nearly every garden has some particular nuisance in the shape of weeds. In our case, Groundsel is always troublesome, and perhaps no annual weed is, when once well established on a place, more difficult to get rid of. Every plant may be destroyed during one season before it matures seed, and yet the ground is liable to be covered with young plants the following spring. The seeds of weeds appear to possess great vitality. They may be trenched into the ground 2 feet or more deep this year, and twenty years hence if again brought to the surface, the greater portion will germinate. The best and almost only remedy in most instances is the flat hoe, and the sooner this is started the better the prospects of keeping the ground clear of weeds. Cut up the latter when quite small or at the present time, as a very little sunshine suffices to finish their destruction. If delayed until they are well established, much more labour has to be expended in hoeing them up, and should the weather prove showery the bulk of them have to be cleared off, or otherwise they quickly strike root again. Timely and frequent surface stirrings of the ground not only keep down the weeds, but the garden crops are much benefited thereby. Delay the hoeings until the weeds are nearly or quite fully grown, and the smaller crops will be both damaged by their presence and injured during the process of removal.

Annuals ought to be easily kept down with the hoe, and the worst to deal with are the herbaceous and fleshy-rooted species, notably the common Buttercup, or wild *Ranunculus*, Bindweed, or wild *Convolvulus*, and the Couch Grass, or Twitch, as termed hereabouts. Much may be done with the hoe, even in this case, no plants making many roots when the top-growth is systematically destroyed. But there are places where it is not safe to use a hoe—in Asparagus beds, for instance—and in such cases, as well as in fruit quarters, the best plan is to fork out the roots as often as possible. Old gravel walks and Box edgings encourage the spread of Couch Grass especially, and the first step towards clearing a garden should be to eradicate both out of the place. Asphalt walks are easily formed, and if these are edged with

common thin stones on edge, or, better still, imperishable edging tiles, much labour and trouble will be saved. In addition, these asphalt walks can be wheeled over or used at any time and no weeds ever be seen on them. Horse Radish beds, old plantations of Globe Artichokes, long-established Raspberry and other fruit quarters also harbour and favour the spread of fleshy-rooted weeds, and a good clearance of both bushes and weeds might in many instances be attempted with advantage. It must not be thought I would advise destroying a profitable bed of Artichokes or a fruit quarter worth preserving, but there are many that are worn out and weed-infested which might well be broken up, at any rate as soon as the requisite supplies can be obtained from newer plantations.

A quarter or breadth of ground not occupied by fruit bushes and trees, or vegetables of any kind, but badly overrun with Couch Grass, Bind-weed, or Buttercups, might be nearly, or quite, cleared of these by being cropped with Scotch Champion Potatoes. This would, if properly carried out, be more effective than fallowing and frequent summer cleanings, and at the same time be the means of securing a profitable crop of Potatoes. What this Potato likes is a fairly deep and freely manured root-run, good farmyard manure dug in, and a sprinkling of superphosphate of lime applied at planting. Thus treated, the rows may be 3 feet apart and the sets 12 inches asunder in the drills, though if planted in the open fields, where less haulm is formed, the rows ought to be 6 inches nearer together. One or two hoeings and a little hand-weeding are necessary after the haulm is through the ground, these checking the weeds and loosening the soil about the Potatoes. Eventually the whole of the ground is completely covered with the much branching haulm, and this being late in ripening off smothered and kills all weed growth underneath. It is not yet too late to apply this remedy, but it would be of no avail on poor, unmanured land.

Weeds on the garden walks are often an eyesore and a great nuisance. In but few instances can hoeing be resorted to, and hand-weeding is both tedious and expensive. Moreover, it must be often repeated owing to the numbers of tiny weeds unavoidably passed over each time. Heavy dressings of salt are frequently given to garden walks, and during some seasons these are fairly effective. Too much of it, however, may easily destroy the Box edgings as well as the weeds, and where there are turf borders only, it is not always possible to prevent the salt being carried by the feet on to the turf, where it leaves its mark in the shape of brown patches. Arsenic and hot water applied in sufficient quantities invariably destroy the weeds, but there is a lot of ceremony in preparing and distributing it, as well as a certain amount of danger to pheasants and other birds that are fond of grit. There are several other artificial applications which I have tried and can strongly recommend. W. I.

Blanching Asparagus.—In "Kitchen Garden Notes" in *THE GARDEN*, April 28 (p. 388), "W. I. M." speaks of Asparagus blanched on the French system, "so as to have a good length of stalk and a compact point" and of "these points or heads which only are eaten." The description may be applicable to most of the blanched Asparagus produced in England, but is utterly untrue of the French article, which is tender for several inches and blanched to ivory whiteness. Will some experienced hand tell us how to equal the work of these French growers whose success seems to be as conspicuous as our failure? It may be soothing to our vanity to be satisfied that all blanched Asparagus is tough and stringy, but our practice will not be improved thereby.—RHO.

ASPARAGUS CULTIVATION IN AMERICA.

MORE Asparagus is grown in Queen's (this) County than in any other in America. It is our chief and most remunerative farm crop, and it is the ambition of every farmer to have part of his land in Asparagus. Land planted with Asparagus is doubled in value. A plantation lasts in good bearing condition for fifteen or twenty years. But as it is a very expensive crop to at first lay down, the farmer adds a few acres each year rather than plant many acres at one time.

There is no danger of overstocking the market. We begin cutting Asparagus about the 20th or 25th of April, at a time when we have no home supply of any other fresh vegetable except salads; consequently the demand for it is great. True, Cabbage, Spinach, Peas, Cauliflower, and some other greens come in at this time from more southern States, but that does not matter; home-grown produce always commands the best price in the market. Besides, in addition to the consumption of it in a fresh state, vast quantities are canned, and there is a canning factory in almost every village hereabout. There are three of these factories within four miles of me here. Some of our farmers send their "grass" every day to the commission agents in New York; others contract to supply their whole crop to the canners. After the Asparagus season is over, these factories are kept busy canning Tomatoes, Corn, Cucumbers, Pears, and other crops.

We have a good many (said to be) varieties—for instance, Oyster Bay, Moore's, Conover's, Argenteuil, and others, and recently from southern sources the Palmetto is added. I grow them all, and am not prepared to say that I can tell one from the other. But we certainly can improve them by careful selection. At first we set out all the strong plants, and in this way get a good few that bear rather slender stems. The choicest Conover's is a gigantic selection. My Palmetto is not yet in cutting condition.

Our land is sandy, light loamy, or loamy. While Asparagus likes as good ground as does any other crop, it thrives so well in light land, that we always plant our sandy lands with it and manure liberally. We do not plant it in stiff soils.

Almost every farmer raises his own plants, sowing the seed about the 1st of April in rows 12 inches to 24 inches apart and 1½ inches deep. It is often recommended to steep the seed for 12 hours or 24 hours before sowing. We do not do anything of the sort, and every sound seed grows, comes up early in May, and the plants make capital crowns for setting out next spring. If thinned a little in the seed rows the crowns will be stronger. We do not like two-year-old plants for setting out. A neighbour of mine marks the finest plants in his old plantations, lifts and divides them, and uses these divisions as sets for his new plantations, and he has most excellent "grass."

In preparing our land for Asparagus we plough the ground as deeply as possible, and in the furrows run the subsoil plough, in this way loosening the soil 15 or more inches deep. We make no beds, but plant in long rows, as we do Potatoes, for hand labour is too uncertain and expensive, and everything in the way of preparing and cultivating the ground that can be done by horse power is done in this way. In my plantations the rows are 4 feet apart and the plants 2 feet asunder in the rows, and this may be taken as a fair average of the distances used by my neighbours. As Asparagus for market must be well whitened, it is planted so that the tops of the crowns are 7 inches to 9 inches under the surface of the ground. In preparing to plant we throw out the furrows 4 feet apart and some 10 inches deep with a double mould-board plough, then scoop them out a little with a shovel; into the furrows we now throw a layer about 2 inches to 3 inches deep of rotted manure, scrape a little soil over this, set the plants, and over them draw about 3 inches deep of soil. This leaves the ground in a ridge and furrow state. But should we earth up full at once it would kill out a good many of our plants. The next year an inch or two more can be drawn over the crowns, and the following year the ground ploughed down level.

We do not approve of burying much manure deep into the ground; just give enough to encourage the plants to make a good start, then feed freely from the surface. Barnyard manure is what we like best, but we also use an immense quantity of New York stable manure.

When our plantations are in yielding condition—three years after planting, though we cut a little the second year—in early spring we draw off the old straw, manure and plough the land, then plough the soil from between the rows over on to the tops of the plants so as to deepen the earth through which the grass has to rise. This gives us white grass.

Cutting usually begins in the fourth week in April and continues till the 1st of July, and during all this time not a spear of grass, marketable or otherwise, is allowed to grow uncut. We completely banish the theory that it is necessary while we cut a part of the crop to let a part grow; on the contrary, we cut clean for two reasons, namely, if we let a part grow it would be impossible for us to level down our ridges at the end of the cutting season, also the part we would be likely to leave uncut would be that which would be too small to be worth cutting, but which would have the best opportunity to set eyes for next year's crop.

As soon as the cutting season ends we plough our ridges down level and harrow the field, then let everything grow. Now there is a grand rush for supremacy; the earth and weather are warm, the ground clean, the soil well pulverised and loose, and growth rapid. And in a very short time the strong shoots outgrow and choke the weaker ones; and it is the strong shoots and not the weak ones that set the main crop of eyes for next year's crop of grass.

But while this system of growing Asparagus may seem all right for the farmer who wants white grass for market, how about the private grower who wants enough for his own family only and prefers green grass?

Plant only some 5 inches under the surface of the ground, and cultivate on the level. I do this, and get as fine green grass as I ever saw in Europe, and as tender and delicious, too. Besides, what a comfort it is to be able to plough or fork over the whole surface of the rows without injuring the crowns of the plants.

I do not write this with the view of teaching you anything, for I know and appreciate the difference between the climates of England and New York, and am well aware that our ways and means of cultivating crops cannot always be advantageously used in England. W. FALCONER.

SCARCITY OF WINTER VEGETABLES.

THE remarks of several correspondents in *THE GARDEN*, April 21 (p. 370), on the above subject touch on a very important matter and contain many valuable hints, although at the same time I cannot think they have much bearing on the real necessities of the case. The idea, for instance, of advocating the sowing of considerable breadths of Leeks, Scorzonera, Salsafy, Jerusalem Artichokes and Haricot Beans as substitutes for high-class vegetables cannot be entertained, for the simple reason that ninety-nine people out of every hundred hardly care to touch them; they are, of course, necessary to supply occasional wants, but they are never likely to be required in quantity unless the present demand undergoes great alteration. I have also noticed from time to time mention made of Spinach Beet as a substitute for Spinach, and it has been recommended to sow a large breadth of this to come in when Spinach has failed, but, as far as my experience goes, Spinach Beet is practically useless, and it is nothing less than a waste of time and seed to think about it. I have had recourse to it once or twice when other vegetables were short, but the verdict from the kitchen has always been, "returned almost untouched from table," so our big breadth of Spinach Beet was consigned to the manure heap. The fact of the matter is (where accommodation is against the production of French Beans from the beginning of December until the end of March) there are only six high-class vegetables to be had.

viz., Asparagus, Seakale, Brussels Sprouts, Broccoli, Spinach and young Carrots. Perhaps I ought to have included Celery in the list, as this favourite root is decidedly in the ascendant for stewing; but for a regular daily supply, I do not think the list can be extended during the three months of winter. These, in fact, are what will be required in bulk, and with a good supply of these the gardener is never at a loss. With respect to obtaining such a supply, I may say, in reference to Asparagus and Seakale, that the cultural requirements recently detailed in THE GARDEN leave nothing to be desired, an essential feature to bear in mind being that to obtain sturdy one-year-old crowns of Kale and strong two-year-old plants of Asparagus of sufficient strength to furnish good stuff for the table, the ground must be thoroughly well done. If this and early thinning are attended to there is little reason to fear weak, spindly growth. Brussels Sprouts are of easy culture, but to keep up a supply from the beginning of November until late in March two sowings are necessary—one in boxes in February and another about the middle of April. A thoroughly good and reliable Broccoli for February and March has yet to be obtained, and the raiser of such an acquisition will earn the hearty thanks of all the gardening fraternity. Young Carrots are much appreciated in the majority of families, and if sown in a frame or pit during October, they will be ready for use in the early spring and form a welcome change from Asparagus, Seakale, and Spinach. This last vegetable is in such request, that a dish of it should be always at hand, and, to secure this, three sowings are necessary—two in the open ground at an interval of one month in August and September, and another under slight protection about the middle of the latter month. I say under slight protection, but any old skeleton frame used for the spring protection of bedding plants and that can be lightly covered in the case of very severe weather will answer the purpose. If this be partially filled with soil and a sowing of Spinach made, a supply can be obtained at a critical time. The first outdoor sowing will furnish plenty of leaves till after Christmas, and when this fails the frame Spinach will take its place, to be succeeded in its turn by the September-sown outdoor batch, which will last until the earliest summer-sown is ready. If any readers can suggest an extension of this list of the best winter vegetables, with a hint as to their successful cultivation, I am sure it will be heartily welcome.

E. BURRELL.

KITCHEN GARDEN NOTES.

SEAKALE.

THE forcing or blanching material should be cleared away from the clumps or crowns before it blanches and weakens the second growth. The latter starts very thickly and ought to be freely thinned out, two or three of the strongest being ample for each crown to develop. Crowded leaf growth leads to the formation of weakly crowns, and from which the requisite stout and succulent growths cannot possibly be forced next season. A little of the shortest of the manure ought to be lightly forked into the surface and a sprinkling of common salt will further benefit the Seakale. The strongest plants frequently form a number of large flower-heads, and these are, if cut early, an excellent vegetable, equal to the best sprouting Broccoli. Any way, these flower-heads ought to be cut away early, as they weaken the plants considerably and leave no good crowns behind. Especially is this necessary in the case of last year's seedlings, these invariably flowering unless the crowns are cut cleanly over either at planting time or shortly after. Slugs and the Turnip flea are very destructive among quite young seedlings, and directly the latter appear above ground they ought to be coated over with soot and lime. In showery weather the application should be frequently repeated, and neither slugs nor flea will make headway against it.

EARLY AND LATE BROCCOLI.

It would appear almost impossible to grow too many early Broccoli, and very late supplies are also of great service. Instead of growing so

many summer Cauliflowers, half of which are of little real service, especially when caterpillars are abundant, it is far wiser to grow more late Cauliflowers and early Broccoli. If these are planted together and liberally treated, one closely succeeds the other, and there is no appreciable difference in their quality. Veitch's Autumn Giant Cauliflower and Self-protecting Autumn Broccoli are the best, though Michaelmas White (Sutton's) is a good substitute for the latter. Successional plantings from one seed-bed will ensure a long season for this autumn Broccoli, and a few hundred or even dozens of plants ought to be grown for lifting and storing under glass before severe frosts injure them. Our earliest are given an open piece of ground, many more being planted later on among Ashleaf and other Potatoes. Those who experience a difficulty in keeping Broccoli until late in May, or until Cauliflowers are available, ought to try the plan of sowing seed of the latest varieties towards the middle of May. We find Model, Cattell's Eclipse, Late Queen, and Latest of All have stood well through the past trying winter, and as yet give no sign of hearting in before they are wanted. The first-named is our favourite variety, this forming conical close heads when protected, and the quality is first-rate. It is not so late as the two last-named, and one of these and Model sown now ought to afford a number of plants that would stand until late in May or early in June next year.

ENDIVE.

When there is plenty of good Lettuce, there is little or no demand for Endive, though I have no doubt that when well blanched it improves both the appearance and, in some people's estimation, the flavour of a mixed salad. As early-raised plants are almost certain to run to seed prematurely, it is unwise to make large sowings or put out many plants raised under glass at this time. The Moss-curl is the easiest to blanch and the best for the earliest supplies, and with this may be sown a good strain of Green-curl. An open, well-manured piece of ground is most suitable for them, the seed of the smaller-growing Moss-curl being sown in drills 6 inches apart, and the plants eventually thinned out to about the same distance apart; while the distance for the Green-curl may be 9 inches each way.

GARDEN PESTS.

Slugs are not so plentiful as usual, a dry and frosty winter having evidently destroyed large numbers of them. Those that have escaped, however, are capable of doing much mischief. In our case, they have commenced eating the Asparagus shoots, and later on, if not checked, they skin the stems of old growths wholesale. A sprinkling of common or manure salt, at the rate of 1 cwt. to 120 square yards, lightly stirred in with hay-rakes, will destroy most of the slugs, and also greatly benefit the Asparagus. In cold, wet seasons dressings of salt are apt to make the clayey soil run badly, and consequently still less favourable to the growth of Asparagus. This season the surface is in a much better condition than usual, and a dressing of salt may in most instances be applied now, and again two or three weeks hence. A free use of soot also acts beneficially on Asparagus beds. Slugs are also very troublesome among newly-planted-out Lettuce, Cauliflower, Brussels Sprouts, and other plants, scores frequently being spoilt in a night. Frequent heavy dustings over with soot and lime, or fine ashes, will save many of them, and it is also advisable to trap as many slugs as possible. They will collect under heaps of old Broccoli leaves or slates, where they may be covered with lime, or otherwise destroyed. Heaps of grains from a brewery have a special attraction to slugs, and they will collect on these from a good distance around. A quick boy, set to work at 6 a.m., would pick up a number of slugs in a short time, and this is an effective method of clearing a garden of these pests. The Turnip fly, slugs, and worms are troublesome among young plants of the Brassica tribe, and nothing but frequent dustings of soot and lime will keep them in check. The Turnip fly often does much

mischief before it is discovered, and the novice should watch closely for the pest, its presence being first denoted by spots on the seed leaves. Worms are fond of drawing tiny plants and leaves down into their holes, and in our case are a great nuisance. They go too deep to be reached by lime water, and we can only make everything on the surface distasteful to them. Short-tailed mice or voles are not easily got rid of, as they take poison badly, and are not readily trapped. We keep cats to catch them as long as the gamekeeper permits, and also coat all Pea and Bean seed with red lead. We also find it necessary to treat the seed of Turnips, Radishes, and the Brassica tribe generally, in a similar manner, or otherwise the chaffinches pull up the greater portion of the seedlings. Small birds can only be effectively kept off seed beds with the aid of fish netting—doubled if the mesh is at all coarse—and fixed well above the ground. Several lines of black cotton strung just above and on each side of rows of young Peas, will sometimes save these from sparrows; but where very voracious they will get used to these slight impediments to free movement, and in this case nothing but the galvanised wire Pea guards will save the plants. W. I. M.

GARDEN FLORA.

PLATE 648.

THE DROOPING URN FLOWER.

(URCEOLINA PENDULA.*)

THIS handsome and unique bulbous plant, often met with under the name of *U. aurea*, was introduced into commerce by Messrs. Veitch and Sons, of Chelsea, and first flowered in their establishment in 1864. It was discovered by Mr. Pearce whilst travelling for the firm in Muna, a province of Peru, during the previous year. He found it at an elevation of from 3000 feet to 4000 feet on the eastern slopes of the Andes. In his notes it is described as flowering in umbels of thirty to forty flowers each. We have not, however, seen that number approached in this country, even after a lapse of twenty-five years.

Belonging to the Natural Order of Amaryllidaceæ, one may at once infer to what treatment it might be rendered amenable. It resembles the *Eucharis* very closely in its foliage, with somewhat more oval leaves, of which each bulb, generally speaking, develops two during the growing season. The veins of the leaves themselves are rather more distinct than in the *Eucharis*, but if seen only at a glance one might take them to be those of *Eucharis candida*. I grow the *Urceolina* with a batch of *Eucharis* in a low-roofed, lean-to stove, where I find it does extremely well, even taking into account the elevation at which it was discovered. Commencing with the starting into growth early in the spring, we will proceed to detail our mode of culture. When signs of renewed activity are manifest, potting should be proceeded with without delay; this will be early in February. Our practice is to shake out each plant very carefully in order to preserve the fleshy roots as much as possible for the future assistance of the bulb. This is, I think, a better plan than attempting to give a larger shift with some part of the old soil still surrounding the bulb. Healthy bulbs that promise well will possibly require a pot one size larger than that of the previous year; but it is better to err on the side of a small pot than to surround each bulb with a greater amount of soil than it can assimilate during its growing season. I keep the large, well-developed bulbs about as far out of the soil as if potting Hyacinths,

* Drawn for THE GARDEN at Gunnersbury House, December 13, 1887, by H. G. Moon, and printed by G. Severeys.



DROOPING URN FLOWER (*URCEOLINA PENDULA*)

while smaller ones with but little root I pot somewhat lower. The soil had better be pressed as firmly as can be done in an easy manner with the hand, avoiding the use of a stick to aid this work for fear of injury to the roots. For soil I prefer a preponderance of rough fibrous loam, with the addition of about one-third of peat and a good amount of silver sand; with strong bulbs, a dash of half-inch bones or bone meal would be an assistance. If wireworms are suspected, examine the loam closely, or future trouble may be the result in the loss of roots. After potting give the stock as light a position as possible and one good watering to settle the soil, after which water sparingly until more active growth is apparent. It will not be long before the young leaves grow away freely, then as they assume fair proportions more water will be required; later on during the summer months an occasional dose of liquid manure will be beneficial. Preserve the leaves as much as possible from injury during the season of growth, for if these are not carefully looked after it is not reasonable to expect a flower-spike later on of proportionate vigour. About the end of August or during September the leaves of the bulb itself will show symptoms of dying off, but if good progress has been made some three or four offsets will have been pushed forth, and which will often retain their foliage up to and beyond the flowering period. When this sign of rest is apparent water should be more sparingly applied, but never entirely withheld. Soon after the large leaves die down the flower-spike will make its appearance, when the plants should be given as much light as possible. Ours have thrown up at various intervals during the past winter, and we have scarcely been without flowers, more or less, for nearly four months, and this at the duller season of the year. The strongest spikes this past winter produced from twelve to fourteen flowers, and I hope with increased vigour to approach more closely to the statement made by its discoverer. One point in the culture of the *Urceolina* must, as with many other deciduous bulbous plants, be closely guarded against, and that is, when the foliage is becoming shabby do not crowd the plants together, or relegate them to some out-of-the-way corner, where chance attention in both extremes may be the result. I believe it is only want of due attention in this respect that has hitherto prevented this plant from becoming more popular, and being grown more plentifully in the private collections up and down the country. It ought to be seen wherever stove or intermediate house plants are cultivated to any extent, all the more so, I think, by reason of its most distinct character as well as its colour.

It is not a plant which can be recommended for growing by florists for the supply of cut flowers in quantity. This makes it, in my opinion, all the more desirable as an addition to the stereotyped run of every-day flowers. I find the *Urceolina* most useful in a cut state, using the spikes entire (not single flowers); thus in combination with *Eucharis* they produce an excellent effect, allowing sufficient length of stem to the *Urceolina* for its pendent flowers to be displayed to the best advantage.

We have been able to increase our stock considerably both from offsets and seeds. The former should be carefully divided from the parent bulb when potting takes place. In most cases these bulbets will have started rooting on their own account; all such will produce flower spikes in two years if carefully looked after; the strongest would, in all probability, develop a small spike in twelve months. The very smallest bulbs had better be kept [three

or four in a small pot for the first season, all the rest being potted singly in 3-inch or 4½-inch pots, according to their size. Two years ago we were fortunate enough to ripen several pods of seed; these seeds were sown in February, 1886, and produced flowering bulbs this season, or just under two years from being sown.

Now that I have a good stock to work upon, I purpose giving this plant a trial in a cooler house. The results of such experiments I hope to record in *THE GARDEN* in due time.

J. HUDSON.

FRUIT GARDEN.

HINTS ON STRAWBERRY FORCING.

THE behaviour of some kinds of Strawberries in different localities is often puzzling to those who have had much experience in their culture, more especially as the cause of certain varieties succeeding so well in one place and entirely failing in another, when soil and other cultural conditions to all outward appearances are identical, is very difficult to account for. It follows, then, that the varieties best suited to any one place can only be determined by experience, and it is always worth while to try any new variety or one not previously grown, and which is known to succeed well for any particular purpose elsewhere, as its merits can soon be tested. For forcing it is particularly desirable to have reliable varieties, as we are all aware of the amount of labour required to prepare and force several hundreds of Strawberry plants, and it is very disappointing for a batch of plants to turn out a failure just when a few dishes are looked for, and of which no fruit is more appreciated at a time when there is very little for the dessert.

I have tried a good many kinds for forcing, but none succeed so well with me as *La Grosse Sucrée*; good fruits of this variety are easily obtained with moderate forcing by the middle of March, and with special treatment in February. The flavour is always pronounced good, and the fruits are large and handsome. I have never known it attacked by mildew, which so often spoils Strawberries grown under glass, and is also very troublesome outside in some seasons. This Strawberry has one failing, which perhaps is the reason why it is not more extensively grown—that is, it produces runners very sparingly; but this difficulty is easily overcome by making a small plantation annually for the purpose of layering plants for forcing. Our plants for this purpose are put out by the sides of the walks in the kitchen garden, not far from the edging. When the time arrives for layering, the requisite number of 6-inch pots is filled with soil, and a double row is placed on boards or slates close to the edging. Into these pots the layers are pegged. Here the pots remain until the plants require more room, when they are severed from the parent plants and more thinly disposed in the same positions, remaining here until fear of frost necessitates their being plunged up to the rims in a bed of ashes or leaves outside until wanted for forcing. The first batch is started at the same time as the early Peach house, viz., the end of November, and from them ripe fruit is usually gathered about the middle of March. I never mind introducing Strawberries into Peach houses, especially early in the season, as spider cannot do any harm in these houses if the syringe is properly used, but where it can possibly be avoided, keep them out of the vineries.

Vicomtesse Héricart de Thury, which succeeds

so well in some places, does not do well with us for the earliest batches, but it comes fairly well a little later. Where this variety does succeed, no doubt it is, all points considered, the best one for forcing. A friend of mine finds no difficulty in gathering a dish of it from March to the end of December. I have seen scores of plants with him in the month of November thickly covered with fruits in all stages and tied out like specimen plants. These plants continue bearing until after Christmas, but although I have obtained runners from these precocious plants and have followed his treatment very minutely, their behaviour with me has been very different, not producing enough fruit to pay for housing.

Sir Joseph Paxton is a variety I cannot grow, neither outside nor in, mildew always spoiling the fruit. President is the next best to *La Grosse Sucrée*, and British Queen is also good with us.

This season I have tried two nearly new varieties, namely, *King of the Earlies* and *Pauline*, and am disappointed with both of them. The former produced numerous small flowers on the surface of the pots, which came to nothing; and the latter, notwithstanding it was started with *La Grosse Sucrée* and treated precisely the same, is only now ripe (April 20) and the flavour is poor. With regard to the flavour of forced Strawberries, much depends upon the watering. It is impossible to obtain good flavour if the plants are watered in a haphazard way, and from the positions in which they are frequently placed this is what very often happens. When occupying high shelves, which are reached with difficulty, they all receive the same quantity of water regularly, whether wanted or not; therefore, it is best to place them where they can be easily attended to. Over-watering will soon cause the fruit to turn sour, and allowing the plants to become very dry will have much the same effect.

Flavour is often lost, too, by the excessive use of liquid manure. It is possible to have very good Strawberries without using the above or any other stimulant other than what is mixed with the soil, but it is an easy matter to spoil the flavour altogether by an overdose of the same. At the same time, a judicious use of stimulants greatly improves the crop, but liquid manure from tanks, &c., is always objectionable. I prefer artificial fertilisers either sprinkled on the surface of the soil or dissolved in the water.

Sulphate of ammonia, if carefully used, is clean and most effectual, half an ounce to a gallon of water being quite enough to use if the quality is good. If it is necessary to move the plants when the fruit is ripening, it should be carefully done, so as not to bend the stalks, or allow the berries to rub against each other or touch the pots, when their appearance is soon spoilt and the flavour affected. A little time spent in supporting the fruits so soon as swelling commences is always well repaid.—A. BARKER, *Hindlip*.

—The bright, hot weather which followed the potting up of Strawberries in 1887, and which lasted well into the autumn, would seem to have had the effect of thoroughly preparing the crowns for the next season's work, and I do not think there is a single miss in our batch of 800. There are probably few operations included in the general routine of gardening into which more diversity of opinion is introduced than in the question of Strawberry forcing, as each grower seems to have his particular hobby at each cultural stage, although the said difference of opinion is not, as a rule, so material as to interfere with the well-being of the crop. Thus even at the beginning the question of small pots versus pieces of turf for layering has been the sub-

ject of much controversy, possibly with little reason, as if a well-rooted plant is ready by the end of July it does not matter greatly how the end has been gained. Various fertilisers, as soot, bones, &c., are also recommended by different growers as capital things for incorporating with the soil when the shift is given into the fruiting pots, but I have not found them essential features, and use nothing but good loam, if that is forthcoming, and when this is not available, equal parts of a stiff clayey loam and road sidings that have been occasionally turned. There are also various methods of storing away in winter quarters, the two most in practice being either to stack closely in cold pits, filling in between the pots with Fern or other litter, or to pile them on their sides in the open, forming, in fact, a bank of pots.

If ripe Strawberries are required in early spring the first batch must be introduced about the middle of November into a pit filled up with leaves, and the pots plunged therein close up to the glass. Before they are placed in this pit, or, at any rate, before any young foliage is formed, the plants should be plunged in a mixture to thoroughly eradicate any insect life. There are, of course, plenty of insecticides useful for this purpose, but if these are not at hand, a capital wash may be made by thoroughly mixing 1 lb. of soft soap and one quart of paraffin in three quarts of water, and using half a pint of the mixture to three gallons of water. It is not advisable to exceed a temperature of 50° in the pit, but as soon as the trusses begin to push the pots may be lifted from the leaves and placed in their fruiting quarters. If there is no Strawberry house (and I fancy there are not many of us favoured to this extent), they will have to occupy shelves of vineries or pits that are to come in for late Melons, and where this is the case the dipping above mentioned is a very special feature if the introduction of spider to these structures is to be avoided. Wherever they are placed they may be safely pushed along as soon as the truss is formed, as the Strawberry will set satisfactorily in a considerably higher temperature than is usually allowed, the only essential features being a chink of air day and night and a fairly dry atmosphere. There are plenty of stimulants recommended for use when the fruit is swelling, but there are few safer and better than liquid manure.

Perhaps the selection of varieties most suitable for forcing is the subject of keener debate than any other point in their culture, and in this matter it is impossible to draw any hard and fast line, as every grower has a perfect right to use those sorts which he has proved most useful for the purpose, or which find most favour with the employer, or the general public. Personally, after trying most of the well-known varieties, I have selected *La Grosse Sucrée* and *Sir J. Paxton* as the two best for my purpose, and rely solely on these. *Vicomtesse de Thury*, *President*, and *Keen's Seedling* are also favourite varieties, and are highly recommended by well-known and successful cultivators, whilst two large growers with whom I am acquainted declare respectively for *Sir Charles Napier* and *Black Prince*. I hope we shall thoroughly get at the best sorts for forcing, as the question of the supply of this favourite fruit during the months of March, April, and May is a matter of great and increasing importance.—E. BURRELL, *Claremont*.

SHORT NOTES.—FRUIT.

Ribston Pippin from New Zealand—We have received from M. Solomon, of Covent Garden, fruits of this Apple, which have just arrived from New Zealand. The flavour was excellent, the flesh firm, juicy, and seemed to have lost none of its delicious richness.

Pear Easter Beurre—This variety in the garden here is growing on an east wall, and until this year the trees have not failed to bear heavy crops. This season, however, there is an almost entire absence of flower-buds on this kind, although other varieties—*Beurré Diel*, *Pitmaston Duchess*, and *Marie Louise*—are covered with buds. The trees, while in bloom, are protected from frost by fishing nets. The fruit of *Easter Beurré* Pear is very poor indeed in quality, being very gritty and flavourless, although it attains a good size.—E. MOLYNEUX, *Hants*.

SETTING THE FLOWERS OF PEACH TREES.

WITH very few exceptions, all the sorts of Peaches and Nectarines usually grown set their fruit so freely, that I do not think it necessary to adopt any artificial measures to secure a crop of fruit. All that I have found it necessary to do is to pay particular attention to the temperature and ventilation. I do not think that introducing bees into the house or syringing the trees when they are in flower at all increases the quantity of fruit.

One is naturally a little more anxious about early forced trees than late ones, and in that case I have no objection to the use of a camel's-hair brush to assist in the setting of the flowers on trees that are trained to walls, but I do not think that even the brush is necessary in the case of trees grown in pots or trained to wires, where by a rap with the hand the branches can be made to move sufficiently to cause a distribution of the pollen. The Peaches that I have found to require some assistance in setting the flowers are *Hale's Early*, *Crawford's Early*, and *Noblesse*; these for some reason are shy setters, and I have found it desirable to assist them by going over the flowers once a day with a brush, and my experience is that none of the Peaches or Nectarines with large flowers set their fruit so freely as those with small flowers. They are not, however, sufficiently uncertain in that matter to require more than skilful management in the way of air-giving and regulating the temperature.

In my opinion the question of getting the flowers to set properly is one of temperature. It does not matter whether the air of the house is much charged with moisture or not if the temperature is high enough to cause the little bags of pollen to burst. If there is also sufficient movement in the air of the house to cause the pollen to be distributed there will be a good set of fruit. Very often the outside conditions do not admit of the maximum heat being kept up, and at such times it is necessary to keep the air of the house much drier, as the drier it is the more movement there will be. But without the necessary warmth there can be no satisfactory opening and perfecting of the flower. And unless these conditions are fulfilled there can be no crop. But given a suitable temperature and moderate ventilation there is no risk of failure. For the proper setting of the fruit on plants that are forced a temperature of 60° by day is suitable, and on fine and bright days the heat should be raised from 4° to 6° higher. The management of trees in unheated houses is more easily understood. The season is so far advanced by the time the trees come into flower that the natural temperature ranges considerably higher. The best plan to follow is to keep the house as cool as possible by leaving the ventilators open night and day, except in the case of severe frost, until the trees are well in bloom, when the ventilators should be closed at night and opened on all favourable occasions during the day. I find it injurious to the setting of the fruit to keep the house always closed. It is better for the setting of the flowers to admit a little cold air if it is accompanied by sunshine than to have a stagnant moisture-laden air confined inside the house. When there is no prospect of giving air owing to cold wind, no water should be distributed about the flower to create atmospheric moisture. In bright weather when the heat of the sun sends the thermometer up to 85° or 90° the floor may be damped three times a day with advantage.

J. C. C.

Fruit bloom on May-day—Whatever may be the ultimate result of Mr. Badger's investigations in relation to the effects of frost upon fruit bloom and crops, it seems as if this year, at least, not late frosts, but general low temperature would prove the harming force, should harm result. I agree with Mr. Coleman in fearing that the prolonging of the cold, which checks the expansion of the fruit bloom, and keeps it imprisoned within its green calyx when it should be expanded and enjoying the warmth of May sunshine, and the active labours of the insects are likely to prove injurious to fertility. On the 1st of May I looked over my pyramid and bush Pear trees, and found a few blooms expanded. The bulk of the bloom will not

be fully expanded for a week, and the Apple bloom will hardly be beautiful until the third week of May. Plums and Cherries are also late, so that we must have unusually late frosts if any effects from them are to be noted this year. Blackthorn winter so called visited us as usual during the last week of April, but the bulk of the Plum bloom is a fortnight later. The first day of May was a wild, cold, showery day, such as might be looked for in the month of November. If any correct record of the opening of bloom generally on hardy fruit trees has been kept, I believe it will show that we are having this year one of the latest blooming seasons of the century.—A. D.

STRAWBERRIES LA GROSSE SUCREE AND VICOMTESSE HERICART DE THURY.

I OBSERVE Mr. Crump's note in *THE GARDEN*, April 21 (p. 356), on the above, and note the strange difference in his and my own experience with the two sorts. His favourite *La Grosse Sucrée* is very disappointing here both as to flavour and travelling qualities. Here it is a large handsome fruit, but that is all that can be said in its favour. The foliage is long and coarse, and the plants require a lot of shelf space on which to grow. I have tried it in two different positions out of doors, and now have destroyed it. With me outside it seldom produces more than three or four fruits to a stalk, and many plants come barren. I obtained my stock from a place in Norfolk, and the habit and results differed so much, that my friend hardly recognised it in its new home.

With reference to *Vicomtesse Héricart de Thury*, the results are just the reverse to those of Mr. Crump. This Strawberry never fails to produce grand results here, both when grown in pots or otherwise. Were I only allowed to select one Strawberry for pot work, I should choose this one. Our first batch, grown in 4½-inch pots, was ripe at the end of March. This variety never disappoints me; it throws the flower-stems well above the foliage and sets the fruit well. It is just as reliable in several gardens in this neighbourhood. I used to put great faith in *Keen's Seedling*, but having tried the two, I give the preference to *Vicomtesse Héricart de Thury* by a long way. I am trying several kinds this season, as I could not obtain as many runners as I needed from *Vicomtesse Héricart de Thury* and *President*. I believe the soil, &c., are the cause of the difference. If my memory serves me, when I was once staying with Mr. Child, gardener at Croome Court (a neighbour of Mr. Crump's), he told me *Vicomtesse Héricart de Thury* was not satisfactory with him, and I think he told me his favourite was a good selected stock of *Keen's Seedling*. The soil here (*Hants*) is light and sandy, and not suitable for Strawberry growing, and some sorts refuse to grow. I have tried *Sir J. Paxton*, but have failed; while at *Bagshot Park*, in *Surrey*, I have seen this variety very fine. *Vicomtesse Héricart de Thury* does well in the open and crops to such a degree, that the fruit, unless well thinned, is not large enough for dessert. *Vicomtesse Héricart de Thury* is highly spoken of here for preserving. *Vicomtesse* never suffers in the winter from frost, while many sorts that grow by its side get much damaged.

JOHN CROOK.

Farnboro' Grange, Hants.

* * With the above communication Mr. Crook brought a plant of *Vicomtesse Héricart de Thury* Strawberry bearing seventeen fruits of large size, well coloured, the flavour being good and the foliage healthy and well developed.—ED.

Alexandre Lambre Pear—Mr. Gribble asks for information concerning this Pear, with which he seems not to be familiar. I think it occupies the position of being one of the good things, little known, but still perhaps somewhat neglected because the fruits are not large, and big fruits, as witness the run on *Pitmaston Duchess*, have been too much the rage. When the fruit market is largely sustained by the wealth of those whose love for display, even in connection with their dessert, dominates all other considerations, it is no wonder that big Pears, Pines, Melons, Grapes, and other fruits

have been so much in demand. My three or four trees of Alexandre Lambre are on the Pear stock, but as the variety crops so abundantly, the trees, which always assume a semi-drooping bush form, have not grown large. The growths should not be hard cut, only thinned, as the wood will fruit in lengths of from 3 feet to 4 feet, the fruit hanging thickly. Of course, with me it is not so large as on cordon or wall trees, but it is clean, handsome, and keeps well till November, when it is serviceable all through the month. The flesh is soft, melting, and juicy, the flavour pleasant without being marked, and the fruit are of a size desirable for a gentleman's dessert table. If I were going to plant for market, I should put down an acre of Alexandre Lambre.—A. D.

Standard Pears in Austria.—In several numbers of THE GARDEN you have endeavoured to arrange a list of standard fruits for England. In consequence of this the list of standard Pears is brought to No. 8, all dessert, with an appendix giving the names of early and cooking Pears if wanted. The Landes-Obstbau-Verein für N. O. at Vienna many years ago composed a list of standard fruits for Lower Austria, not exclusively dessert fruits, but for general use. The N. O. österreichische Pomologen-Verein has published lists of standard fruits for diverse Austrian provinces; still the lists are not completed. The quantity of inferior sorts is increasing every year. It seems to me that the Pear Glou Morceau of the list of standard fruits is not the same which Mr. Peters, of Guernsey, has identified with Beurré d'Aremberg (see THE GARDEN, March 31, 1888, p. 282), but is the Pear which is called in our list of standard fruits the Hardenponte Winter Butter Birn, Beurré d'Aremberg being a distinct sort. [Glou Morceau is Beurré d'Aremberg of the French.—ED.] Again, the Pear Uvedale's St. Germain, noted as being useful for cooking purposes, seems to me the same as Belle Angevine. [So it is.—ED.] I may say that there will be a show in the end of September at Vienna.—HUGO M. MÜLLER, Vienna.

*** We shall be glad if you will kindly tell us the late Pears that have the highest quality near Vienna.—ED.

FRUITS UNDER GLASS.

VINES.

WITH all the houses in full work and the mild weather striving to make amends for past delay, the daily routine in this department alone will tax the strength and skill of the most energetic staff of assistants whose hearts are in their work. Taking the latest house first, the Lady Downe's and other bottling varieties will require constant attention to disbudding, tying down, and stopping before the young shoots have made a single leaf in excess of the number they are intended to carry in front of the fruit. The bunches, too, will require thinning down to one on each break as soon as the best shows can be distinguished, and then a great number will remain for removal immediately after the Grapes are set. When this stage is reached it will be necessary to raise the temperature of the house to 65° at night and 80° under bright sun by day, as it is by this means that the taper bunches of varieties, which require so much thinning, can be drawn out to their fullest length. Having the run of external and internal borders, the roots in each will now require careful attention, especially where the first have been heavily covered and the light rainfall has barely reached the surface. It will not, however, be wise to remove any great quantity of the leaves or litter just yet, as a rush in this direction not unfrequently results in a check when the Grapes are setting. On the other hand, water being needed, the bulk of the material may be turned off prior to watering with warm water or liquid manure, and replaced when the roots, after one of the driest winters on record, are properly moistened. Inside old Vines may have a thorough soaking with warm diluted liquid, whilst young ones will set their fruit best under equally plentiful, but weaker diet. As syringing will very soon be reduced to damping the

bare stems and floors, the warm bath morning and evening for the present should be thorough, especially where Strawberries or other abominations occupy shelves within a few inches of the foliage. All Grapes in this house should be fertilised when in flower, and the better to secure a good set the pollen from the Hamburgh in preference to their own should be used. Many people begrudge this useful Grape a single rafter in the late house, but this is a mistake, as no other Grape is so well adapted to the process of fertilisation; therefore, pollen in some way or other should be forthcoming when wanted. As the sun gains power and nights become milder, judicious ventilation will play a very important part, not only in fostering health and sturdy growth, but also in securing a good set of fruit. To this end a chink of air top and front should be put on about 9 p.m., and taken off early the following morning. Then when the house has been syringed, it must be kept quite close until the rising temperature necessitates a slight opening along the apex ventilators to let out vitiated air and to prevent scalding. Air from this time until the middle of the day must be gradually increased, not to lower the temperature, but to prevent it from getting too high, and in like manner it must be as steadily reduced and shut off in time for a slight rise to 85° or 90° with sun-heat and moisture.

Late Muscats in a corresponding stage will require precisely the same treatment in every particular as these. Lady Downe's and Gros Colman not only do well under the same degree of heat, but the latter worked well forward before midsummer and allowed plenty of time to ripen are infinitely superior to others which require sharp firing late in the autumn. It is no uncommon practice to leave all the bunches on Muscats until the Grapes are set, but this notion of having so many strings to the bow is fallacious and deceiving, as a heavy load does not increase the strength of the Vines any more than an extra half ton helps the willing steed to his destination. If one bunch is left on each shoot there will then remain fifty per cent. to be cut off, and these surely should be sufficient, as flowering next to stoning places a great strain upon the Vines. Where that excellent variety, the Bowood Muscat, is grown, it will set in a temperature somewhat lower than is good for its parent, and then it will be the first to ripen. But the proper place for this variety or seedling, cross or no cross, is the earliest house; therefore, wherever planting or potting for early cutting is contemplated, the Bowood should have precedence. Another excellent white Grape which I should like to see more extensively grown is Mrs. Pearson, a good grower, a free setter, a good keeper when bottled, and in flavour quite equal—some think superior—to the Muscat.

Early Grapes now beginning to colour should have as much fresh air as the cold, sunless weather will allow, with ample fire-heat for keeping up a proper temperature by night and day. In order to secure the largest-sized berries it will be necessary to shut up with sun-heat and a moderate amount of moisture for two or three hours during the afternoon; but air must again be admitted, and, no matter how small the openings, left on all night. Fire-heat having been incessant, red spider may now be expected to put in an appearance, and the usual remedies must be applied forthwith. Syringing to any extent being out of the question, sponging at the outset may be tried, but once this pest has gained a foothold, sulphur in some form is perhaps the best check. Prevention, however, being better than cure, it will be well to see that the internal borders are well supplied with warm, diluted liquid, the evaporating pans are kept constantly full, and the mulching, consisting of well-worked stable litter or short Mushroom manure, is regularly sprinkled at least twice a day. As the ripening process proceeds it will soon be seen whether the Grapes are likely to finish properly, one of the best signs being the sudden appearance of a black berry amongst a number of green ones, or a perfectly green berry in a bunch that is almost coloured. When, on the other hand, Hamburgs look foxy and small, apparently lifeless, starch globules appear on the

footstalks, the fact that the Vines have quite enough to do may be accepted as certain. Cutting off bunches at the eleventh hour may give slight relief, but the best and most certain aid is time. Therefore, whilst maintaining the proper heat by day, always with air, a lower figure must be insisted upon for the night; also, the laterals may have full and free play, as the best colour is always found under a full canopy of good foliage. As the Grapes approach ripeness, a gradual decline in temperature will be necessary, but still there need not be any great diminution in the atmospheric moisture, especially on fine days, as Vines in May and June will take a great deal more than would be good for them in September.

Pot Vines.—When the Grapes upon these are ripe a steady decrease must take place, not only in fire heat, but also in moisture, and, provided the bunches have to be kept hanging for any length of time, the roots must be made properly moist and then covered up with a good body of dry non-conducting material, which, by the way, may be regularly sprinkled with pure water. Later crops, still advancing, may be treated to a generous diet, but on no account must they be hurried where colouring is doubtful.

Vines intended for early forcing next year should now be in full and free growth, and the pots being fairly filled with active roots there must be no lack of stimulating liquid, including drainage from the manure bed, soot and guano water alternately. If still plunged, the pots should be drawn gradually to the surface, as this step, whilst favouring frequent feeding, will most likely prevent the soil from becoming too wet. The best position for the young canes is close proximity to the glass, which cannot be kept too bright and clean, as shade from any material, be it dirt in the wrong place or a heavily timbered roof, induces long joints and weak, flabby foliage. As these Vines ascend the trellis some 12 inches or 14 inches from the glass, each lateral must be pinched and repinched at the first leaf and unless wanted for any special purpose, the points may be taken out at 6 feet or so above the surface of the pots. This check will cause the canes to thicken rapidly and the main buds to become prominent, but root action must still be encouraged by allowing the point buds to break and ramble until the main rods show signs of ripening.

STRAWBERRIES.

A sharp eye must now be kept on plants in Peach houses and vineries, otherwise they will leave behind them a legacy of spider most difficult to deal with. An exceptionally dry winter followed by a very cold spring having been so favourable to the spread of these insects, also of mildew, the watering-can and syringe must be kept constantly going, clear sulphur water being passed through the latter on at least two evenings during each week the plants are allowed to remain. Prevention, on the other hand, being better than cure, a strong effort to make a complete clearance should forthwith be made, as fruit of the finest quality henceforth can be grown in light pits where spider more or less is of minor consequence. Where suitable pits are not at command, thin sods of turf, laid Grass side downward on the shelves, whilst economising watering, will absorb the most valuable constituents of liquid, and throw up a continuous stream of moisture so acceptable to the Strawberry up to the point of ripening. The late varieties now coming into flower in cold pits and frames should be divested of all the small flowers before they open, as quantity and quality do not run well together; then, to ensure a good set, also to retard ripening, the lights may be liberally tilted in all weathers, and thrown off entirely for a few hours on fine days. When the fruit is well set, it will be necessary to fumigate and syringe copiously preparatory to removal to other quarters, and feeding, as a matter of course, must be on a liberal scale. The best late sorts for leading up to outdoor crops of Pauline (a good flavoured variety), La Grosse Sucrée, and Héricart are Paxton, Filbert Pine, Dr. Hogg, and British Queen; whilst Oxonian, a very fine late sub-acid variety, will

give extra large handsome fruit for special purposes. Where very late fruit is wanted in quantity and light, airy cold pits are at command, it is a good plan to eschew pots altogether by planting out strong runners, 12 inches apart every way, in July or August, and treating them precisely as pot plants throughout the autumn and winter. Water being such an important factor, the pits or frames should be well drained prior to filling with the usual calcareous compost, which need not be more than 6 inches in depth and 12 inches to 15 inches from the glass when thoroughly rammed and ready for planting. Glass overhead until bad weather sets in is not absolutely necessary, and then, unless very severe, the shows will be strongest and the leaf-stalks shortest where they have full exposure throughout the winter. By adopting this plan, the plants will be but slightly in advance of others of the same age upon open quarters, but having the lights ready, the young leaves and flowers can be protected from frost, and the fruit can be hastened at will by shutting up with sun-heat and moisture.

Stock plants put out last August must now receive special attention if they are to give extra early runners for forcing. If well managed with water and mulching throughout the autumn and winter, they will, if desired, give fine fruit as well as runners; but the latter being so important, I always divest a row or two of each sort of every flower-scape, ram firmly, mulch and water in the spring, and peg down upon the fruiting pots in preference to sods of turf or small 3-inch pots. Six weeks ago I thought a great number of our August runners were dead, but the roots being better than the crowns, they are now growing vigorously. Old plants, in like manner, lost nearly every leaf—no uncommon occurrence when intense heat, which ripens the crowns, prevents leaf-growth until cool, moist nights set in somewhat late in autumn.

MELONS,

like Pines, should be grown in small batches in separate compartments, otherwise, no matter how numerous the varieties, a glut must be followed by scarcity. This abundance at any particular time makes very little difference to the wholesale grower for market; indeed, it may be an advantage, as it enables him to clear out the old and get in another set of plants; but the private gardener must work upon different lines altogether, otherwise an acre of glass will barely suffice for keeping up a constant supply from May to the end of October. To this end, then, the Melon range should be divided into several sections for holding a few plants each a fortnight or so in advance of each other, and the less numerous the varieties the less likely the gap in the succession. It often happens that as many sorts as there are plants are turned out in one and the same house, and independently of the fact that some are early and others late, the best varieties get cross-fertilised to an extent which prevents their raisers from knowing or wishing to know the second generation. I once heard a gardener say all Melons were good when properly grown, but this I very much doubt, as a green crossed with a scarlet rarely turns out as good as the original type of one or the other; nay more, it is to this unsatisfactory method or want of method of advancing and retiring that we are now indebted for so many mongrels. But how are we to get over this difficulty? Why simply by going back to such good old sorts as Beechwood, the true Egyptian Green-flesh, Victory of Bath, Golden Perfection, and others which I could name, and then, instead of giving all of these a turn at one and the same time, we should select one and stick to it throughout the season. If we want early Melons good at all points, Victory of Bath and Golden Perfection cannot be surpassed by any modern variety I have yet seen, and the same may be said of the old Egyptian and Beechwood. If we wish a white-fleshed Melon of the Persian kind, we may safely go back to the Heckfield Hybrid, and very few scarlets can beat Turner's Scarlet Gem, especially for pot culture. Of pedigree Melons, red, white, and green, there are many of the highest quality, but a great number of inferior varieties, or old friends under new names, have crept in, and it is the crossing up and crossing

down and haphazard culture of these that all good growers should endeavour to discourage.

W. C.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

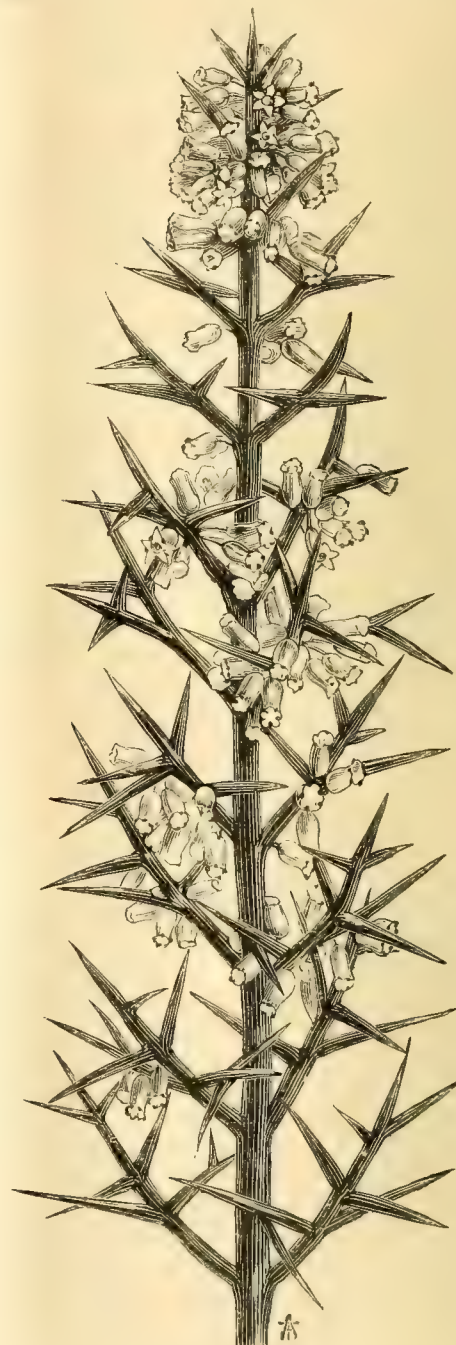
(Continued.)

Cladrastis.—This genus strictly includes the beautiful North American Yellow-wood Tree (*C. tinctoria*), but as the common name in gardens for that tree is *Virgilia lutea*, it will be noted under that genus. The only other *Cladrastis* in cultivation is *C. amurensis* (see illustration, p. 444), a shrub introduced a few years ago from the Amoor Valley, and known also under the name *Maackia amurensis*. It is, therefore, new to English gardens, and is very rare, though its value is recognised by nurserymen, who are working up stocks of it for sale. In foliage it resembles the Yellow-wood, but it is of thicker texture, not so large, and of a duller green. In late summer it produces a plentiful crop of flowers, even when only a few feet high. The spikes are dense, the blossoms white, inclined to yellow, and endure a long time in perfection. Quite small bushes flower freely, and as it has proved perfectly hardy, it may be considered a valuable addition to ornamental trees.

Clethra (Sweet Pepper Bush or White Alder).—A small genus of shrubs and small trees, the hardy species of which are deciduous and natives of North America. There are several so-called species, but we need confine ourselves here to two only of the most distinct species under which the others would probably rank as varieties. The commonest and one of the best is the Alder-leaved *Clethra* (*C. alnifolia*), which in the wet copses of Virginia reaches a height of 10 feet or more. With us it grows from 3 feet to 5 feet, makes a moderately dense bush, and produces towards the close of summer a profusion of white, sweet-scented flowers in feathery spikes at the tips of the branches. The leaves remind one of those of the common Alder in shape, and this is the most apparent distinction between it and another commonly grown species, *C. acuminata*, which, as its name implies, has more pointed leaves. It also has spikes of white-scented flowers, not erect like the last, but drooping, and produced in late summer. It is inclined to grow taller than the Alder-leaved form; in fact, it is quite a small tree in the woods of the Alleghanies. The names *C. tomentosa*, Michauxi, paniculata, scabra, and others stand for kinds much resembling either of the foregoing; in fact, one kind of Pepper Bush is enough in an ordinary garden. They are valuable shrubs, because suitable for growing in wet places where it would not be safe to plant others; therefore, their place is by the margins of a lake, pond, or stream, or in any low-lying position where the water settles. Such spots occur in many gardens, and which one often has a difficulty in embellishing with suitable ornamental growth. No varieties of the *Clethra* are common in English nurseries, because, being almost unknown, there is no demand for them. They prefer peat, but any light soil will do.

Cocculus carolinus.—Like the Moonseed (*Menispermum canadense*), this is a twining shrub with inconspicuous flowers. It is useful as a trailer for arbours, pergolas, and the like, but of no great value. *C. laurifolius* is a handsome leaved Evergreen from the Himalayas, but as it is half hardy it can only be used as a wall covering, and then must be protected in winter, excepting in the mildest localities.

Colletia.—A genus of shrubs from Chili, some species of which are hardy enough for the open air in all but the coldest parts. There are three species in gardens, all interesting and beautiful when in flower. They have spiny branches that are naked, or the few leaves are so minute as to appear absent. *C. cruciata* is the commonest kind; its stems are armed with stout, flattened spines, and its flowers are white and small. It makes a bush about 4 feet high. *C. bictoni-*



Colletia spinosa.

ensis is the same as *C. cruciata*. *C. spinosa* (illustrated herewith) has its spines round or awl-shaped, and is a prettier shrub when in bloom than *C. cruciata*, as the white flowers, though small, are very numerous and produced in summer. Under favourable conditions, *Colletia spinosa* grows much taller than *C. cruciata*, and against a wall will attain a height of 10 feet. The names of *C. ferox*, *C. horrida*, *C. armata*

all stand for *C. spinosa*. It makes a formidable hedge in the southern counties, where it flourishes to perfection. *C. serratifolia* is less common than the others, but is extremely pretty when in bloom, the whole bush being a complete mass of tiny white blooms. It grows tall and slender, either planted in the open or against a wall.

Colutea (Bladder Senna).—The Bladder Sennas cannot be called choice flowering shrubs, but they are extremely useful for planting on poor, hungry soils, particularly on dry sunny



Corylopsis spicata.

banks where few other plants could exist. Like the Gorse and a few other shrubs of the Pea family, the Coluteas seem to delight in a dry sandy soil, and when in flower, which is during several weeks in late summer and autumn, they have a pretty appearance, their foliage being light and elegant. There are numerous names to the Bladder Sennas, but really there are but one or two distinct kinds. The commonest is *C. arborescens*, which under favourable conditions grows 6 feet or 8 feet high, has large flowers, varying in different varieties from yellow to a deep reddish yellow. *C. cruenta*, *C. Halepica*, and *C. media* are of smaller growth than *C. arborescens*, and have bright yellow flowers, but all have much the same aspect. The kinds chiefly grown for sale in nurseries are *C. arborescens* and *cruenta*, and being easily raised from seed, are very cheap. It is an invaluable shrub for all dry, sandy soils.

Comptonia asplenifolia (Sweet Fern Bush).—Though this is not strictly a flowering shrub, it is such a charming old-fashioned plant that it is indispensable in every English garden. It is a slender-growing deciduous bush, about a yard high, with long elegant leaves, that when bruised have a sweet aromatic fragrance. It is a nice shrub to plant in a low-lying, sheltered spot in

shade, and if in peaty earth so much the better; but it will grow freely and send out suckers in all directions in any light soil. It is North American, very hardy, and easily increased by the suckers.

Corylopsis.—A small and little-known genus of hardy deciduous shrubs, allied to the Witch Hazel (*Hamamelis*), and natives of China, Japan, and Northern India. They are thin growing and dwarf, have ribbed leaves resembling those of Hazel, and bear their flowers in drooping racemes. There are three species introduced within the last twenty-five years. The oldest and best known is the Japanese *C. spicata* (see illustration), which grows about 3 feet or 4 feet high, and has cowslip-coloured and scented flowers, in spikes produced before the leaves in spring, like the Witch Hazel. It is quite hardy, though, being rare, it is generally grown against a wall. *C. pauciflora*, also a native of Japan, is similar to *C. spicata*. *C. himalayana*, from the Khasya hill region, has yellow and white flowers, and is very rare in gardens. As these are early spring-flowering shrubs, they should be planted in spots sheltered from cold winds, but the most satisfactory way is to plant them against a wall.

Cornus (Dogwood).—The only Dogwood that comes within our definition of flowering shrubs is *C. florida*, called the Virginian or Florida

only in a comparatively few places, our climate not being warm enough for it. Among the other Dogwoods worth growing for the sake of their flowers is the Cornelian Cherry (*Cornus mas*), which is one of the earliest shrubs to bloom, being covered with tufts of tiny flowers as early as February in mild seasons, and succeeded in autumn by cherry-red berries. The other Dogwoods, though they are valuable for large shrubberies, are scarcely showy enough for the choicer parts of a garden, though *C. stolonifera*, which has the bark of its annual shoots of a bright red, is worth planting in conspicuous positions here and there for winter effect.

THE ALMOND.

FOREMOST among the deciduous flowering trees is the Almond. Before any Pear or Plum has put forth its blossoms the Almond is in full flower, and it has such a charming decorative value, that it is pleasant to note how much it has been planted in the suburban gardens round London. It has been well said that "the blossoms of the Almond tree are among the earliest welcome harbingers of spring." And we are informed there is this peculiarity about the blossoms, that they resist spring frosts better than most flowers. It may be said that the tree is not of well-shaped habit, yet any defect in this respect is more than compensated for by the earliness and freedom of its blooms and its fruitful character in a favourable season. There



The Florida Dogwood (*Cornus florida*).

Dogwood, a very old garden shrub, introduced during the early part of the last century. In its native country it is a small tree, often 30 feet or 40 feet high, but in England it is only a moderate sized shrub, and does not flourish well in a general way. As may be seen by the engraving, it is showy when in bloom, though in reality the flowers are small and inconspicuous. The bracts, which take the form of petals, are pure white and large, and endure longer than the real flowers. It cannot be called an important shrub, as it is not only rare, but succeeds

is a double-flowered variety which is deservedly popular, and a pendulous-growing form also. It was introduced to this country from Asia some 350 years ago.

Mr. Grindon opens up the very interesting question as to whether the Peach is not after all "an immensely improved descendant of the Almond." At the same time Mr. Grindon thinks there are such strongly marked characteristics belonging to the Almond, as to forbid any assumption of identity—

The primitive home of the Peach appears to have been China; the Almond seems to belong to those parts of Europe, warm and dry, which are bathed by the

Levantine Mediterranean, reaching thence into western temperate Asia.

In the suburbs of London it appears to do well in any soil or position. In the district where I reside the subsoil is very variable: here a thin crust of fertile loam on a heavy clay; there a deep loam on a substratum of gravel; but the plants do well in both, only I think that where there is a cold, clayey subsoil, the tree should have a southern exposure. Some of the trees most heavily laden with fruit that I saw last season were growing on the east side of a dwelling, from which the sun was almost entirely withdrawn by midday. But the best-grown trees and the most free-flowering are undoubtedly those growing over the gravel subsoil in a position facing the south. Some trees are apt to suffer during a hot, dry summer from being planted too near the basements of houses that have living rooms a few feet below the surface of the soil, a barbarous practice that ought to be discontinued. Such trees suffer from drought and require to be well watered during a dry time. R. D.

The Garland Flower (*Daphne Cneorum*).—This beautiful trailing plant is now one mass of bloom, and is deserving of much more extended cultivation than it seems to get, as besides being so free-flowering it is very sweet scented. The situation this *Daphne* is perhaps best adapted for is a bank, or mound, or the rock garden, as on elevated positions of that kind it hangs down and shows off to advantage. It also does well in borders, where it forms fine spreading clumps, and may be readily increased by layering, the only thing necessary to get it to root freely being to bury some of the side branches. This should be done in sharp sandy soil, such as road-scrappings, which are not only good for layering, but are just the thing for mixing in the borders to grow the plant in, as it is fond of plenty of grit. The absence of this about the roots is why many fail to grow the *Daphne Cneorum*, and it also likes a little shade—at least, our best plants are at the north-east end of a span-roofed house, where two on each side of the door cover the whole of a raised border and have to be cut back now and then to prevent them spreading on to the walk. The blossoms appear to contain much honey, as they are visited freely by bees.—J. S.

Deutzia scabra.—This *Deutzia* is to be recommended for supplying white flowers in abundance. With a small amount of forcing it comes into flower at this season of the year, just after *Deutzia gracilis* is past its best, and thereby keeps up a succession. Our plants of this variety are flowering well, thus showing that hot weather is conducive to a free display of bloom. After flowering is past, cut off the seed-pods at once and place the plants in a warm, moist atmosphere. Ainery at work suits them well where the light is not too much excluded. The great thing is to encourage the production of long, stout, sucker-like shoots which spring from the base of the plant, and grow as much as 3 feet in one season. The flowers borne on such growths are remarkable for their size and substance. Larger pots than are absolutely necessary to hold the roots need not be used. If any require repotting, when the plants have flowered is a good time to attend to this. The compost should be chiefly of loam, to which add a small portion of partly decomposed manure or ground bones. Pot firmly, encouraging a free growth by daily syringing the plants thoroughly and supplying them liberally with water when needed. This method of treatment should continue until growth is completed, after which the plants should be gradually hardened off and finally placed out of doors in a sunny position. Plunge the pots in ashes, as by this means it is not necessary to give water so frequently. In this position the plants may remain until the early part of October, when they should be housed in cool quarters, and anywhere that frost is excluded will do. From here they may be brought on as wished, starting them at first in a low temperature.—S.

Annuals in the shrubbery.—Where old Evergreens have to be headed back through breakages from snow or other causes, the old stems are apt to look unightly for a considerable time. This may to some

extent be remedied by sowing a few seeds of rapid-growing annual climbers, such as Sweet Peas, tall-growing *Tropæolums*, Canary Creepers, &c., at the base of the stems. These will not injure the trees in the least, but will have a pretty effect, and take off the nakedness until new growth has been made.—E. B. L.

STOVE AND GREENHOUSE.

T. BAINES.

SERICOGRAPHIS GHIESBREGHTIANA.

In this distinct-looking *Acanthad*, also known as *Aphelandra Ghiesbreghtiana*, we have one of the brightest of winter-flowering stove plants. It is a free grower and with fair attention reaches a useful size in one season. The flowers, which are red in colour, are tube-shaped, and produced in racemes at the extremities of the shoots of the current season's growth. It forms a handsome object in the stove during the early winter months, at which time its bright flowers are conspicuous. The habit of growth is much like that of some of the *Justicias*, to which it is nearly allied; in fact, it appears to be one of those plants that botanists seem to have a difficulty in deciding where to place. *Aphelandras*, *Justicias*, *Eranthemums*, *Asystasias*, and *Agalmylas* appear to be so mixed up that it is not easy to know where some of them belong. Yet this does not affect the plant under notice from a cultural point of view. It lasts in good condition for several weeks if not kept too hot whilst it is in bloom. The flowers last fairly well when cut, provided the plant is properly treated during the time they are developing. It requires a moderate amount of heat to induce the blooms to open freely, but, like some other soft-wooded subjects that flower during the dull winter months, it must be kept close to the glass in a fairly light house during the time the flowers are coming on. If this is not attended to they come thin and wanting in the requisite substance to enable them to last well. In most cases it is best to grow a fresh stock on from cuttings each year, for though plants that have flowered once if cut back and grown on a second year with additional pot-room make much larger specimens than one season's plants are capable of, still, for ordinary use, the smaller examples will generally be found the most useful. Where this course is followed the best plan is to discard the plants as soon as they have bloomed, except such as are required to produce cuttings. If after flowering the plants are cut back so as to reduce them to about half their size and are kept in a moderately warm house, they will break into growth, so as to furnish plenty of cuttings in March. These should be taken off when about 3 inches long. Half a dozen may be put together in 5-inch or 6-inch pots filled with sand. Stand them in an ordinary stove temperature, covering them with propagating glasses, or in a striking frame, but do not keep them closer than is found necessary to prevent the leaves becoming limp, for the foliage is naturally soft in texture, and consequently is liable to damp if the plants are kept too confined. Keep the soil moderately moist, and so treated the cuttings will root in about three weeks, after which gradually inure them to the full air of the house. When they are well established move them singly into 3-inch or 4-inch pots.

The plant is not over-particular in the matter of soil, as it will thrive in either peat or loam, but the latter gives a little more substance to the growth. Mix a moderate quantity of rotten manure and some sand with it. As soon as the little plants are potted place them where they will get plenty of light. In the absence of this

the growth will be drawn and weak. When 2 inches or 3 inches of growth have been made pinch out the tops. This *Sericographis* is naturally inclined to become spindling, and to correct this it is necessary to attend to the stopping early, and also to repeat it a second or third time until enough branches are secured. Give the little plants a moderate stove temperature, as if allowed to remain at this stage where there is not enough heat to keep them moving freely the progress made will be slow and the growth wanting in vigour. With enough heat sufficient root and top growth will be made to allow of the plants being moved into 8-inch or 10-inch pots by the end of June. During the summer a low, light pit, where the plants can be stood with their tops close to the glass, will suit them better than if placed in an ordinary stove, where the atmosphere needed by many of the occupants requires to be kept somewhat moister than in the case of soft-wooded, quick-growing things, and more air is required.

After the second shift into pots of the size named, which will be large enough for the plants to bloom in, it will not be necessary to use fire-heat until towards the end of August, unless the weather happens to be cold and unseasonable. By closing the pit early and removing the shading whilst the sun is on the glass enough heat will be shut in to keep the growth moving freely. The syringe should be well used at the time the air is shut off, and as soon as the roots have got well hold of the soil, liquid manure may be given once a week, continuing this until the middle of September, when it may be used less often. During this month give an abundance of air for a few hours in the middle of the day when the weather is warm; this will do much to harden the wood, and prepare it for bearing a full crop of flowers. With a like object, shading may also be dispensed with. As the weather gets cooler more fire-heat must be used, as if the plants get chilled it will affect their blooming; the thermometers should not fall much below 60°. Later on, when the flowers appear, continue as before advised to keep the plants where their tops will be close to the glass. When the flowers begin to open, cease syringing and be careful in giving air.

When the blooming is over, if the cultivator is desirous of growing a few larger specimens, it will be best to cut a sufficient number back. After this the soil must be kept drier and a cool stove temperature will be sufficient during the winter, as it is best not to excite growth more than will be sufficient to induce the plants to break and push their shoots slowly until the beginning of March. At this time they should be turned out of the pots and have the greater part of the old soil shaken away. Put them in pots a size or two smaller than those they have been in. Let the soil be of a similar character to that used the previous year, mixing a liberal quantity of manure with it. The temperature should now be raised 5° day and night. Again give all the light possible, and as soon as the days lengthen increase the temperature. Pinch the points out of any shoots that seem to be taking too much lead of the others; further than this no stopping will be required. About the beginning of June move the plants into 12-inch or 14-inch pots, and tie the branches well out so as to admit of the necessary amount of light reaching the centres. In the absence of this the leaves on the outer shoots will perish. Treat generally through the summer and autumn as recommended for the preceding season, giving enough manure water to sustain the vigour of the plants up to the time of blooming.

When in flower these specimens will be found very effective in a large stove, but will not do in a small structure.

REGAL, SHOW, AND FANCY PELARGONIUMS.

HORTICULTURISTS here have been of late considerably exercised over the question as to what is a regal, a show, and a fancy Pelargonium, and as no satisfactory definition could be arrived at, it was decided at the monthly meeting of the Dunedin Horticultural Society that you should be appealed to on the subject. Would you therefore kindly let us know what is the rule which the English judges follow? A reply would settle the vexed question here, and be much appreciated.

Dunedin, New Zealand. J. C. THOMSON.

* * THE SHOW PELARGONIUMS are the large-flowered florists' types, renowned for the fine form and smoothness as well as the size of their blossoms, and include such varieties as have been raised by Foster, Hoyle, Turner, Brehaut, Matthews, and others. Amethyst, Confessor, Fortitude, Illuminator, Maid of Honour, Ritualist, Royal Review, and The Czar may be mentioned as well-known illustrations. While most of the later raised varieties have robust, free habits of growth, they yet lack generally the profuse development and wealth of bloom now found in what is known as the "decorative" varieties, which include the French, spotted, fringed, and semi-double varieties produced in late years.

THE "REGAL" PELARGONIUMS are the semi-double types, and this term was given to them by an enterprising nurseryman in this country for the purpose of making them sell, and it does not convey the possession of any particular quality. Many years ago the French florists sent to this country pretty and novel large-flowering Pelargoniums, which, though free of growth and bloom, did not come up to the ideals of quality set up by the English raisers in those days, and they were formed into a section by themselves as French or spotted varieties. When the growth of flowering plants for market became such a great industry, it was found that the florists' types of large-flowered or show Pelargoniums were unsuited to the purpose, lacking to some extent vigour of habit and a free-blooming character, and the growers began to raise new varieties, using the French types as parents; and the French florists, finding there was a demand for plants of this character also raised many new varieties. This section being grown largely for market became known as decorative Pelargoniums. A few of the most popular varieties of this section are Decorator, Digby Grand, Dr. Masters, Duchess of Edinburgh, Gold Mine, Lady Isabel, Maid of Kent, Marie Lemoine, Mrs John Hayes, Rosetta, Triomphe de St. Mandé, and Volonte Nationale alba. The "regal" Pelargoniums are Captain Raikes, Carl Klein, Duchess of Albany, Queen Victoria, and Venus de Milo. Most of these, if not all, have originated as sports from single varieties.

THE FANCY PELARGONIUMS form a distinct class and are, perhaps, more closely allied to some of the more tender Cape species than the large-flowered types. They are of smaller growth, have smaller flowers, and are of a tenderer constitution, requiring to be kept in a warmer and closer atmosphere during winter than the stronger-growing types. The foliage is also more perfumed. They bloom with amazing freedom. They are also known as the "Ladies' Pelargoniums." A few varieties illustrating this section are Ambassadors, East Lynn, Lady Carington, Mrs. Beck, Princess Teck, and The Shah.

R. D.

Cassiope tetragona.—This little plant is nearly allied to the Heaths, which in general character it a good deal resembles. It forms a close, compact tuft, which even during the sharp frosts and cutting winds of winter retains its freshness, and presents a mass of bright green foliage at that season. The leaves are closely packed on the stem in four rows, thus suggesting the specific name of tetragona. The small drooping, bell-shaped flowers are solitary, but are produced fairly freely, and being pure white in colour they stand out very conspicuously against

the dark green of the foliage. Such a diminutive shrub as this is more suited for a cool, shaded nook in the rockwork than for any other position, and given moist, peaty soil it will then do well. There are two other species—*C. hypnoides* and *C. fastigiata*—both beautiful little plants, but more particular in their requirements than *C. tetragona*. This last is often known under the name of *Andromeda tetragona*.—H. P.

BALSAMS.

WELL-GROWN Balsams are very useful for the decoration of the conservatory during the months of August and September. Those who require them at that time should sow the seed early in May, and after the seedlings are established in 3-inch pots they should be grown without artificial heat altogether. The seed-pan may be placed on a gentle bottom heat in a Cucumber or Melon bed, if available, just to start the plants, but after they have been potted off and the roots got well hold of the soil, a brick pit which is kept rather close and where the plants can be placed close to the light is the best place for them. In such a position the growth is short-jointed. Once the plants become drawn up and the side branches unduly long, no care afterwards can convert them into well-shaped specimens. In the management of Balsams it is very important to prevent the roots from becoming pot-bound in the early stages of growth. They require shifting into larger pots as soon as the roots have fairly well covered the bottom of the one they occupy, but at the same time it is not advisable to give very small shifts—two are sufficient, and the first should be into pots 6 inches in diameter, and the next and last into others 2 inches larger. Careful cultivators can grow very good specimens in 8-inch pots, but to do so requires care and attention and a rich, holding soil. An elaborate mixture of various ingredients is not necessary. A good fibrous loam three parts and one part rotten manure and a fair proportion of grit will suffice.

With regard to watering, Balsams require rather liberal supplies. They are rather gross feeders and make much stronger growth if they are well supplied with liquid manure than when they do not receive such assistance. But the inexperienced reader must be careful how he uses any of the artificial manures, or many of the largest leaves will fall from the plants. Balsams are such succulent subjects, that they will not bear forcing manures. Well-furnished and handsome specimens of Balsams cannot be grown unless they have plenty of air and are at the same time lightly shaded from very bright sun. Some cultivators advise that the flower-buds should be picked off the centre stem, but if the plants are not drawn up in a close house or frame it is not necessary to do so. J. C. C.

Erica profusa and others.—This variety is now blooming freely in the nurseries of Mr. James, of Norwood. It is one of the tricolor section, having its tubes much swollen at the base; these are bright crimson, passing upwards into rosy carmine, the limb white. *E. effusa* is another handsome kind flowering here, tubes crimson-scarlet, the limb soft primrose-yellow. These are some of the last Heaths which were raised in the Messrs. Rollisson's celebrated nursery at Tooting. Other kinds now open here are *Kingstoniensis* and *ventricosa coccinea minor*, whilst the large quantity of specimens which bid fair to display their charms shortly give ample proof of the care bestowed upon them at this establishment.—H.

Greenhouse plants at Forest Hill.—It is quite a pleasure to visit the nurseries of Messrs. Laing on account of the numerous beautiful old greenhouse plants that are to be found there. It has become too much the fashion to ignore them in most gardens, until really at the present time few gardeners can grow them creditably, and fewer know the majority of the fine plants that adorned our houses years ago. This is not the case, however, at Forest Hill, for, notwithstanding the care which is bestowed upon specialities, every plant that is beautiful appears to meet with proper recog-

nition. Towards the end of April the greenhouse was extremely gay, the following being some of the plants flowering: *Chorozema Chandleri*, *Boronia tetrandra* and *megastigma*, *Acacia Drummondii*, *Polygala Dalmasiana*, *Brachysema aurantiaca*, *Genetyllis tulipifera*, *Habrothamnus elegans*, *Erica melanthera*, *tenuifolia*, *gracilis*, and *ventricosa coccinea minor*; numerous plants of *Clivia miniata* in variety; *Clanthus puniceus*, *Spiraeas*, *Rhododendron Countess of Haddington*, and *Azaleas*, amongst which was a fine pure white variety called *virginalis*.—W. H. G.

Caladiums at Forest Hill.—Notwithstanding the affirmation of some of the learned physiologists that all variegation is a disease, an inspection of these plants just now in Mr. Laing's establishment leads one to exclaim, "What a pretty complaint!" Caladiums have now for many years been an exceedingly popular genus of the Arum family, and are now extremely numerous. They are easily managed, and few plants so well repay the care of the cultivator. They require a strong moist heat to develop their beauties and somewhat heavy shading, as in some instances the texture of the leaf is thin, and unless carefully shaded from the sun the glass is apt to burn the foliage, and thus permanently disfigure it. The members of this genus are deciduous, and thus they make way for other plants during the winter months. During the season of rest, however, do not keep the tubers quite dry, as this, I believe, has led to great disappointment amongst amateurs, as it encourages a disease known as dry-rot. It is requisite to keep the tubers unstarted until the present time. Messrs. Laing, however, require theirs earlier and have them now in great beauty, and amongst them are many remarkable and showy varieties.—W. H. G.

A white-flowered Broom (*Cytisus filipes*).—Though this *Cytisus* cannot be grown into dwarf bushes like the yellow-flowered *C. canariensis*, yet it is certainly the most elegant in growth of the whole genus, and one that merits far more attention than is usually bestowed upon it. When in full bloom it is difficult to find a more attractive object than a well-grown specimen of this Broom. In this species the shoots are long and slender, and droop gracefully on all sides, so that, irrespective of flowers, it forms an ornamental specimen. The flowers, which are pure white, and about the size of those of the common Broom, are arranged for a considerable distance along these slender shoots. From its habit of growth this *Cytisus* is seen to very great advantage when grown as a standard, as the long, flexible branches have then plenty of room to develop themselves, and to display their graceful character. To obtain a standard it may be grafted on the Laburnum or common Broom, and besides this, if the leading shoot is secured to a stick it will speedily mount upward, when the lower branches may be gradually removed. Besides standard shape, it may be grown into a pyramid by training up the leading shoot and allowing the side branches to grow at will, when they will dispose themselves in a graceful manner. This Broom, which is a native of the Canary Islands, and consequently needs the protection of a greenhouse, can be increased by means of cuttings or grafts, and, besides this, seeds frequently ripen from which young plants can be raised. Plants obtained in this manner make more rapid progress than those from cuttings.—H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

Pelargonium Edward Perkins.—This is a useful Pelargonium for supplying brightly-coloured flowers. The colour is orange-scarlet with a maroon blotch on the upper petals, and the time the flowers last after being cut is quite remarkable. The habit of growth is robust without being too tall, and the plant grows freely.—S.

Tree Pæonies.—Several handsome Tree Pæonies are now in great beauty at Forest Hill. Notable are *Ville de St. Denis*, white flaked at the base of the petals with purplish mauve; *Athlete*, white flushed with mauve and flaked with purple at the base; and *Elizabeth*, a large clear carmine flower. These plants

are grown in pots, and treated thus they produce a wonderful effect in the greenhouse.

Coronilla glauca.—This old-fashioned South European shrub is invaluable for the decoration of the greenhouse or conservatory, for its wealth of beautiful glaucous green foliage renders it at all times a highly ornamental shrub, added to which a succession of its showy yellow blossoms is kept up for months together. It is a plant of easy culture, the principal point to be observed when it is grown under glass being to keep the foliage free from red spider, as this is very liable to attack Coronillas during the summer. A liberal syringing occasionally will serve to maintain them in perfect health. In favoured spots this Coronilla is hardy, and around London it will thrive as a wall shrub, though liable to be injured during exceptional winters. It is easily propagated, as cuttings root without any difficulty in the spring and early summer, and after being potted off they grow away quickly. If the plants are allowed to get too dry at the roots during the summer the foliage is very liable to turn yellow.—T.

Purple Wreath (*Petrea volabilis*).—This is among the most distinct and beautiful of stove-climbing plants, and is a free-growing subject, with deep green leaves rather leathery in texture, and long pendent racemes of peculiar, but very beautiful blossoms. The individual blooms consist of two quite distinct parts, for the calyx is split up into five strap-shaped segments of a mauve colour; while the corolla, which is set just in the centre, is of a deep purple hue. The corolla does not last very long in beauty, and it then drops, leaving the star-shaped calyx, which retains its beauty for a considerable period. This peculiarity is very noticeable when a large plant is in full bloom, for on some of the racemes all the corollas will have dropped, thus leaving what appears to be the star-shaped blossoms, but which are in reality the calyces; while other racemes will be clothed with perfect blossoms. Some will also have both the perfect and partially dropped flowers on one raceme, thus leading the uninitiated to look upon it as producing two kinds of flowers on one plant. This *Petrea* is a native of South America, and was introduced during the first half of the last century, but though so beautiful it is still quite rare. It is not difficult to propagate, as cuttings of the young growing shoots taken during the spring and early summer months strike with moderate freedom.—H. P.

Tremandra verticillata.—This is a plant (for a succession may be kept up for months together) almost always in flower, yet its most attractive stage is when clothed with the first crop of blossom. It is one of the so-called New Holland or hard-wooded plants, and is, indeed, among the easiest to grow of that interesting class. The shoots, which are long and slender, are clothed with small, narrow leaves, and studded thickly with delicately poised drooping blossoms of a reddish violet colour. The extreme light and graceful character of the whole plant is seen to very great advantage when a few specimens are grouped together, as in this way they are much more effective than if dotted singly here and there. The flowers are of but little use in a cut state, as the blooms quickly shrivel when separated from the plant. This *Tremandra* is not difficult to strike from cuttings of the young growing shoots put in during the summer months, but, like all of its class, the operation must be carefully carried out. The young side shoots make the best cuttings—that is, where they have been well exposed to the light, and when prepared for the purpose they must be in-

serted into pots of sandy peat. The pots should be well drained and the soil (which has been sifted fine) pressed down firmly, leaving space for a thin layer of sand on the top. After the cuttings are inserted and a thorough watering given, the whole should be covered with a bell-glass until rooted. In putting in the cuttings overcrowding must be guarded

caution is taken in this respect. Of course they must be protected from the sun until rooted.—H. P.

PRIMULA SIEBOLDI.

THERE is now a number of very interesting and beautiful forms of this *Primula*, but when the flowers are allowed to expand in the open air they are frequently injured by rough winds and heavy rains, so that they are not seen to the same advantage as when under glass and protected from inclement weather. When grown for the embellishment of the greenhouse or conservatory they may be either kept in small pots and grouped together on the stage, or grown in good-sized pans or large pots, thereby forming a mass or clump. The plants may be kept in pots all the year round, and with a little attention will both grow and flower well. In our case they are in rather deep pans, and



The Amoor Valley Yellow-wood (*Cladrastis amurensis*). For description see p. 440.

against, and particular attention should be directed towards the base of the cutting to see that the soil is closed up firmly around it. The temperature of an intermediate house is the most suitable for them until rooted, after which they must by degrees be inured to a more airy structure. The cuttings when put into the pots should not be placed in too close and shaded a spot, nor too far from the glass, as they are liable to damp off unless pre-

after flowering they are removed to a cool sheltered spot out of doors and plunged to the rim in coal ashes. So treated the leaves do not get damaged, and are thus able to carry out their functions until the autumn; whereas, if placed in an exposed spot directly after removal from the greenhouse, the probability is that many would be injured and the plant consequently suffer in health. I find they do best in a compost containing a considerable amount

of well decayed leaf-mould, about equal proportions of this and good loam with a fair proportion of sand being a very suitable mixture. Where they are grown in large clumps and are required to flower in small pots, the best time to divide them is during the winter months when they are quite dormant. At this season the crowns that will flower can even then be readily detected, and they may then be potted singly in small pots, at the same time grouping the weaker ones in pots or pans for another season's growth. These single plants are often very useful for decoration, but where no special reason exists for thus dividing them it is much the better plan to allow them to flower in the pans they have grown in, as they frequently throw up a great profusion of spikes, which are all the stronger for having been allowed to remain undisturbed. T.

WORK IN PLANT HOUSES.

AMARYLLIDS.—The time at which these plants flower depends more or less upon the warmth to which they are subjected. The deciduous sorts can be well grown without any more fire-heat than is used to keep them from being frozen in winter. So treated, they do not bloom until summer, at which time they are often more useful than when brought in during the spring when so many other things bloom. Plants that are thus grown on the cool system and that have been recently potted will now have begun to push up their flower-spikes and leaves. See that the soil is kept in right condition in the matter of moisture, letting them have plenty of light. When grown in this way, a pit in a light position is the best place to keep them in during the summer, as when the flowering is over the plants will make their growth by duly economising the sun's heat in shutting the air off early in the afternoons. Amaryllids are light-loving subjects, and though, owing to defects in the glass or the position of the structure in which they are located, it is sometimes necessary to use shade in bright weather, this should not be too dense. Covering the glass with an old fishing-net will often be found sufficient. Bulbs that were started in heat early in the year will now have done blooming and should be encouraged to make growth. The roots of these earlier potted plants will be moving freely and will bear proportionately more water than such as remained dormant longer. Syringe freely overhead every afternoon, and this is necessary to keep the leaves free from red spider, which insect never should be allowed to establish itself on Amaryllids, not even when the leaves are fully matured, as when present it causes them to die off sooner than they should. This is especially so in the case of varieties that make few offsets. In raising seedlings of these plants care should be taken that the production of seed is confined to varieties that have white centres; the green shade more or less apparent on the base of the inside of the flowers of many otherwise fine sorts detracts much from their appearance.

VALLOTAS.—These are amongst the most effective and useful of late summer-flowering bulbs, and deserve to be grown in quantity in every place where there is enough greenhouse accommodation. They will do well anywhere where they can get enough light. The front of a lateinery near the glass answers well for them, or a pit that has been occupied by other things during winter will afford room for a good stock of bulbs. The plants will now be pushing up their leaves, and where they have not enough room, a shift may be given, simply transferring the specimens without more disturbance of the roots than in removing the drainage to larger pots. Where the intention is to divide large examples, it is necessary to be careful that in separating them the roots are not injured, as if this occurs, the growth that is now moving will be much interfered with. The small offsets which Vallotas produce so freely should annually be removed and put several together in suitable sized pots. With no more attention than giving them air and water they will soon attain strength enough to flower. By this means a larger stock of these plants can be got up sooner than of any other greenhouse bulb that I can call to mind. In the case of specimens either large or medium sized that have filled their

pots and are not now to be moved, manure water should be given at intervals until the growth is approaching completion.

ROSES.—It will depend upon the present strength of the plants whether they will give a succession of flowers. When the stock is full of vigour when started, and is regularly supplied with manure water or with surface dressings of concentrated manure whilst the first bloom is coming on, the growth that is made during that time will be such as to give a successional crop of flowers a few weeks after the first are over. The blooms will be little, if any inferior in either size or quantity to the first, and by like assistance the plants will bloom a third time if required. I think it well to point this out, as new hands in the forcing of Tea Roses do not usually begin to feed their plants early enough after starting them, or keep on giving them enough assistance in this way. Yet by skilful treatment a limited number will give more and finer flowers than are often forthcoming where the stock is more extensive, but has not the strength maintained in the manner named. This, with keeping the foliage free from mildew and insects, are the only reliable courses in order to have a regular supply of fine Tea Roses from the time in autumn when the outside supply ceases until the early summer, when they again come in outdoors. Plants that have been flowering from the commencement of the year, and that do not now give promise of giving much more bloom, should be moved to a cold house or pit, where they can be gradually hardened off so as to prepare them for standing out of doors next month. Attacks of mildew are almost certain to follow the moving of the plants into cooler quarters. Whenever the pest makes its appearance, no time must be lost in dealing with it. Sulphur in some form should at once be applied directly the presence of the enemy is detected. In like manner insects must be destroyed should they appear. The Hybrid Perpetuals, though not so tender in the foliage and less susceptible of injury, should be equally well cared for after they have bloomed, otherwise in place of being in better condition for another year's work they will be worse. The latest batch of plants of the Tea varieties that are intended to furnish the supply for some weeks to come must be closely watched for mildew, as now when the sun is approaching its full power it will be necessary to give more air in order to keep the temperature sufficiently low. Still it is better to allow the heat to rise somewhat higher than one would like rather than let in inside draughts, the injurious effects of which would soon be apparent. Hybrid Perpetuals and others that are being brought on to flower with little or no heat will bear more air being given them, but in their case also cold currents must be avoided by confining the admission of air to the top ventilators, and to the side of the house at which the wind does not come when there happens to be a strong current.

LAGERSTREEMIA, INDICA.—Young specimens of this distinct and handsome plant that were cut in freely some weeks back and have since been kept in a genial growing temperature, will now have started and made sufficient progress in their shoots to admit of their being repotted. When turned out remove as much of the old soil as can be got away without interfering with their roots to an extent that would be likely to check the progress of the shoots. The plant is a free grower and will thrive in either peat or loam, but I should give the preference to the former when it can be had of good quality. When loam is used it ought to contain plenty of fibrous matter, and a moderate amount of sand should be added and some rotten manure. The plant is a free grower and requires much the same treatment as a Fuchsia, so far as warmth and atmospheric moisture are concerned during the growing season. The shoots should not be stopped, except in the case of young examples that require attention in this matter, so as to induce the formation of bushy heads. Syringe overhead each afternoon at the time of closing the house, which should be done early enough to shut in sun heat. A little shade will most likely be necessary in very bright

weather, but with this the form and the position of the house in which the plants are grown have much to do. In the case of large specimens it will be an advantage to use manure water after the roots have got well hold of the soil.

PARLOUR PALM (Aspidistra lurida).—Amongst the various plants that are grown for the effective appearance of their leaves, the Aspidistras are deserving of special attention. The green form will bear keeping without injury for a long time after its season's growth is finished in places where there is not enough light to enable many things to exist. The variegated form of the plant is most prized. Spring is the best time for potting, and also for dividing any specimens that have got too large, or where there is a necessity for increasing the stock. Propagation is effected by division of the creeping stems. Large examples may be divided into three, four, or smaller pieces, according to the requirements of each individual case and the numbers that are wanted. The plants to be divided must be turned out of the pots and have all the soil removed. It is a good plan to wash the roots clean out, as in this way the fibres can be disentangled with less breakage. Put the pieces in pots proportionate to their size so as to allow for the progress that may be expected during the season. The plants are slow growers, and do not require so much room as some things. Loam with a little leaf-mould and some sand answers well for Aspidistras. Pot moderately firm, and, if possible, keep the atmosphere for a time a little closer than that of an ordinary greenhouse. Let the plants have an abundance of light, and syringe them freely overhead daily during the growing season. T. B.

PACKING PLANTS FOR POSTAL TRANSIT.

A SHORT time since I had some Chrysanthemum cuttings sent me through the post, and it would scarcely be believed that they came in a cardboard box without damp material of any kind to keep them fresh. Under any circumstances it would be an act of folly to send tender cuttings in this way, but it happened that at that time there blew a piercing easterly wind, a fact which ought to have been taken into account by the sender, and who, being in the trade, certainly ought to have known better. Some of the cuttings were blackened by friction, for they were not even packed tightly, and all were more or less withered. A more slovenly way of sending plants through the post I never saw. I should consider myself disgraced if I packed in such a manner for postal transit. In striking contrast was a lot of the same variety that I got from another grower. These had the stems enveloped in wet Moss, and were tightly packed in a tin box. They came out as fresh as when taken off the plants, and, needless to say, have all done well.

It is, however, a fact that many fail to realise the great essentials in packing for the parcels post. These are, of course, solidity, to prevent friction, and sufficient moisture to carry the plants or cuttings through to the end of their journey without loss of succulency. A plant sent by post should come out as fresh as when put in the box, and it will if the packing is sensibly done. When the roots of tender things are enveloped in dry Cocoa fibre or cotton wool, the condition in which the plants come to hand need occasion no surprise. I have received plants packed in both these ways, and the roots were so much shrivelled as to lower their value. Once, too, a hardy plant came to hand with the roots simply enveloped in brown paper, and a plant must be hardy to survive such treatment. It is just as easy to pack well as negligently, and I venture to assert that although at certain seasons of the year I send away a dozen or more lots of plants and cuttings daily through the post, none of them came into the purchaser's

hands in an enfeebled condition. I am quite at ease on this point, because I never have a complaint, and have, therefore, the best reasons for believing that the packing is properly done. I use all kinds of receptacles—cardboard, wood, and tin, using the more fragile kind for things of a hardier nature, but even tender plants can be sent safely in the common cardboard boxes that are obtainable from the draper. In using these I first well cover the bottom with dry Moss, and on this put a thin layer of quite damp material. Then come the plants, and their roots are well covered with damp Moss, the foliage being tightly bedded in dry Moss, which is stuffed in all round the outside, so that the plants lie enclosed in it. Filled up so that the cover gently presses the Moss, nothing can move, and even if the box gets crushed there is the layer of Moss to ward off the shock. The box is enveloped in paper, tied up, and a tag label put on, bringing it down to the bottom, so that stamping is rendered easy and harmless to the box itself. If such simple precautions are taken, the sender may rest satisfied that the most fragile things will arrive safely. I have sent tender seedlings to Norway thus packed and they arrived in good order. J. C. B.

Byfleet.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL. MAY 8.

THERE was a fair show of flowers, chiefly hardy, at the Drill Hall, Victoria, on Tuesday last, but, unfortunately, few to see it. Daffodils were the main feature, and there were a few Orchids of interest, besides a number of miscellaneous things.

First-class certificates were awarded as follows:—

ANEMONE APENNINA ALBA.—A variety of the Apennine Windflower, one of the loveliest of all alpine plants. It is the exact counterpart of the sky-blue type, except in colour, which is almost white, but with the reverse of the petals suffused with bluish purple. Frail and beautiful flowers as these should be often seen. From Mr. T. S. Ware, Tottenham.

POLEMONIUM CONFERTUM.—A lovely hardy flower is this neat, compact little Jacob's Ladder, and the wonder is such gems as this are so rare in our gardens. It is not a new plant, but cannot long remain scarce, as the growth is distinct, and the flowers, which are of the most charming blue imaginable, are clustered on the end of a stalk about 6 inches high. It is from the Rocky Mountains, and for delicate beauty almost unrivalled. From Mr. T. S. Ware.

NARCISSUS GLORIA MUNDI.—An addition to the incomparabilis section, and one that we welcome, notwithstanding the influx of new forms of late years. It is quite distinct, and has a comparatively broad crinkled-edged chalice of the same rich orange colour as we find in the variety C. J. Backhouse. The segments are of lemon tint, and the whole bloom compact and handsome. From Messrs. Barr and Son, Covent Garden.

NARCISSUS MRS. J. B. CAMM.—We scarcely like the colour of this Daffodil, which belongs to the bicolor group, but admire its boldness of form and the handsome trumpet. The latter is sulphur yellow and the segments almost white. From Messrs. Barr and Son, Covent Garden.

AURICULA HARRY TURNER.—An alpine variety, strong growing, and having a large truss of finely coloured flowers, the paste dense, yellow, and the margin of the bloom rich velvety purple. From Mr. C. Turner, Slough.

AURICULA MRS. HARRY TURNER.—A distinct alpine variety, but not of sufficient self colour to please those who like rich and decided hues. It has almost a white paste, and the rest of the flower is velvety crimson, fading to a much paler colour. From Mr. C. Turner.

AURICULA HETTY DEAN.—This is also an alpine flower, the colour bluish purple and the paste very clear. From Mr. R. Dean, Ealing.

POLYANTHUS JOHN WOODBRIDGE.—Such Polyanthuses as these we can scarcely have too many of, as the growth is robust, and the flowers of a rich self crimson, almost blood colour, which is in bold contrast to the orange-yellow paste. The plant bore a large amount of bloom. From Mr. R. Dean.

AZALEA VERAENEANA.—One of the indica varieties, and apparently a plant of good habit. The flowers are freely produced, and have firm, broad, well-formed petals, the colour white, striped and suffused with shades of scarlet, and spotted with crimson on the upper half. From Mr. C. Turner.

ROSE MME. HOSTI.—A beautiful Tea Rose of a clear soft self yellow colour, and with a fulness of form and strong petals that denote a variety of robust growth. It appears to be of excellent constitution, and has certainly every promise of proving a desirable addition to this charming section. From Messrs. W. Paul and Son, Waltham Cross.

ODONTOGLOSSUM PESCATOREI (Poë's variety).—Only a small cut raceme of this was shown, but quite sufficient to tell us that we have here an exceptionally handsome form, valuable as much for its excellent outline and firm sepals and petals as for its rich spottings of the deepest purple-crimson possible. Each sepal has two or three blotches which vary considerably in size, and around these there is a suffusion of the same tint that gives the bloom a charming stained appearance; the lip is white and the crest yellow. From Mr. J. T. Poë, Riverston.

PHILLYREA DECORA VILMORINIANA.—This is apparently a most useful shrub, and is said to be suitable for smoky districts; therefore we may regard it as a thoroughly hardy plant, adapted for both town and country gardens. It is of dense growth, the leaves leathery, narrow, and rich green, amongst which are clustered the small, almost white Laurus-tinus-scented flowers. A large bushy specimen in bloom was shown by Messrs. Paul and Son, of Cheshunt.

ORCHIDS were not numerous, but what there were comprised choice things. A group came from Mr. B. S. Williams, Upper Holloway, for which a silver medal was given. There were in it good specimens of several kinds of Cypripediums, including the richly coloured C. Boxalli and a form known as aureum, which has larger flowers than the type and with more yellow in them. C. grande, one of the Selenipedium group, was represented by an excellent plant, bearing several of the long-tailed, cheerfully coloured flowers. Also included were a small-flowered rich pink Amaryllis named Mrs. R. H. Measures, and Clivia Ambrose Verschaffelt, carrying immense umbels of rich red flowers. An exceedingly good variety of Odontoglossum cirrhosum (Trentham variety) was shown by Mr. P. Blair, Trentham Gardens, Stoke-on-Trent. The sepals and petals were broader than usually seen, and boldly blotched with chocolate-brown; the crest yellow. Cattleya Lawrenceana delicata, exhibited by Mr. H. J. Buchan, Wilton House, Southampton, bears a flower of about the same size as that of the type, but of a charming almost self delicate lilac tint; it is well named delicata. A plant of Odontoglossum Marriotianum from Mr. Cummins, gardener to Mr. A. H. Smea, The Grange, Wallington, had two large spikes carrying numerous flowers, pale yellow, with brown blotches. It was interesting by reason of the plant having been grown in the open air through last summer, thus showing the advantages of the cool treatment of, at any rate, this class of Orchids. From the same exhibitor also came O. crinitum sapphiratum, a small-flowered form, pretty, but not showy. Captain Maxwell, Terregles, Dumfries, sent O. Andersonianum lobatum, which bore a good raceme of flowers, the petals being creamy white, blotched with chestnut brown, whilst the crest is lemon-yellow in colour; it is a bright and beautiful variety. O. Ruckerianum and Oncidium curtum Gardnerianum were shown by Mr. B. D. Knox,

Portman Square; the first is well known to orchidists, and the other has a branching spike of deep yellow flowers, which have an irregular ring of brown at the base of the lip; the sepals and petals are coloured in a similar way, but there is more brown. A well-flowered plant of Dendrobium densiflorum, valuable for its brilliant shades of yellow, was contributed by Mr. G. Le Doux, East Moulsey. Mr. R. Johnson, gardener to Mr. T. Statter, Whitefield, Manchester, had a well marked variety of Odontoglossum Andersonianum, the flowers white with bars of brown.

A considerable variety of Roses was exhibited, but the flowers were naturally not so fine and fresh as we see them in June or July. Mr. J. Walker, Thame, Oxon, exhibited a box of magnificent blooms of the Maréchal Niel, perfect in colour, large, full, and fresh. This Rose seems to be especially well grown at Thame. There was also a box of the lovely Niphetos; the flowers were faultless, having all the charms of this beautiful white variety. A silver medal was given. Mr. Henry Bennett, of Shepperton, had a box of flowers of that delightful Tea Rose, Princess Beatrice, which, as exhibited, has a petal of excellent substance and a full centre of soft delicate rose-salmon tint, fading to creamy white; two bunches of the miniature Polyantha Rose Little Dot were shown with it; it is a fancy Rose, but too small apparently to be of much use. From the same exhibitor also came three boxes of Lady Mary Fitzwilliam variety, which as seen now has not that lovely rich pink colour characteristic of flowers from the open air. Mr. W. Rumsey, Waltham Cross, had several boxes of Roses, including such varieties as Marie Van Houtte, Comtesse Nadaillac, Souvenir d'Elise Vardon, and others of the Polyantha section. We also noticed Madame de Watteville, and although the flowers were small, the colours were fresh, brilliant and decided, such as to make us wish that we had more Roses of the exquisite form and tints of this variety. In each of the above cases a silver medal was given. Messrs. Wm. Paul and Son, of Waltham Cross, showed, besides the variety noted above, two others, one being named Mme. Georges Bruant. It is a hybrid of Rosa rugosa, having the same abundant fresh green leafage so marked a feature in that type; the flowers were pure white and semi-double. The other variety was Gloire de Margottin, a Hybrid Perpetual of the richest self crimson, and with a powerful fragrance like that of the old Cabbage Rose. It seems, however, that with the modern raiser the exquisite quality of fragrance in Roses is not so highly esteemed as one might suppose. A fairy Rose, named Red Pet, conspicuous for the rich crimson colour of the medium semi-double flowers, was shown by Messrs. Paul and Son, of Cheshunt, who also had the Lady Alice variety.

DAFFODILS are amongst the flowers of the season and were, therefore, in full force. Messrs. Barr and Son, of Covent Garden, were awarded a silver-gilt medal for their excellent display, which also included Crown Imperials, Ornithogalum nutans, of which a coloured plate was given in THE GARDEN for November 5, 1887, Fritillaries, and the scarlet-flowered Gladiolus Watsonianus. Mr. T. S. Ware, of Tottenham, also had a large array of Daffodils, and such sweet things as the deep blue Gentiana verna, the white Fritillary, the scarlet Tulipa Greigi, Primula Sieboldi in numerous varieties, and several forms of the Poet's Narcissi, N. poeticus. A silver-gilt medal was given.

There were several miscellaneous exhibits. Mr. Thompson, Tavern Street, Ipswich, showed a seedling Primula of a very rich purple-crimson colour, and wonderfully free; and Mignonette Smith's Defiance came from Mr. C. Smith, Brighton, the plant compact and full of fragrant, slender-spiked flowers. Deutzia Pride of Rochester, an American variety, was shown by Messrs. G. Bunyard, Maidstone. It seemed much the same as the double crenata, but whiter. Varieties of Gentiana acaulis, from Mr. G. F. Wilson, Weybridge, were interesting. The flowers had been gathered in Switzerland, and a note appears respecting them in last week's GARDEN. Messrs. J. Veitch and Son, Chelsea, exhibited Olearia Gunni, a Tasmanian plant, very much like a dwarf

Michaelmas Daisy; the plant was studded with white star-like flowers. Mr. J. Knight, of The Oaks, Epsom, had Carnation Mrs. G. F. Wilson, a pure white variety, but the flowers were past their best. A brightly coloured salmon-red variety named Rob Roy came from the same exhibitor. A well-flowered specimen of the white Rhododendron exoniensis was shown by Messrs. Paul and Son, of Cheshunt, who also had Tree Pæonies of lovely colours, especially the brilliant rich pink Elizabeth, a variety of immense size. Mr. C. Turner, of Slough, showed alpine Auriculas of several sorts. But we are not pleased with the alpine Auriculas as now exhibited. Where are those rich selfs of the finest possible colours which used to charm us? A more washy hue is now being substituted and the development of the lacing is further spoiling this lovely fragrant flower. Mr. Turner also had Azalea Dominique Vervaeke, a fine rich crimson variety. Amaryllis blooms from Messrs. Kelway and Sons, Langport, were bright, and a scarlet Carnation of the Souvenir de la Malmaison type promises well.

A delightful exhibit was the box of cut blooms of Magnolia conspicua, from Mr. J. Hudson, Gunnersbury House Gardens, Acton. The flowers are white, fragrant, and chaste, a large tree when in full bloom resembling a mound of snow. They were gathered from a specimen 35 feet high, and owing to the lateness of the spring N. conspicua has bloomed remarkably well this year, as the flowers have not been touched by harsh winds or frost, and have expanded in warm sunshine. Messrs. H. Cannell and Sons, Swanley, showed Calceolaria Souvenir, a yellow self, and the large blue-flowered variety of Myosotis dissitiflora came from Mr. J. H. Virgo, near Clevedon. A coloured plate of this beautiful flower is given in THE GARDEN for October 24, 1885. Mr. R. Dean, of Bedford, exhibited Bedford Yellow Wallflower, a very richly coloured variety, and Primula Sieboldi Snowflake, pure white.

Mr. F. Ross, gardener to Sir G. Macleay, Bletchingley, sent a cut spike of the brilliant Cantua dependens, of which a coloured plate was given in THE GARDEN for September 12, 1885, and a spray of Callistemon salignus, which has Metrosideros-like flowers of a straw colour. Professor M. Foster, Shelford, Cambridge, had several Irises of considerable interest, one of the iberica type. The standards were of delicate colour, and the falls mottled with a purplish tint.

Fruit committee.—Seedling Rhubarbs came from Mr. T. Laxton, Bedford, and Asparagus from Mr. W. Palmer, gardener to Mr. W. F. Hume Dick, Thames Ditton; it was very good for the season. Some clusters of Lady Downe's Grape were sent by Mr. H. Gibbs, Aldenham House, Elstree, also a dish of the President Strawberry and a good specimen of the Telegraph Cucumber.

Narcissus committee.—A meeting of the Narcissus committee was held in the Drill Hall on Tuesday, when a number of specimens from different sources were considered and reported on. The following varieties were registered: Incomparabilis Queen Bess, which is somewhat similar to Princess Mary in form, but with pure yellow crown, and probably the first to bloom of this section, in some gardens being always in advance of what is known as Stella; Maurice Vilmoren, and a variety of Burbidge named Pet.—C. R. SCRASE-DICKINS, Hon. Sec.

The root trade.—Due chiefly, no doubt, to the drought of last year, there seems to have been unusual liveliness in the trade in common hardy plants during the present spring season. That in myriads of cases the long-continued drought made a clean sweep of Daisies, Pansies, Polyantheses, and many similar things in town gardens, there can be no doubt. The growers had need of a good season now, for only at great cost did they succeed in pulling their stuff through the previous summer by watering persistently. Very probably the same cause has made plants scarce with growers on dry soils or where water was not accessible. The cheaper roots are those most in request, those which sell at from 4d. to 6d. per dozen. Pansies are blooming so much later than usual that the hawkers have had to take

many plants on trust, but they prefer one or two good flowers to be open. Double Daisies seem less affected by weather, as they are so very hardy. The "Jack" trade, so called, which means the sale of single Carnations for disposal to the public as good double named varieties, seems to be as brisk as ever, orders coming in from all parts of the country. The inference is that the public rather like to be cheated, for the deception practised is made evident the moment the plants flower. Not one ever comes double. Good double Pinks, such as Mrs. Sinkins, Anne Boleyn, &c., sell cheaply, so also do very good double Hollyhocks; in fact, plants of excellent character sell for prices which would ruin any ordinary nurseryman. The work of propagation either by division or from seed goes on incessantly, and stocks may be counted by hundreds of thousands, as, for instance, 50,000 Pansies alone in some eight or ten kinds can be found in one grower's field. Cottagers seem to make excellent profit by cultivating a few rods of some hardy plants for spring sale.—A. D.

GARDENERS AND THEIR AILMENTS.

THIS may seem rather a singular subject to find a place in THE GARDEN, but I imagine there is hardly a single member of our trade, whether young or old, who has not at some time suffered from one or another of the many ailments to which we are particularly liable. In touching upon a few simple remedies for these little ailments I may say they have proved efficacious in my own case and in many others where they have been tried. I must waive any attempt to prove why or wherefore they have proved effectual, as they are simply put forward because the ailments they benefit are often the cause of considerable pecuniary loss and much inconvenience, loss to the young gardener not perhaps in a position to bear it, and inconvenience to the head gardener from the loss of service at a critical time. The common cold (from which so many ailments spring) has usually a firm hold of some member of the garden staff; indeed, during the spring and autumn months it is invariably present. It is not generally known that spirits of camphor is a sure remedy for this if taken when the cold is first noticed; sufficient should be dropped on a piece of loaf sugar to thoroughly saturate it, and this taken at bed-time; in the majority of cases very little more of the cold will be noticed. When the throat is delicate, a soreness generally accompanies a cold, and no better remedy can be found for this than cloves. Put two or three in the mouth immediately the throat is affected, and renew the dose until the soreness has disappeared. When the cold is accompanied by a cough the latter may generally be mastered with the aid of Horehound. Boil a handful of this in a quart of water until the mixture is reduced to a pint; a small quantity of this sweetened with honey will generally effect a cure. I can offer no satisfactory cure for toothache, except the extraction of the offender; but where face-ache, commonly so-called, takes the form of aggravating gum-boils, these can be got rid of by small pieces of bread-crust soaked in hot milk; if persevered with, these tiny poultices will break the boils and heal the mouth.

Rheumatism is a common and cruel complaint amongst the gardening fraternity, and if it once gets the upper hand, is generally more or less a constant worry. I would caution the young gardener to avoid as much as possible frequent colds, wet feet, and damp clothes which are one and all first causes of this complaint. The headache, loss of appetite, &c., that often accompany a spell of very hot weather, may also be cured, as in the case of the cough, by a visit to the herb garden. Camomile is the friend in question; it should be prepared in the manner recommended for Horehound, and a small quantity, say a wineglassful, taken in the morning. It is a mistake to take too much, the extra quantity of fluid seeming to counteract the effect of the herb. Indigestion is another evil rather prevalent amongst gardeners, and one not easily shaken off. Where steps are not taken to find a remedy by removing the cause, it is apt to become chronic, and, with the many evils that follow in its train, is a source of

considerable discomfort. It is often one of the results of bothy life, the outcome of hurried, imperfectly digested meals and badly-cooked food. Medicine is not of much use in such a case; indeed, it is sometimes almost an aggravation of the evil, the real remedy lying in a carefully arranged diet persisted in for a considerable time. For breakfast there is nothing better than that much-abused, but capital dish, oatmeal porridge thoroughly well cooked. There are now many preparations of oatmeal that do not require much cooking; but where the ordinary coarse meal is used it is better to partially cook it over-night. For dinner, instead of the usual bothy meal, i.e., a hot joint on Sunday and cold meat the remainder of the week, let a chop or small steak be placed in a small saucepan at breakfast time, with just enough water to cover it, and a little rice or sago added. Let this stand by the side of the fire (far enough to keep it from reaching the boiling point), and, with the addition of some well-cooked vegetables, it will make an appetising and digestible meal. The thorough cooking of vegetables should be made a special feature. They must be boiled until quite soft, or the victim to dyspepsia should not touch them. If I add that the bread eaten with every meal should be stale and slightly toasted, I have named a diet for the day which, if adhered to, will do more to cure even a bad attack of indigestion than the contents of a chemist's shop. E. B.

****** We give so much space to the subject, though it is rather out of our way. The simple round of the gardener's life should not be conducive to illness if he follows natural lines. New and most advanced ideas as to health do not believe in medicine at all, but in removing the causes of illness by exercise, perfect temperance, complete rest and simple life. Cold and alternations are only a minor cause of rheumatism, too much meat and the use of beer and cider being very much more potent causes.—ED.

A late spring.—The fact that the Laurustinus in a position well sheltered from easterly and northerly winds has not one expanded blossom shows what the winter and early spring have been. Quick hedges are only beginning to leaf; early planted Potatoes are not yet through the ground; the Lilac is only just showing colour, and only on warm borders are the flower trusses of Strawberries pushing up. One effect of this continuance of dull skies and a low temperature has been to prolong the blooming time of many plants. Old stools of Primroses are a sheet of colour, and how beautiful just now are the golden-laced Polyantheses! They do not like hot sun, and their perfect lacing and bright harmonious tints are only brought fully out in a cool season. To Anemones the winter proved a friend, for it kept them in a state of rest which they do not often enjoy. Now their pent-up energies give us such a fine show as I have seldom witnessed.—J. C. B.

Insects destroying Peas.—I send you some specimens of insects that are destroying my early Peas. I should be glad to know the best means of preventing them from doing further destruction. Upon examining the rows the insects are found in hundreds, having eaten the inside of the Pea completely out.—W. KING.

****** In reply to the above, the creatures destroying your Peas are snake millipedes (Iulus guttatus); they are very destructive and difficult to get rid of. As insecticides have little effect on them, try watering with liquid manure (nitrate of potash or guano); it will be disagreeable to the millipedes and help the plants. When the crop is off give a heavy dressing of gaslime.—G. S. S.

Fungi (R. O. B., Hereford).—The fungi belong to the edible Morel (Morchella esculenta). They are nothing like the Truffle to which you compare them. The latter is a subterranean fungus, black in colour, and pretty frequent in your district. —In card-board box.—The name of the fungus is Peziza lanuginosa, a rare, very curious and (when well grown) magnificent species. It is at first quite subterranean in growth and usually grows amongst Cedars and Larch in showery weather in spring.

Names of plants.—R. A.—1, Amelanchier canadensis var. Botryapium; 2, Cistus incanus. —Bucks.—1, Megasea crassifolia; 2, the Cinnamon Plant; 3, Pulmonaria officinalis; 4, not recognised. —P. A. Beck.—1, Narcissus Ledsi var.; 2, Anemone apennina; 3, double form of Anemone nemorosa. —Omaga.—Flower smashed.

Names of fruit.—G. M. F.—Pear Catillac.

WOODS & FORESTS.

PRUNING.

SOUND criticism is useful and desirable for the reason that it is often the means of throwing additional light on the subject criticised, but when the critic fails to furnish any further information on the point at issue, it is no criticism at all. Such is the substance of an article which I see in *THE GARDEN*, April 14 (p. 352), by Mr. D. J. Yeo, headed "Pruning Forest Trees"; whereas it should have been "The Mutilation of Hedgerow and Field Trees." In compiling the article, he uses my name in connection with the pernicious practice of cutting off large limbs and branches with a "saw and axe." I certainly do advocate the pruning of forest trees upon well-defined rational principles as practised by all experienced foresters of any standing, such as cutting off rival leaders, cutting back strong, unwieldy side branches where they occur, in order to preserve a proper balance of the top and lessen the risk of fracture by wind, and the removal of snaggy stumps and dead branches from the trunk in order to prevent the formation of a black knot in the timber. None can deplore the reckless mutilation of trees more than I do, and I can assure Mr. Yeo that it is unnecessary to go to Wilts to see the evils arising from such a careless, ignorant practice, as I can see by far too much of it at home in every-day life.

Mr. Yeo confounds pruning trees and the mutilation of trees as meaning one and the same thing; whereas they are quite different. Trees are pruned in the early stages of their growth when found necessary, in order to promote the formation of timber in the trunk, and to prevent them from wasting their substance supporting a plurality of leaders, and thus forming a mere bush at the top. On the other hand, trees are mutilated and disfigured by cutting off large limbs and branches, thus leaving a large surface wound that never heals, contracts rot, and hastens the decay of the tree, so that, while pruning is beneficial, mutilation is destructive. I therefore trust that Mr. Yeo will take note of the wide distinction thus specified, as confusion only begets confusion, settles nothing, and leaves the point at issue enveloped in mystery. The writer wanders away from the text by explaining what makes a perfect tree in the landscape. He says:—

Trees, when allowed to grow on naturally throw out a certain number of large branches; from these again smaller ones spring, and from these again the smaller twigs, the outcome being a perfect tree in the landscape, and also one which can in working up for use be dealt with with complete confidence.

Such may be a perfect tree or a perfect bush in the landscape, but certainly it is not a perfect timber tree. We are not discussing the merits of bush trees for the lawn, but the utility of pruning forest trees in the early stages of their growth, in order to direct the energy of the trees as far as possible to the formation of wood in the main stem. Surely he does not mean to imply that in working up these branches they can be turned to the same account as timber trees that had been kept to one stem by the removal of double leaders as soon as they appeared at the top. In working up bushy trees I have always found that a great deal of the timber consisted of crooked bends and knotty ramifications, suitable for firewood, and worth about 5s. per ton, while trees of the same age, same species, and that consisted of one stem I have sold at prices ranging from 20s. to 30s. per ton.

No doubt there are pieces of useful timber

that can be selected from the former class of trees, but as they are of all shapes and sizes, they never realise anything like the price to be obtained for straight, clean, well-grown stuff. Further on the writer defines a pruned tree thus:—

The picture of a tree which has been pruned . . . will be altogether different. In this case the axe and the saw have been carefully kept employed; every appearance of a side branch has been the sign for renewed industry. After years of this work a beautiful symmetrical tree is obtained, but at what cost? Simply that of taking at least 25 per cent. off the value of the timber, as the whole stem is so full of knots, that it is impossible to tell where they are or where they are not, which means that the wood can only be used for the commonest purposes. I cannot understand where all these knots came from. First we are told that every appearance of a side branch has been the sign for renewed industry with the saw and axe for its removal; consequently, it was not allowed time to form a knot of any size in the timber, or, at any rate, not to such a serious extent as to render the timber unsuitable for any use but that of the commonest purposes. Again, we are told that after years of this work a beautiful symmetrical tree is obtained, &c. The treatment here described is so opposed to sound practice and the recognised principles of vegetable physiology, that I am surprised the plant ever attained the size of a timber tree at all. Everyone knows that a tree cannot be denuded of its leaves and branches year after year with impunity.

J. B. WEBSTER.

The Beech as undergrowth—Professor H. M. Ward gives in *Nature* the following account of an experiment conducted by Professor Hartig: "There is a plantation of Larches at Freising, near Munich, with young Beeches growing under the shade of the Larches. The latter are seventy years old, and are excellent trees in every way. About twenty years ago these Larches were deteriorating seriously, and were subsequently under-planted with Beech, as foresters say—*i.e.*, Beech plants were introduced under the shade of the Larches. The recovery of the latter is remarkable, and dates from the period when the under-planting was made. The explanation is based on the observation that the fallen Beech leaves keep the soil covered, and protect it from being warmed too early in the spring by the heat of the sun's rays. This delays the spring growth of the Larches; their cambium is not awakened into renewed activity until three weeks or a month later than was previously the case, and hence they are not severely tried by the spring frosts, and the cambium is vigorously and continuously active from the first. But this is not all. The timber is much improved; the annual rings contain a smaller proportion of soft, light spring wood, and more of the desirable summer and autumn wood consisting of closely-packed, thick-walled elements. The explanation of this is that the spring growth is delayed until the weather and soil are warmer, and the young leaves in full activity; whence the cambium is better nourished from the first, and forms better tracheides throughout its whole active period."

SHORT NOTES.—WOODS AND FORESTS.

Wood for telegraph poles.—In answer to "Arboriculture" in *THE GARDEN*, April 7 (p. 328), the kind of timber generally used for telegraph poles is Larch, which is grown principally on large estates in Great Britain.—J. B. W.

In *THE GARDEN*, April 28 (p. 400), E. J. Roberts wants information regarding Pines suitable for a cold, bleak place in Lancashire. If he would name the soil, sub-soil, surface herbage, and whether he intends to plant for ornament or utility and profit, I might then be able to advise as to the species of trees and distance apart at which they should be planted.—J. B. W.

Grass for gravelly rides.—In repairing bridle paths and rides I have found it a good plan to sow loose gravelly places with natural Grasses, the matted, deep penetrating roots of which assist to bind the gravel. For this purpose the following Grasses are very suitable, *viz.*, Lyme or Sand Grass (*Elymus arenarius*) and

Sea Mat-weed (*Ammophila arundinacea*), mixed in equal proportions.—J. W.

The Redwood for underwood.—I can strongly recommend the Sequoia (*Taxodium sempervirens*) for planting as underwood where it would not succeed as a tree. There is no other Evergreen that is so fertile as regards suckers when planted as a bush; the shoots, too, are very tough, and could be turned to profitable account in various ways.—C. W.

PLANTS FOR RAILWAY HEDGES.

In many districts of England railway hedges seem to receive much greater attention than many of those planted for the intersectional fencing of land. The plant generally employed for railway fences is the White Thorn, and a useful plant it is for such purposes, and now contracted for as regularly as the rails themselves. On some of the newly formed lines the varieties of evergreen Hollies ought to be tried, particularly on those portions of a line running through extensive and well-kept properties in sight of the mansion. In some cases the proprietors may be induced to pay the extra difference of the plants, while the after-keeping will be much the same as that required for the ordinary Thorn hedge. In all peaty districts the Spruce Fir will make an excellent evergreen fence. It will cover more ground than the Holly; but in mossy situations this extra land will be found of less value. In sandy places, and particularly those near the seashore, the Sea Buckthorn (*Hippophaë rhamnoides*) will be found an admirable substitute for Thorns to form hedges. If it should ever be required to make at once an impenetrable live fence, the Hornbeam (*Carpinus Betulus*) will be found the most suitable, and for this purpose clean-growing sapling plants, 6 feet or 7 feet in length, ought to be procured. After the ground has been properly trenched and prepared, the plants should be put in, two together, at every 10 inches or 12 inches, according to the thickness or length of the saplings employed, giving one an inclination to the right and the other to the left. After being trod in firmly, commence to plait all together, taking one set of the plants the one way, and the other set contrary, interlacing them at an angle of 45°. It will be necessary to tie them at top with a piece of wire or rope yarn, and also at several points near the bottom, to keep them in position till they adhere to each other. To facilitate the union, although not absolutely necessary, it will be desirable to take a thin cutting off the bark of several, particularly where they approximate. Shortly afterwards they will grow together, and form an impenetrable net-looking fence. From the pressure caused by the plaiting, they will throw out numerous shoots along the stems, which will continue to work in and fill up the interstices. In time the whole length will become an impenetrable mass, all engrafted together, and will bear cutting-in like any other hedge.

Numerous other plants will be found in nursery establishments suitable for such purposes, as the Hazel, Elm, Ash, Beech, Laburnum, &c. Such hedges can be made of any height, depending entirely on the length of the saplings employed. When not in leaf, they will be found extremely ornamental and agreeable to look on, and therefore worthy of encouragement, particularly when standing on a level with the rails. If it should ever be necessary to plant such hedges in order to render them useful as well as ornamental, particularly on lands slightly elevated above a damp surface, in such places Willows could be profitably employed, and the annual cuttings taken from them would yield a considerable revenue. Besides, when such plaited hedges are cut for profit, they are more likely to be kept in order than Thorn hedges, particularly when they run through lands which would be profitably employed for the growth of Willows. When planting Willows for such purposes they could be inserted either as growing plants or cuttings—the latter will be preferable, provided the strip of ground has been properly prepared for them. They should be placed 12 inches apart, and during the first thinning the strongest shoots should be left for plaiting. After the plaiting has been successfully done, all after-shoots could be removed for basket-making purposes.

M. N.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

FLOWER GARDEN.

HYBRID NARCISSI.

ONE of the oldest of all the hybrid Narcissi is, perhaps, *N. Bernardi*, which varies exceedingly, some of its vagaries having stellate flowers, with red-rimmed chalice like the *N. Burbidgei* forms; while others have more solid and shapely flowers resembling *N. Nelsoni* on the one hand, and *N. incomparabilis* Mary Anderson on the other. The best wild phases of *N. Bernardi* are quite as showy and effective as the best of garden seedlings, and when better known and not over-cultivated in our gardens, *Bernard's* hybrid Narcissus will become a general favourite. It is found here and there in the fields and on the mountain-sides around Luchon; indeed, wherever *N. poeticus* and *N. muticus* (*N. Pseudo-Narcissus*) approach each other. It has always seemed possible to me that *N. Bernardi*—that is to say, this *N. poeticus* × *Pseudo-Narcissus* hybrid long before it was associated with Mr. Bernard's name—was introduced to Italy and to Holland centuries ago, and that it is really the wild parent of the double orange *Phoenix incomparabilis* of to-day. At any rate, the best forms of collected *N. Bernardi* are exactly similar in form and colour and habit of growth to the single form of the orange *Phoenix* now called *Mary Anderson*. Although *N. incomparabilis* is known as a wild plant, yet, as has been well known for the past fifty years or more, it can be raised in gardens in all its forms by hybridising *N. poeticus* and the Daffodil in variety. It may not be generally known that forms of what we now know as *N. Bernardi* were figured by Barrelier and others a couple of centuries or more ago.

A good many years ago Mr. Sabine was on a visit to the Oxford Botanic Garden and there saw a kind of Narcissus quite new to him. This plant was figured some time afterwards by Dr. Lindley in the *Botanical Register*, under the name of *N. Sabinei*, and it is a very distinct and interesting plant. Salisbury made a drawing of the same plant, and from the original pencil note on his sketch now in the British Museum it evidently was a great puzzle to him. Haworth called it *Diomedes major*, his *D. minor* being the plant we now know as *N. Macleayi*. Both are, no doubt, of hybrid origin. The larger, *N. Sabinei*, disappeared from the Oxford garden, and it was for a long time thought to be lost to cultivation. Mr. Barr more recently tried to match *N. Sabinei* with some of the seedlings raised by MM. De Graaff, of Leyden, but eventually new names, such as *N. Backhousei* and *N. tridymus*, were accorded, and the old name of *N. Sabinei* was, as I think in error, allowed to fall to the ground.

There are two Narcissi, however, which resemble *N. Sabinei*, as figured in the *Botanical Register*, in all essential particulars. These are *N. tridymus* S. A. de Graaff and *N. Backhousei* Wm. Wilks, a fine form, introduced from the Channel Islands, I believe, by Messrs. Collins and Gabriel, and by them first sent out under the name of Henry Collins. This last-named plant, if not the identical *N. Sabinei* of Lindley,

is practically so near to it that there was no necessity to coin a new name for what, I fancy, is a by no means new plant. I wish Messrs. Collins and Gabriel would give us the history of the plant, and of its introduction as known to them. It seems to me somewhat ridiculous to separate the *N. tridymus*, *Backhousei*, *Nelsoni*, and *Macleayi* groups of varieties under different specific names, and I believe Mr. Baker has reduced these names in his latest arrangement of the family.

One of the most remarkable groups of natural hybrids is that of which *N. Johnstoni* may be taken as the type, and which presumably come from *N. Pseudo-Narcissus* crossed with *N. triandrus*. *N. Johnstoni* has its stamens in one series, but inserted nearly mid-way in the tube; but some of its allies of the same or similar origin have their stamens inserted in two series, as in *Narcissus* proper. Mr. Buxton's hybrid, *N. juncifolius* × *N. Pseudo-Narcissus*, is another distinct thing, bearing three or four flowers on a slender scape. Its flowers remind one of those of *N. odoratus* var. *minor*, but the chalice is straight-sided or cylindrical, and not bell-shaped. Its leaves are slender, green, and Rush-like in form and texture. A similar, but larger form, with white perianth and yellow chalice, was figured in 1623, but it is now lost to our collections.

Some of the Portuguese hybrids seem intermediate between *N. Bulbocodium* and *N. triandrus*, a combination which Dean Herbert found and believed to be impossible.

No doubt, as the Daffodil or *Narcissus* habits become explored, we shall find many more proofs of natural hybridism than is even now the case, seeing that these plants, by their heteromorphism, or by their being protandrous in some cases and protogynous in others, are especially fitted for the occasional benefits of cross-fertilisation. F. W. BURBIDGE.

Anemone blanda.—In reply to "R. D." in THE GARDEN, May 5 (p. 402), I beg to state that *A. blanda* is a native of Asia Minor. It was brought to Vienna by the famous scientist-traveller, Kotschy, and was named *blanda* by Schott, then director of the Imperial Gardens at Schoenbrunn. It is distinct from *A. apennina* by a slight difference in the cut of the foliage, which is also clothed by a more or less perceptible down; besides, it flowers at least four or five weeks earlier than *apennina*. What is at present flowering on the rocky at Kew is certainly the latter. A detailed description of *A. blanda* has been published in the "Oesterreichische Botanische Wochenschrift," 1854. I have not my book of botanical terms at hand, but if I remember well, the term *blanda* not only means white, but also pure, and certainly the colours in *A. blanda* are pure, though the original specimen on which Schott based his description was not blue.—MAX LEICHTLIN, *Baden-Baden*.

* * In England in mild winters *A. blanda* is a winter flower; whereas the Apennine *Anemone* is a true and not very early spring flower. The plants are quite distinct.—ED.

Double Daffodils from seed.—"Veronica," in THE GARDEN (p. 431), says, "I distinctly assert that no double Daffodil has been raised from seed in English gardens for the last 200 years." He is greatly mistaken. In the first place, I sowed nearly ten years ago a large quantity of seed saved from the Tenby Daffodil by myself in my own garden. About 100 of these flowered last year, and nearly one-third were double, and hardly distinguishable from the double forms of *Telamonius*. Secondly, Mr. Tyerman, of Penllergare, told me that seedling Daffodils come up by thousands in his garden, and that double Daffodils produce for the most part double seedlings, and single Daffodils single forms. Thirdly, Mr. A. D. Webster sent me three years ago some tiny bulbs which he guaranteed to be seedlings from

double Daffodils. These all flowered this year and all have double flowers. Fourthly, Mr. Engleheart sent me from a Hampshire garden two years ago a large number of seedlings raised where double *Telamonius* and single wild *Pseudo-Narcissus* grow in company. A large number of these have produced double flowers, some of them very distinct in form from either of the parents. I do not often answer anonymous writers, but this statement by "Veronica" is misleading about a matter of fact well known to most growers of Daffodils.—C. WOLLEY DOD, *Edge Hall, Malpas*.

YELLOW CARNATIONS.

I THINK that this next season will witness the flowering of some fine and distinct new yellow Carnations. Raisers have been busy in this direction, and there has been already a great development with yellow ground Carnations. But, as Mr. Dodwell observes in the annual report of the Oxford Carnation and Picotee Union, "what raisers have already done with so much success does not exhaust the supply or even indicate the point at which excellence appears to stand still." Mr. Gyles, of Kilmurry House, Waterford, has raised some promising varieties of the yellow type with markings of various hues and breadths, and such as will doubtless come to the front in the coming summer. Mr. Dodwell grew these last season, and he reports that, high as were his expectations, he found that the flowers more than realised them. "I should say," remarks Mr. Dodwell, "without reservation, they constitute, as a whole, the finest batch of yellow grounds I have yet seen, only that during the past season it had been my good fortune to bloom, from Florence as the seed-bearer, a batch which, I hope, may be thought worthy to be grown with them." What we want is a strain of yellow Carnations of the fine quality of petal one sees in some of the Oxford-raised flakes and bizarres, fragrant, free, and which do not split the calyx. Mr. Dodwell says further, in regard to the yellow seedlings raised by Mr. Gyles, "An important and most interesting feature of these seedlings is their distinct advance towards the longitudinal markings of the Carnation—a feature from which grand results may surely be looked for, notwithstanding the prettiness of the curved markings of the Picotee, every student will, I am sure, agree with me that incomparably more force exists in the longitudinal markings and masculine beauty of the Carnation." I am looking forward to blooming M. Ernest Benary's new yellow self Germania. It is a very robust grower—at least, that is the character of the two plants I have, and it promises to make plenty of "Grass." It should be the parent of a fine race. M. Benary is also offering seed of it, and so we may in 1889 hope to see some of its progeny. I see that Messrs. Hooper and Co. state that Germania is a Tree or perpetual Carnation. I scarcely think this is correct, for two reasons—first, the plant has all the appearance of being a summer bloomer, and the flowers sent by M. Benary were produced in July last; still, it is possible it could be made to bloom during autumn and winter. I have already called attention in THE GARDEN to the fine yellow grounds raised by Mr. James Douglas, and in course of distribution from Slough. These all appear to be excellent growers, and will, I think, give great satisfaction. Will Threlfall, a new yellow self which forms a part of the Slough batch, will no doubt make an excellent parent; also, it is a good grower, judging from the plant I hope to flower next season. R. D.

The Cobweb Houseleek (*Sempervivum arachnoideum*).—The only really good specimen I ever had of this very pretty and distinct alpine grew on an old stump. This being hollowed out a little, some mould was put in and a small specimen planted in it. The stump was merely set on the ground, and in the course of two or three years the *Sempervivum* grew into a mass a foot or more across. All through the year this plant retained its silvery appearance, which I attribute to the perfect drainage keeping the roots in good order during the winter, and it is possible that they found something

congenial in the decaying wood. Unfortunately, in making some alterations, the stump was taken away and got lost, which I much regretted, as it had such a cheerful appearance during the dull months of the year. In its season the Houseleek bloomed very freely, and the pink flowers contrasted well with the white foliage. Even on rockwork I find that this little Houseleek does not always thrive. It may grow very vigorously in the summer, but in winter the greater portion of the leaves drop. I have one in this condition, although I took great care to plant it in very light soil. I shall plant again on an old stump, and hope to get another good specimen.—J. C. B.

The alpine Auricula.—This is amongst our most cherished hardy alpine plants, but it is in danger of becoming absolutely spoiled by the tendency to introduce shadings, lacings, and edges that are perfectly unnatural to the flower. It is a self, and should remain so, unmarred by any infusion of a variety of tints, as is common to the edged Auricula of the florist. This is a type of beauty some admire, and another is the self alpine Auricula; then why try to obtain a kind of hybrid between the two which pleases no one who seeks true colour in a flower? During this season it has been especially noticeable that the rich self colours which delighted us in former times are being thrust out by washy hues and shadings as objectionable as the green tinge in the Amaryllis or the odour in an Allium. My conception of a typical alpine Auricula is a plant with a robust habit of growth, plenty of strong foliage, a sturdy stem, and a truss of bold flowers with a good paste and rich self body colour. But how many out of those shown recently at the exhibitions could pass a critical examination from this point of view? The Rev. F. D. Horner, in a contemporary, recently said: "An exhibitor who ventured in the north with a shaded self would run a grievous risk of making wreck of all his chances." But in a large group of alpine Auriculas I looked carefully through recently, very few varieties could be called self, as almost every flower was either of washy tint or showed lacings or shadings more or less apparent. It seems that the southern florist has a lower standard of excellence and a lower idea of real beauty than the northern man.—A. G.

Hardy flowers—lifting and manuring.—While the lovers of hardy flowers find at all times something to interest them in their collections, this is pre-eminently the time for propagation, dividing, re-making beds or borders, and in some cases for sowing the seeds in pans, boxes, or pots. Indeed, where bottom-heat could not be secured it was not desirable to sow any except very hardy seeds during the recent cold weather. Many who grow hardy annuals—and I regret to include instances in public botanic collections—never get full value for their trouble, inasmuch as the beds or borders are seldom manured and seldom top-dressed with anything nutritious. What value is a mere surface dressing, even if given annually, to large, fleshy, deep-rooted plants such as the various Composites, Lilies, herbaceous Pæonies, double Pyrethrums, Thalictrums, Potentillas, double Geums, Aquilegias, Campanulas, Phloxes, &c.? I was going to add the Japan Anemone, but this must be seldom lifted, and then at the proper time. I lost a fine lot last year by lifting too late, and when the plants had not time to re-establish themselves before cold weather supervened. Who has not seen any of the foregoing in public collections, and elsewhere, with dry, hard, half burned foliage, and the blooms either semi-double or single—mere caricatures of what they are capable of becoming when duly lifted and the beds well dressed with manure and leaf mould or rich compost dug in. In very many cases it is much better to do this now than last autumn, one reason being that if done then a spurt of growth may have commenced, which came to grief during the prolonged wintry weather. For instance, I planted out in September last the varieties of Crinums which do well in a sunny spot in the south of Ireland if protected against frost. They recommenced growth, which of course was killed, but though they are safe they will do no good this year.

The same applies to Belladonna Lilies, which rarely do well until the second year, when they become established. I may also add *Diehytra spectabilis*. The dwarf purple variety I do not so value. However, though no general statement will apply to all hardy perennials, either as to lifting or manuring, the nearest approach to accuracy would probably be to lift and re-make the beds devoted to those to bloom in spring during the autumn months, and for those to bloom late in summer and autumn whenever the weather and other circumstances permit in April and May. Until active growth recommences it is risking valuable plants to disturb them in early spring. Even to this seemingly unquestionable aphorism there are such exceptions, as the hardy alpine Auriculas, fancy Polyantheses, many Saxifrages and Megaseas, the majority of the Campanulas and Phloxes, the Heliantheses, Veronicas and *Enotheras*, which I have lifted often at all seasons quite safely when they have a portion of the soil attached.—W. J. MURPHY, *Clonmel*.

VIOLETS IN POTS.

FOR the information of "Violet" (p. 423), I give my own way of growing Violets in pots, and the results attained are quite satisfactory, as I obtain a number of flowers from the plants from the middle of October until the end of March. I like to grow Violets in pots better than in frames in which they are planted out, for the reason that in our soil, which is stiff, the leaves and flowers are more liable to damp off than where the plants are grown in pots. And where the frames have not the advantage of a hot-water pipe to keep out the frost during very severe weather the plants do not give a succession of bloom, as light has to be excluded from them when the frost lasts several days together. In no instance should the foliage be frozen hard, as the flowers are never of such good quality when the leaves are injured. The advantage of growing them in pots is this: a few plants can be placed in the most suitable positions in the greenhouse—as, for instance, on a shelf close to the glass—without upsetting the arrangements of other things therein. Last season I tried some in boxes such as are used for bedding plants, except that they are a little deeper. For convenience in moving about, they are made in sizes of 2 feet long, 15 inches wide, and 5 inches deep. Boards three-fourths of an inch thick are used, and half-inch spaces are left between the boards at the bottom to allow the water to pass away quickly. We had more bloom and of better quality from the plants in boxes. Less attention was also required in giving water, as the soil does not dry so quickly in boxes as it does in pots, owing to there being a larger body of it. The roots, too, have a wider run in the boxes than they have in the pots, which is an advantage, as proved by the production of flowers in both instances, as both sets of plants were growing under the same conditions as to position, which was on a shelf suspended close to the glass in a Peach house. The details of culture are these: At the present time, divide the plants into single crowns, retaining roots to each, and planting them in rows 1 foot wide and the plants 10 inches apart. In our case an east border is selected, as our soil is stiff, some sifted leaf soil being added to cover the roots with. In hot and dry weather water is given freely, and the soil is kept stirred between the rows and a mulching of decayed leaf soil is added. This keeps the roots cool, so much water is not then needed. The runners or offsets are kept cut off. The early part of September is chosen to lift the roots in, placing them in pots or boxes as necessary. Good loam and leaf soil are used in about equal portions, retaining the latter in as rough a state as possible. Place the plants in a cold frame, keeping it rather close for a few days until they have recovered from the check of lifting. Afterwards an abundance of air should be given, removing the lights entirely, except in wet weather. Remove the plants to their winter quarters about the middle of October, giving air and water freely under favourable circumstances, but not in excess of their requirements, as the foliage is liable to damp off under such conditions.—E. M.

In answer to "Violet" in THE GARDEN, May 5 (p. 423), he should not lose any time in

planting out the desired number of young plants of Marie Louise or any other approved Violet in a north or an east border in rows, singly, 18 inches apart, and at the same distance in the rows, giving water to settle the soil about the roots. This application should be repeated when necessary. After the plants have started well into growth and begin to throw out their runners, five of the strongest and those having the most solid crowns should be selected and the points stopped and kept stopped persistently, all the other runners being cut away, the object in view being to concentrate the sap into those left, which eventually are to form the principal blooming crowns. In the first or second week in September the plants, according to the locality, being early or late and the progress which they have made, should be lifted and potted into 6-inch and 4½-inch pots, using a compost consisting of four parts good friable loam and one part of sweet leaf-mould and pulverised horse-droppings, with a sprinkling of sharp sand added, the pots being efficiently crocked. In potting, the young crowns should be placed regularly round the edge of the pots and the soil pressed firmly together and watered. This done, the pots should be stood a few inches apart on coal ashes near to the glass in a pit or frame having a south aspect and be shaded for a few days from sunshine until the roots have taken to the soil, damping the plants overhead on removing the shading in the afternoon. After the roots have taken well to the soil, the plants should be subjected to the full rays of the sun and a liberal circulation of fresh air on all favourable occasions. An occasional watering of weak liquid manure at the roots will be beneficial to the plants. If the plants are kept in cold frames or pits during the winter and spring months, injury from damp must be guarded against by drawing the sashes off every fine day to get the foliage dry. Swanley White (double) makes a capital companion for Marie Louise.—H. W. WARD.

SHORT NOTES.—FLOWER.

The white Iris stylosa has been written of several times this season. It is a beautiful flower, not quite white, however, and is less robust and compact than the type.

Tulipa elegans is an exceptionally handsome Tulip. The growth is strong and the flower of the richest crimson, while it is larger than that of the showy T. Greigi.

The Balearic Sandwort (*Arenaria balearica*) is showing a profusion of its white star-like flowers. It is a gem for creeping over stones on the rockery.

Saxifraga Rocheliana var. *coriophylla* is blooming freely on a sunny ledge in the rock garden at Kew. It is of mossy growth, and has stems about 3 inches high, each carrying a cluster of white flowers.

Grape Hyacinths have flowered well this season. Muscari botryoides and its white variety are choice kinds, and a few days ago large patches of M. neglectum and armeniacum were blooming freely on the Kew rockery.

Wild gardening may be seen at Kew. A few days ago there were waving masses of the blue Alpine Wind-flower on the mound near the Cumberland Gate. Snowdrops were the first to welcome us, then Primroses and Daffodils, and now Windflowers.

The Grape Hyacinth.—This holds its own well grown among rough Grass, where it escapes the scythe till its foliage has ripened. It is now in full bloom, and the flowers are very attractive, standing well out above the Grass. It is grown on a western aspect under tall Larches.—JOHN C. TALLACK.

The dry summer and bulbs.—All bulbs appear to have benefited by the dry summer last year, and must have been well ripened. Established clumps of Hyacinths have spikes on them which would compare favourably with those from imported bulbs. Crown Imperials are magnificent. In the mixed border they look very stately. Narcissus poeticus has flowers 3 inches across. Daffodils have been very fine; many of them are now (May 10) over.—JOHN C. TALLACK.

A curious Narcissus.—I wish Mr. Wilson would tell us something more about that quaint and curious hybrid (?) Daffodil he exhibited at the last meeting of the Daffodil committee, Royal Horticultural Society. How strange and unusual were the green markings on the petals and curious grey colour of the long spathe! Everyone seemed taken with it, and I was not at all surprised to hear Mr. Poë say that he much wished for a drawing of so quaint and distinct a Narcissus. One would have expected to see Rush-like foliage attached to such a flower. Does Mr. Wilson know anything of its parentage? Likely not, for the note attached said that it had been collected by his son on the Continent.—A. D. WEBSTER.

Crocuses in the Grass.—My experience exactly accords with that of "E." in THE GARDEN, May 5 (p. 401). I find Crocuses planted on Grass succeed admirably and increase rapidly, and they are not attacked by mice. I have a steep slope facing south and south-east with ornamental trees and shrubs planted on it, and between these I have put in Crocuses and Snowdrops. We turn out all the bulbs that have been forced, such as Hyacinths, Tulips, and Narcissi, which make a really splendid show, and are as good the second year as the first, in spite of the forcing. We put them into the ground out of their pots in April, and do not dry them off. The soil is very rich, and from the sunny aspect, no doubt, the bulbs get well ripened in the ground. The Grass on this slope is not cut till the Hyacinth leaves are quite withered. Another great advantage of this plan is that the Grass supports the flowers and shelters them from wind and storms.

—WILLIAM WICKHAM, Alton, Hants.

The Parma Violet.—As "Hortus" in THE GARDEN, May 5 (p. 401), inquires what is the difference between the Parma Violet and Marie Louise, and states that the description given by "E. H. W." would apply equally to either, I write to say that the reason I did not mention the Marie Louise variety was because that excellent sort is so unlike the true Parma form, that it seemed superfluous to do so when stating the great likeness between the Parma and Neapolitan varieties. Marie Louise has dark, almost violet flowers with a reddish brown mark on the central petals which interferes with the effect of its colour in a bunch. Parma has flowers fully two shades paler, and with no reddish stain on the central petals, making an effect of colour much paler than Marie Louise in bunch. Like "Hortus," I think Marie Louise the most satisfactory of frame Violets, but as its colour is not so delicate as that of the Parma, I prefer to grow that variety, which, moreover, is dwarfer than Marie Louise.—E. H. W.

Narcissi at Twickenham.—When looking over Mr. Walker's fine collection of Narcissi, which he grows so well on the deep holding soil in front of Kueller Hall, at Whitton, I inquired whether the drought of the previous season had in any way affected the growth and bloom of the present year, but was informed that no appreciable change was discernible; indeed, Mr. Walker seemed to think that a good roasting had done good rather than harm. I put the question especially because I noted that in THE GARDEN, April 28 (p. 380), it was remarked that the flowers of Narcissus Sir Watkin were generally smaller than usual this year. It may be, that because the soil at Whitton is both so good and so holding that a dry season would not appreciably affect growth, as every care is taken to grow the bulbs well, although there are such large quantities of them. For that reason the bulbs last year were doubtless as good as usual, but on poorer soil the case may have been different; indeed, Mr. Walker's flowers are so fine, that when compared with some produced near, but where the soil is imperfectly cultivated, identical varieties are hardly discernible. Like most other things, Narcissi seem to pay best under good culture, flowers being cut and run into the sheds for bunching literally in vanloads. Tulips in large quantities will follow the Narcissi, and later will come Peonies, a fine collection, double and single, Pyrethrums, Gladioli, Irises in variety, Ranunculuses, Lilies, and other good hardy things, so that a visit is needful weekly to keep pace with the development of the flowers which market demands have so largely called into cultivation.—A. D.

Doubling of wild Primroses.—Without wishing to cast doubt on the case quoted by "Yorkshire" in THE GARDEN, April 28 (p. 394), in illustration of the doubling of wild Primroses, I am again compelled to conclude that a mistake has been made, or that some trick has been played. The fact that only under the peculiar circumstances stated were wild double Primroses found, points to the conclusion that the double-flowered forms found were obtained from other sources. Now, the wild Primrose does not produce ripe seed until June—not, indeed, until some time after the bloom has

died down. Did "Yorkshire" transfer his plants from the woods to his enclosed ground so late in the year as June? or did he do so whilst they were in bloom? The fact that he mentions wood Anemones seems to lead to the inference that this transplanting must have taken place earlier in the year than June; hence very much doubt is thrown upon the assumption that the Primroses had on them at the time of removal ripe seed. Then it hardly seems likely that plants lifted from the woods would be tumbled out to lie about anyhow on the Grass in the summer-time of the year. Of course, all may have happened as stated, but it is hard for a practical man to accept it; and then it is very strange that out of hundreds of millions of wild Primroses raised from natural sown seed or of seed saved and sown in gardens no double-flowered forms should have been found to result so far as known anywhere except in this case. It is a fact that nearly all of our double-flowered Primroses grown in gardens have originated on the Continent. That fact leads to the inference that to obtain these double forms the florists or raisers specially manipulate their flowers for the purpose. There remains the fact also, that in commerce we have no exact double duplicate of the wild Primrose, *Primula vulgaris*.—A. D.

FLOWER GARDEN NOTES.

BEDDING OUT.—It is now safe to plant all except the most tender kinds, and I therefore given particulars of some of the arrangements most in favour here. I seldom care to have more than the following three kinds of arrangements, namely, mixtures, masses of colour broken by a few standard plants, and embroidery or carpet beds, with standard plants in them to relieve their formality. First, as to mixtures, which are best suited for large circular beds. There is what I should call the graceful and the formal and stiff styles, and to give an example of the former, I shall suppose that there has to be planted a circular bed 10 feet or 12 feet across. In the centre place a good strong plant of *Grevillea robusta*, and then dot at intervals of from 18 inches to 2 feet apart strong plants of tuberous Begonias, and at the same distance in the opposite angles either pink Pelargoniums or Iresine, edging with a wreath of variegated *Mesembryanthemum*, and the entire groundwork Harrison's Musk or yellow *Viola* Hardwick Yellow. Another example is a central plant of *Dracæna australis*, other standards instead of tuberous Begonias, variegated Lady Plymouth Pelargonium, edging Golden Feather, and for a groundwork plant *Viola* Blue Bell, or the same *Viola* intermixed with the lighter blue *Agathæa celestis*. Of mixtures of the same type, only arranged in a more formal manner, the following are examples: Central plant, American variegated *Yucca*; standard or dot plants, *Fuchsias* in pyramidal shape, and then alternate rings of *Leucophyton Browni*, blue *Lobelia*, variegated Pelargonium Manglesi, and dark blue *Viola* or *Ageratum*. Another example, after the same rule, is a central plant of variegated New Zealand Flax and standard plants of variegated Tree *Sempervivum arboreum*, the edging being white-leaved *Antennaria tomentosa*, and the entire groundwork dwarf blue *Ageratum* and white and blue *Violas* in equal mixture. Next, as to masses of colour, these should always be reserved for the largest and most distant beds. The most objectionable colours (from my point of view) are scarlet and yellow, and yet they are both indispensable, and for beds viewed from a distance they are of the first importance. I, therefore, practise and advise others to keep these two colours down by using them sparingly in small beds and close under the eye, and if they must be used in such positions their gaudiness should be toned down by planting them in the centres of beds, with an abundance of accompanying greenery in the form of plants of *Abutilons*, *Castor-oils*, *Aralia Sieboldi*, &c. Pink, white, blue, citron, and brown may be used in almost any quantity, only I think it well to note that, so far as may be, three colours should be used in a bed in preference to having a bed—however small—of any one colour, and, as a matter

of course, throughout the entire series of beds suitable standard plants should be used, this being the only safe way to avoid that monotonous appearance that is so objectionable a feature of most bedded out gardens. The highest merit of embroidery or carpet beds is that in all weathers they continue the same, but for the formal manner that carpet bedding is done in some places I have the greatest abhorrence, and have never practised it. Necessarily the patterns must be exact to a degree, but the planting can be varied by using plants of different height, which give an undulating appearance to the beds, and further, by a free use of suitable standard plants in every division of square or circle, the word "carpet" is no longer an appropriate term to describe this form of bedding. I give an example. Take a circular bed of average size, say 10 feet over; this is cut up into the desired form, and is planted as follows: The edging and intersecting lines of designs are formed with variegated *Mesembryanthemums*. In the central panel is a standard plant of *Aracaria elegans*, and the centres of other panels, of whatever form, may either be *Chamæpeuce diacantha*, variegated Agaves, variegated Tree *Sempervivum arboreum*, or *Dracæna gracilis*. The groundwork plant for the centre may either be *Coleus*, *Iresine*, or a strong-growing *Alternanthera*, and the outer angles, squares, or small circles, as the case may be, should be dwarf-growing *Alternantheras* of any colour, and *Sedum glaucum* alternated. Plant the middle panels with the blue *Kleinia repens*, or the alternate panels may be of *Echeveria farinosa* on a green carpet of *Herniaria glabra*. This arrangement of plants of varying height necessitates just as great care to keep all lines and angles as true to design as is the case with the flat pancake-like type that is most generally followed. It is in a garden where there are innumerable large beds that only look well when planted with large-growing plants that the introduction of this modified form of carpet bedding becomes a positive advantage.

SUB-TROPICAL BEDDING.—The foregoing remarks have reference more directly to plants that are commonly known as bedding plants apart from sub-tropical bedders—a term that is not quite satisfactory, because not sufficiently descriptive of what the word really means.

FINE FOLIAGE BEDDING is a term sufficiently comprehensive to include all sections—hardy and tender—of plants that will withstand our British summers. As a rule, only tender plants are used in gardens of this description, but this, I think, is an error, and one I am glad to know that is being rectified. Bamboos, *Phormiums*, *Sumachs*, *Acers*, *False Acacias*, *Arundos*, *Yuccas*, and many other varieties of handsome Japanese *Retinosporas* and *Junipers* are just as beautiful as the grandest tender Tree Ferns and Palms. It is simply a matter of sentiment, or at best a desire to follow the fashion and grow plants that are tender and difficult rather than commoner species that are in every way as pretty. A lack of house room to prepare tender kinds has led to our using more, or at least as many, hardy as tender kinds in this style of bedding out, with certainly equal effectiveness. *Cannas*, *Solanums*, *Castor-oils*, *Wigandias*, *Acacia lophantha*, and *Tobaccos* are about all the tender large-growing foliage plants we now use for this purpose, the hardy section being mainly those just enumerated. By way of furnishing the beds at once, common kinds of bedding-out plants are planted as undergrowth—as, for instance, for a bed of Gibson's *Castor-oils*, which has stems and leaves of a brown-bronzy colour, I plant as undergrowth either *Gnaphalium lanatum* or Musk, and so on throughout the whole arrangement, the groundwork plants being the opposite in colour to the large growers.

GENERAL WORK.—To plant out hardy and half-hardy bedding plants; dig up beds that have been occupied with spring flowers; place sticks to flower-stems of Pinks and Carnations; to get out to harden all but the most tender bedding plants; continue to propagate *Alternantheras* as hotbeds and frames become available. To make other sowings of *Mignonette* and Sweet Peas, and in warm, showery

weather plant out Zinnias, Stocks, Asters, Phlox Drummondii, Scabious, and, in fact, all annuals that are large enough to handle. W. WILDSMITH.

Narcissi.—"Veronica" in his "Notes on Narcissi," in THE GARDEN of May 12, was nearer the mark than many people suspect in saying that the *N. moschatus* of the Pyrenees may be the stock from which all our white Daffodils have originated. It seems to me that with a few hundred collected bulbs carefully cultivated for from two to five years a great number of the garden varieties of the present day may be had without having to pay the high prices florists charge for named varieties. A small group of *N. moschatus* collected in the Pyrenees two years ago has this year shown wonderful development—Colleen Bawn, William Goldring, and other nearly allied forms being picked from amongst them by a Daffodil authority. These bulbs have been carefully noted, and their further development is awaited with interest. A small batch of muticus and nobilis imported at the same time showed great variation in many ways. About five per cent. only of *N. muticus* were true, all the others being, so I believe, influenced by nobilis and *vice versa*, many of the nobilis flowers being very large and running some of the bicolor set very closely. Another interesting plant, viz., *N. Bernardi*, has lately been introduced in quantity, together with many of the wild hybrids between poeticus and incomparabilis. A few of them with a little cultivation may give us such named varieties as Mary Anderson, Barri conspicuus, Cynosure, while others follow closely those belonging to the Burbidgei section. *N. Johnstoni* is by some said to be a hybrid between muticus and Pseudo-Narcissus or pallidus præcox, while others say triandrus × Pseudo-Narcissus. I am inclined, however, to think that this is an old Daffodil, and that we will hear of it yet from the writings or figures of Parkinson.—K.

A curious Daisy.—A nearly rayless Daisy, it must be admitted, is no improvement; still it is a botanical curiosity. I met with it in a cornfield two years ago. To ordinary eyes the flower, a mere button, appears as though the petals had been plucked or eaten off. It is not so, however, and although the plant now and then throws up a perfect bloom, the majority are like those sent.—J. M., Charnmouth, Dorset.

* * An interesting curiosity.—Ed.

NOTES OF THE WEEK.

The white Ramondia.—A charming and rare flower for the rock garden comes to us from Messrs. Backhouse. We hope it will increase freely.

An early hardy Phlox.—This, like the alpine Phloxes, flowers early, and is a pretty hardy species. From Messrs. Backhouse, York.

Double velvet Primrose, from Messrs. Backhouse, is like the double crimson Pompadour we received recently. It is a full, quite double, and rich velvety crimson flower.

Polyanthuses from Ireland.—We have received a gathering of these from Mrs. Maxwell-Withams, comprising a very good selection of this beautiful spring flower.

Large vars. of the rosy Primrose.—Messrs. Backhouse have sent us a large variety of the lovely rosy Himalayan Primrose, *Primula rosea*. It is a flower that varies considerably in the size and depth of colouring of the flowers.

Californian Dog's-tooth Violet (*Erythronium giganteum*) is a lovely flower of a yellow colour, shading to orange in the centre. The tall, graceful spike bears several of them. A truly beautiful thing for the hardy garden. From Messrs. Backhouse.

A large Poet's Narcissus with the flower 3½ inches across comes to us from Messrs. Backhouse. It is called *N. poeticus grandiflorus*, and has flowers with all the good qualities of those of the type, but they are much larger.

Varieties of the Wood Windflower (*Anemone nemorosa*), like our native wilding, are sweet modest flowers of delicate beauty. The double white, cerulea, sky-blue, and Robinsoniana are three gems, and another, not perhaps so well known, is bracteata plena, the pure white flowers being surrounded with deep green bracts. Great clumps of these Anemones

are delightful at this season. The only way to see the beauty of such alpine flowers as these is to let the plants ramble at will, small puny bits giving no idea of the real value of the plant.

A seedling border Auricula comes to us from Mr. E. Molyneux, Swanmore Park Gardens. It has a large truss of bright rose-magenta flowers, which have a sweet fragrance. Flowers like these are just the thing for the borders.

Irises are looking well in the Royal Horticultural Gardens at Chiswick, and promise to make a fine display later on. Amongst those at present in flower are several varieties of the *pumila* section. This class seems to be especially suitable for cultivation in pots.

Edwardsia grandiflora from Cork.—Flowers of this known as the New Zealand Laburnum have been sent to us by Mr. Hartland, who says that it does well with him against a brick wall, and that it has extended to very large dimensions—indeed, fully 20 feet. We hope Mr. Hartland will increase this fine plant; we have complaints that it cannot be obtained in nurseries.

Twin-flowered Primrose.—The accompanying twin-flowered Primrose may interest you. It was recently picked in the hedgerow. The stems look almost as if they were fastened together by artificial means. Is it an unusual freak of Nature?—FRED. W. BUTLER, Horsham.

* * A freak of unusual occurrence, but due entirely in the present instance to fasciation. The flowers individually were very large and perfectly developed.—Ed.

Seedling Narcissus.—I send a few blooms of Narcissus seedling raised from cernuus × moschatus eight years from being sown, date June 4, 1880. The perianth is better formed than that of *N. Nelsoni*, and the trumpet more reflexed and flanged.—C. STUART, Hillside, Chirnside, N.B.

* * The flowers sent very much resemble those of Narcissus Pseudo-Narcissus.—Ed.

Seedling Carnations.—I send you a few seedling Carnation blooms of my own raising. They are all of the perpetual or tree kinds, and very robust growers.—JOHN HALL, Cambridge.

* * Among others which were sent we think highly of Mrs. R. Denny, of a beautiful salmony pink; Prima Donna, creamy white; Wm. Bourne, scarlet. They all seem to be kinds worthy of trial and beautiful in colour.—Ed.

A beautiful accident.—On a steep slope forming the bank of the road leading up to Three Bridges station I saw a lovely piece of wild gardening, probably accidental. The common Lungwort (*Pulmonaria*), apparently too rampant for the cottager's garden adjoining, had been pulled out and thrown upon the bank with other rubbish, where it found a home, ousted out the Grass, and now covers several square yards. The handsome mottled leaves and a profusion of blue and rosy flowers made a perfectly natural picture, framed in green Grass—beauty such as one rarely sees so near the railway.—A. H.

Tulips in the parks.—Tulips seem to be unusually fine this season in the London parks and squares. There was a magnificent show of them a few days ago in Regent's Park, but the stormy rains will, no doubt, have marred the effect of the rich blending of showy colours. In Parliament Square the beds have been extremely gay with them. The flowers are not only noticeable for their freshness and charming beauty, but for their excellent quality. We think, however, that in some instances where an attempt to make a great blaze has been made it would have been better to have arranged a more pleasing and less staring grouping.

A curious form of wild Primrose.—About this time last year a root of a Primrose like the one enclosed was found. The foliage is a very rich green, and crimped more so than in any other wild Primrose I have ever seen. The development of the corolla is very singular, as the flower is not actually double, although at first sight it appears so, but is composed of five corolla lobes only. The plant was found in the forest of Arden, near Arley, and will be valuable for crossing with the coloured varieties now so plentiful. In THE GARDEN, May 5 (p. 401), there are some remarks about double yellow Primroses from seed. I have never raised any, although I once found a semi-double one in the wood at Addington. When I lived at Sydenham I raised lots of seedlings from these, but lost sight of

them when I went to the Pyrenees. The enclosed seems to me to be likely to be the parent of a new race of hardy Primroses if it will seed, of which I have little doubt, and from all appearance it has the advantage of a very vigorous constitution to start with.—WM. ELLIOTT, Red House Gardens, Hawley, Warwickshire.

Daphne Blagayana.—A fine specimen of this beautiful shrub was in flower in Mr. Dale's garden at Hay Brow in the middle of May. It was bearing about 150 flowers, each fully as large as a crown piece, white, with a faint tinge of cream colour. The shrub is grown in peat and is perfectly hardy, having stood out in the open without any protection for the last three years at an elevation of 240 feet above the sea level. It is fully a yard in diameter, and scents the whole place.

A note from Malta.—I enclose you a photograph which I took and which I am told is that of a *Dasyllirion*. It is growing in front of my window in the open ground, and has been planted there five or six years. From the ground to the end of the flower it is 8 feet 6 inches, and the flower or spike itself is 5 feet 6 inches long and covered with tiny white flowers. Will the plant die after the flower is over, and ought one to do anything to help it?—E. N. PRICE, Villa Frère, Pietà, Malta.

* * Thanks for photograph, which shows a very handsome specimen of *Dracæna australis*, which, when seen in the condition represented, must be very beautiful, its charming panicle of flowers being very attractive. It will not die after flowering, but will probably bloom with you annually. The soil should have a top-dressing and the plant must not be allowed to suffer from drought.—Ed.

Orchids from Dumfries.—I send to you three blooms of *Lælia purpurata*, *Odontoglossum Pescatorei*, and *O. Andersonianum lobatum*. The *L. purpurata*, marked No. 1, is the finest I have seen, and, I think, will be hard to beat for size of flower and colour. The plant has three spikes with twelve flowers, and is a grand sight. The *O. Andersonianum* bloomed in a lot of *O. Alexandræ*, and the *O. Pescatorei* is a chance variety. I shall be much obliged if you will kindly give your opinion of them.—ALEX. CHALMERS, Terregles Gardens, Dumfries.

* * A choice gathering of Orchids. No. 1 is an excellent variety, the flower being of great width and with a lip of intense crimson-purple. The variety of *Odontoglossum Pescatorei* was also a good one, and we can say the same of *O. Andersonianum lobatum*, noticeable for the richness of its chestnut-brown markings.—Ed.

Dendrobium Falconeri and albo-sanguineum.—I send you *Dendrobium Falconeri* with a pair of blossoms, and I think this is unusual for this variety. Perhaps some of your correspondents will kindly tell me. I also send you *Dendrobium albo-sanguineum*, which is a beautiful and lasting Dendrobe. The treatment for *Dendrobium Falconeri* is to give it brisk heat when growing and plenty of moisture until growth is complete, then it will be found to ripen up its growths best in a cooler house, a Cattleya house suiting it well if its growths can be spread out and the plant kept dry, or nearly so, for three months.—J. F. W.

* * We received flowers of *D. albo-sanguineum* and *D. Falconeri*, both choice Dendrobes, the latter being very brightly coloured.—Ed.

Rhododendrons at Kew.—The following varieties are now in flower in the temperate house at Kew, viz.: *R. Aclandiae*, *R. Nuttalli*, *R. Hodgsoni*, *R. cinnamomum*, *R. Windsorii*, *R. Veitchii*, *R. formosum*, *R. Edgeworthii*, *R. niveum*, *R. arboreum*, *R. Championi*, and *R. Falconeri*. In the rockery the new species *R. afghanicum* is also in flower. The *Rhododendrons* in the dell outside are pushing into flower, and at present show promise of an unusually rich display. The collection of *Rhododendrons* at Kew is a magnificent one, and we doubt if anywhere except in the large temperate house such magnificent examples of the Himalayan kinds are to be seen. The beautiful and large blooms on *R. Aclandiae* and *R. Nuttalli* are in themselves a picture worth a long journey to see.

LONGFORD CASTLE.

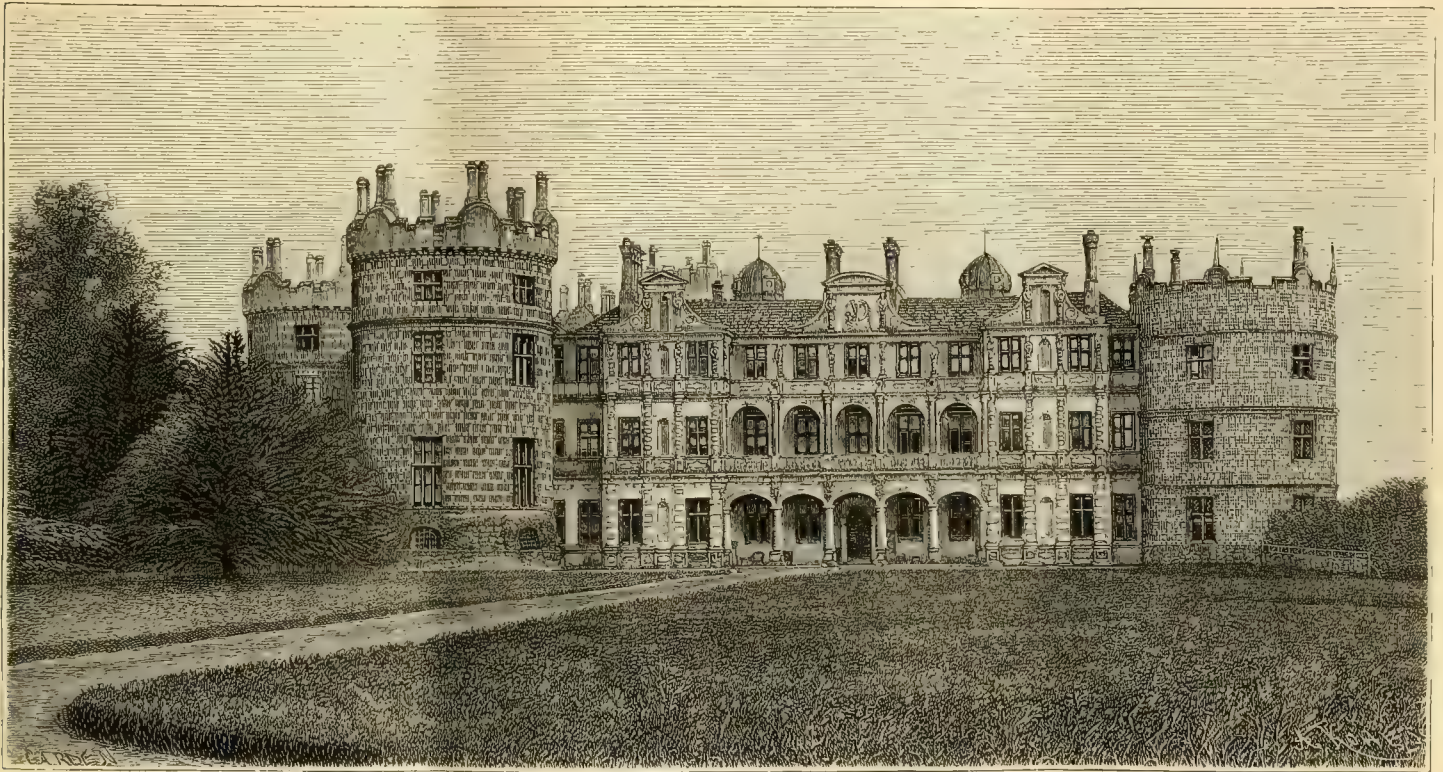
VISITORS to this place by rail have to go through the old-fashioned, but fairly picturesque city of Salisbury, the fine old cathedral and bishop's palace being passed in the journey. A ride or walk of from three to four miles, leading through a beautiful and well-wooded park, is not the least enjoyable portion of the visit, and Longford Castle presents a most imposing appearance from whichever side it is approached. Nor does a closer view end in disappointment, as although built early in the fifteenth century, and patronised by Queen Elizabeth and subsequently by Oliver Cromwell, being, therefore, quite an historical place, it is yet in excellent preservation. Much of this is due to the present Earl of Radnor, who has done much to restore, enlarge, and beautify the place. The castle is largely built of Bath stone, enlivened with a free use of flint, the style now being a mixture of Norman and Elizabethan. In form it is triangular,

well as handsome Pines and other Conifers. A large Italian flower garden is situated on the south side, close to and sunk rather below the ground level of the castle. The beds during the summer are filled with the usual variety of bedding plants. In every case the beds are well filled and kept in admirable order, presenting a very gay appearance while the season lasts. During the winter the whole of the beds are occupied by hardy, fine-foliaged, bulbous-rooted, and other flowering plants which are especially effective in the spring months. In connection with this garden there are numerous large beds filled with dwarf Roses on their own roots, and which are kept pegged down.

The kitchen gardens, forcing fruit and plant houses are only a short distance from the castle, and here again there is every evidence that the noble proprietor takes great interest in everything connected with the place. Not only are choice flowers and plants required in quantity,

is usually seen. One large span-roofed house is principally devoted to fine plants of Camellias, Oranges, and other hard-wooded plants, and the Maréchal Niel, Niphetos, and other popular Roses are well grown in pots. Among heat-loving plants in other houses I noticed a capital lot of Gardenias—a favourite flower at Longford. The varieties mostly grown are *G. florida* and *intermedia*, and very few old specimens are kept, spring-struck plants grown quickly to a useful size being found to give the finest flowers in abundance. Eucharises are in a healthy state and flower freely about three times in a year. A few Orchids and the usual round of fine-foliaged and flowering plants are grown, all being in an exceptionally clean and healthy state.

In the fruit forcing department Pine-apples are a speciality, fully 200 plants of this noble fruit being fruited each year. Large numbers of extra strong plants are now swelling off their fine fruit, a brisk bottom-heat from a deep bed



Longford Castle, Salisbury; west view. Engraved for THE GARDEN from a photograph by Messrs. Witcomb and Son, Salisbury.

and considerable space is covered by it, more, in fact, than at first sight appears. The western front, of which an engraving is here given, is the most ornamental, numerous carved figures being among the most prominent adornments, and here is situated the principal or carriage entrance, surmounted by a long open gallery. Altogether it is a noble pile, and which it is a difficult matter to briefly do justice to.

In common with many fine old places, Longford Castle is situated within easy access of water, and, consequently, on rather low ground, but this is hardly noticeable, the park and gardens being laid out so as not to dwarf the structure in any way. The river Avon winds past the castle on the east side, and this and another stream largely contribute to the general scenic effect in different parts of the pleasure grounds. Beech trees prevail in both the park and pleasure grounds, and there are also a few good Oaks, Limes, and other deciduous trees, as

but abundance of high-class fruit and the best vegetables are in great demand. For all of these the gardens have a good repute and deservedly so. The principal plant house forms the centre of a grand and comparatively new range, and is kept very gay all the year round. At the present time a great number of well-grown Cinerarias in excellent variety are very prominent, Marguerites and various other showy plants being effectively grouped with them. *Tacsonia exoniensis* and the less free-flowering *Tacsonia Van Volxemi* are trained thinly over the roof, these, however, being gradually cut away as fast as the much more valuable *Lapagerias alba* and *rosea* extend. The latter are planted in a narrow raised border, the compost consisting principally of roughly broken turfy loam and peat. They require and receive plenty of water, and are thriving admirably. Tea Rose Catherine Mermet also flowers finely on the roof, the colour of the blooms being richer than

of fresh leaves serving to grow them to a great size. Queens, Smooth Cayenne, Black Jamaica, Charlotte Rothschild, and Lady Beatrice Lambton all find a place in this collection, the last-named producing very large tapering fruit, which, however, ripen rather unequally. A few years ago the stock of plants was badly infested with the dreaded white scale. Various remedies were tried, but it was found easier to kill the plants than the scale. The whole of the plants were gradually got rid of, and fresh suckers procured, the consequence being a complete riddance of the pest. The much dreaded *Phylloxera* or Vine louse a few years ago also gained a footing in the vineries at Longford Castle, and in this case again nothing short of a complete clearance of the houses and borders proved of any avail. The new Vines have done remarkably well, and are now producing very fine crops of Grapes. With the aid of four large houses in the new range and two or three smaller

ones a continuous supply of Grapes is sent to the table. In the earliest house there is a creditable crop of Grapes nearly or quite ripe, the varieties preferred for forcing being Black Hamburgh, Buckland Sweetwater, Foster's Seedling, and Muscat of Alexandria. These old favourites are also well grown in the other houses, and the Madresfield Court promises to be very good in several instances. Alnwick Seedling in successional and late houses is remarkably productive, the bunches being very fine. No difficulty is experienced in setting this, Muscat Hamburgh, and Mrs. Pince, the bunches of the last-named being extra large and evenly berried. Gros Maroc on the Hamburgh stock is thought to be improved in flavour, and Gros Colman always does well. Mrs. Pearson and Golden Queen are on trial, and there are several rods of Gros Guillaume, a favourite late variety which produces many extra fine bunches as well as others of a more serviceable size. The largest this season, it is believed, will weigh nearly or quite 15 lbs., or 3 lbs. more than the heaviest grown last season. A Vine of the Strawberry Grape is fruited on the back part of a three-quarter span-roofed house, and this little variety is a great favourite in the dining-room. Lady Downe's is found to be the best keeping variety, the last bunches having been used early in May.

Melons are also extensively and well grown, the first fruit being cut about May 11. Those I saw were of good size, or from 2 lbs. to 3 lbs. in weight, handsomely netted and evidently fit for table. The favourite varieties for early and successional crops are Scarlet Perfection, Hero of Lockinge, Longford Hybrid, and a scarlet fleshed form of Hero of Lockinge. Strawberries in pots are fruited principally on shelves in the Melon house, and a beautiful lot of fruit was hanging on several rows of plants. Vicomtesse Héricart de Thury, La Grosse Sucrée, Sir J. Paxton, and British Queen are the varieties generally grown for forcing. Peaches and Nectarines, both early and successional, do well. A tree of Lord Napier Nectarine trained over the upper portion of the back wall of an early vinery was carrying a good crop of handsomely coloured ripe fruit, which it would be hard to surpass at any time. Hale's Early, Goshawk, Sea Eagle, and Prince of Wales Peaches are all favourite varieties for house culture, and the Pine-apple Nectarine is also much liked.

There is nearly a mile of good high walls devoted to hardy fruit culture, and all are exceptionally well furnished, including probably some of the finest Fig trees in the country. Two perfect specimens of Brown Turkey each cover a space of 13 yards long and 12 feet high, and another equally well-grown tree of Brunswick closely covers about 300 feet of wall. Mr. Ward, the well-known gardener, who for the past seventeen years has so ably superintended the gardens and pleasure grounds at Longford Castle, and who is justly proud of the fruit trees generally, never prunes the Figs till it is seen which are the most fruitful branches. The oldest or most naked branches are then cut clean back to the old stems, the result being the formation of fresh growth and a regular and even supply of fruit all over the trees. No protection is considered necessary during the winter, and the pruning being done after leaf-growth has commenced, there is no harmful bleeding. The most prolific are Brown Turkey and White Marseilles, but this season the usually shy-fruited Brunswick and Castle Kennedy are equally as fruitful. There is also a capital lot of Morello Cherry trees, one long, cool wall in particular being perfectly clothed with them.

The trees are about fifteen years old, and are a beautiful sight at the present time. Plenty of turfy loam is added to the borders prior to the planting of any choice fruit trees, and the healthy growth formed at the outset undoubtedly lays the foundation of long-lived profitable trees. The long wall covered with Peach trees is protected with strong cotton blinds, and the same care is taken of the best of the Plum trees. Apple and Pear trees, both against walls and in the open, are flowering strongly, and altogether there is every prospect of a good set of fruit.

The kitchen garden is rather cut up with walls, there being few large clear quarters. Vegetables in season are plentiful, and a capital start has been made with various summer vegetables. W. I.

ROSE GARDEN.

T. W. GIRDLESTONE.

NOTES ON ROSES.

THE long-continued cold winds, even though they may be the means of securing a fine display of Roses generally in July, are terribly against the climbing Roses, especially those which make a strong and lusty growth like the Dijon Teas. The young shoots of these—now several inches long in many cases—are beginning to look yellow and starved; while in not a few instances tiny grubs and caterpillars have already attacked the plants, which are prevented from growing away freely by the prevailing low temperature. These diminutive marauders must be looked for and destroyed before they grow larger at the expense of the Rose trees, or the growth of the trees will be still further prejudiced, for consumption is even worse than the jaundice to which among Roses it not infrequently succeeds.

Where these Roses are grown on a wall facing south or east, efforts should be made to screen them from the sun the next morning if any night there should be a sharp frost, for very often the whole damage is done by the sun getting on to the plants while they are covered with rime. It is partly for this reason that Gloire de Dijon and many of its progeny succeed so well on a north wall, for, in addition to the growth being less precocious in an early spring and so less susceptible of injury, there is no fear of the sun shining on the plants after a frost before the rime has gradually thawed off them.

In the case of Maréchal Niel also there is so fine a promise of a good harvest of bloom out of doors this year, that it is well worth while to have mats or canvas-covered screens ready at hand to put in front of the plants if the night seems likely to be very cold, for a sharp frost now, which would be quite kept off by such a shelter, might spoil the unprotected tree for the season.

Maréchal Niel was much injured during the winter of 1886-87 in many places, so that there was little bloom early last summer, and the plants had to occupy themselves in making fresh growth. In spite of the drought the new wood was stout and abundant, and eventually became so well ripened in the constant sunshine, that, although the winter has been one

of the longest of late years, the prospect of a fine display of bloom appears to be an unusually good one.

It is very pleasant to find, after a winter which has afforded so many days' skating as that just past, that practically none of the Roses have suffered.

In the course of pruning, not a plant has been found killed by the cold, and hardly any that have been appreciably damaged. This, no doubt, is to a great extent owing to the thorough manner in which the wood was ripened during the long and brilliant summer, at the close of which the absence of green and pithy shoots was most conspicuous. All the Tea-scented Roses especially, whether they were protected (as very few of them were) or not, not only on the walls, but in the open, standards and dwarfs, on Brier and on multiflora stocks, are all breaking into abnormally fine growth, hardly a discoloured shoot being observable among them. Even the climbing Dijon family, such as Mme. Berard, Reine Marie Henriette, Bouquet d'Or, &c., are breaking throughout the whole length of their long shoots with a uniformity which has not been equalled for several seasons.

Fortune's Yellow is now full of buds, and having this spring escaped serious check, seems likely to develop safely its crop of flowers. In the absence of severe frost, it will be a good race between this Rose, Rosa alpina, and Rosa multiflora for the honour of producing the first Rose bloom of the season out of doors.

Lacharme's hybrid multiflora Max Singer appears likely to be largely grown as a hardy red climbing Rose. The long shoots, quite unharmed by the winter, are breaking throughout their length and are full of buds, so that hardiness and freedom may with little hesitation now be added to the recommendation of the attractive flowers seen last year.

In fact, were it not for the starving action of incessant cold winds, it might, on the whole, be considered that, in the absence of sharp frosts, or where due precautions are taken to meet such a catastrophe, a finer display of bloom among the climbing Roses was to be anticipated this year than has been the case for several seasons.

SHORT NOTES.—ROSES.

Her Majesty.—Another indication of this Rose's dislike to Manetti as a stock has now been given by several apparently strong plants worked on it "falling out" when pruned, and the union of stock and scion in most cases appears less sound than when budded on dwarf Brier.

Rose Victor Verdier.—The superior rooting powers of the Roses of the Victor Verdier family are never more apparent than at this time of year, when the rows of such varieties as Victor Verdier, Mrs. Baker, Lady Mary Fitzwilliam, Captain Christy, Hippolyte Jamain, &c., are already green with pushing leaves in the cutting beds, with hardly a gap in the row; while all the other types have a considerable proportion of "misses," and are hardly any of them yet on the move.

Rosa minutifolia.—Our wild Roses have an ill reputation among botanists for the uncertainty which often attends the determination of their species. But there are some, fortunately, about which there can be no doubt. *Rosa minutifolia* is very distinct, and cannot be mistaken. Not only is

there no other American Rose like it, but it stands alone in the genus, forming *M. Crepin's* section, *Minutifoliae*. Its compact habit, its very small and deeply toothed leaflets, and its small solitary flowers almost sessile upon the short branchlets, together make it a very distinct species. As might be expected, this Rose belongs to the flora of the Pacific coast. It has been found only on the peninsula of Lower California, near All Saints (Todos Santos) Bay, about forty miles south of San Diego, where it was discovered in 1882, forming low, dense thickets upon the dry hillsides bordering the shore. It is a much-branched, compact shrub, armed with numerous stout, straight spines, the small leaves often fasciated, and with numerous pink or white flowers along the branches. The globular base of the calyx is covered densely with short bristles. Evidently the flower in its wild state cannot be recommended as being suitable for the florist, but from its habit of growth the plant may well prove a decided ornament to the lawn and garden in our more southern States, where it would doubtless be hardy.—S. W., in *Garden and Forest*.

MARECHAL NIEL AS A GREENHOUSE ROSE.

In answer to D. T. Fish in THE GARDEN, May 5 (p. 403), our large and now veteran *Maréchal*s, selected standards on healthy *Briers*, were planted eighteen years ago in a *Camellia* house in the border underneath the front stage of the house. It should be stated that the stage is waterproof, and the glass of the front of the house reaches to the ground, so that the roots are not in a soddened condition, and this border has the benefit of sunlight, though often covered with plants in pots standing on it. Since the second year after planting—the first year the plants were cut down closely to enable them to make long Vine-like growths—these plants have given annual crops of fine blooms in April, lasting into May. After the flowering is over the culture is as follows: The shoots, which are fastened to the roof as Vines are, are let down, and all thin and small wood is cut out; a few strong leading shoots of the last year's growth are left and shortened to about 3 feet or more, but in the main the whole plant is cut closely in to the old stems, just as a Vine is operated on.

Then comes the, to my mind, most important means for the prevention of the canker or swelling which seems so fatal to this Rose. Believing that this disease proceeds from the rods becoming hide-bound, I have had the bark slashed and slit up with a sharp knife, so allowing the stems and the more than one-year-old shoots to swell properly. No particular pains is taken in doing this—the knife is freely used, and generally with the result that the plant proceeds to make strong long shoots, which keep growing up to the autumn. These being then shortened back to a good ripe eye, and trained here and there over the roof and twisted to induce the shoots to break more regularly into bloom, flower freely.

The girth of the stems above the *Briers* is from 8 inches to 9 inches, the girth of wood of this year's growth $1\frac{1}{2}$ inches, so there is no diminution of vigour, and the largest of the three plants covers a roof space of 24 feet by 6 feet.—GEORGE PAUL.

— My oldest *Maréchal Niel* Rose is about fifteen years worked. It is on the *Brier* as a standard, but planted on an outside border with the head running under the roof of a span-house 30 feet by 20 feet. If space could have been spared, this one Rose might have filled the house, but others needed their share. My first *Maréchal Niel*s were on their own roots and planted on an inside border. These did very well for about five years, and then

succumbed to the inevitable excrescences which "D. T. F." terms warts, which are developed on the surface of the soil. Other *Maréchal Niel*s worked on Madame Berard and Lamarque both again on standard *Briers*, for several years—the former fully ten years—have done wonderfully well, not the least vestige of warts being visible, and the heads invariably growing so freely as to require very hard thinning and pruning each year. It is worthy of note that in both the latter cases the strong-growing Roses named had fully distended the stems of the *Brier* stocks and brought them somewhat into harmony with the robust nature of the growth they had to sustain. Madame Berard on the *Brier* seems to be to me a grand second stock for the *Maréchal*, forcing as it were very fine wood and plenty of it. This stock will break a stout shoot here and there towards the base, and these shoots prove very valuable for early summer budding, laying the foundation for perhaps two or three other stout growths, which will carry good blooms in the following year. Lamarque breaks rather too freely; indeed, the stocks need considerable attention in the spring, as shoots burst out continually until the growth of *Maréchal Niel* has become gross. One or two of the stoutest of the Lamarque shoots may be retained for annual budding as before. By thus working a few shoots closer to the *Brier*, extra space is eventually obtained for the blooming head. No doubt a strong retentive soil aided by an occasional liberal dressing of manure is helpful to the free development of *Maréchal Niel* growth, but so also is hard pruning; indeed, no Rose seems to like it better or to more thoroughly need it. It may be of interest to "D. T. F." to learn that the *Maréchal Niel* worked on the *Brier* stock direct, whilst itself developing a big head and wonderfully stout wood, has done much less in developing the stem of the *Brier* than has Mme. Berard or Lamarque. Just below the budded junction the stock is but $4\frac{1}{2}$ inches round, whilst the stem of the Rose just above the junction is $9\frac{1}{2}$ inches round, and 4 feet further up is $6\frac{1}{2}$ inches, all the other wood being proportionately strong. It is remarkable that a stem so comparatively small as is the *Brier* stock should be able to sustain so liberally such a giant stem just above and without any signs of canker. Two very strong shoots of the *Maréchal Niel* broke out at the junction two years ago, and both these are as big as ordinary walking-sticks, and yet the *Brier* stem sustains the whole. I should like to remove the old head completely and allow these two strong shoots to break at dormant buds and create a new one, but it presents an apparently alarming sacrifice, which needs consideration.—A. D.

— In reply to "D. T. F." in THE GARDEN, May 5 (p. 403), the way to ensure longevity in the Rose *Maréchal Niel* is to work it on the Tea Rose; all that I have grown worked on the Dog Rose, or its own roots, die from warts or gout. We have here several houses of Roses; the greater part are planted with Tea Roses on their own roots. The *Maréchal Niel*s are worked on Teas, on which they take readily, and in no instance have I seen any symptoms of warts or gout. The union becomes so complete that it is difficult to discover where the bud was inserted. There seems to be little difference what variety is used for the stock, as the weaker sorts, such as *M. A. Imbert*, give as good results as Climbing *Devoniensis*. This method of growing *Maréchal Niel* has been practised here for upwards of seven years.—JAMES KELWAY, Langport, Somerset.

Note from New Jersey.—We have had a very dull, cold, and long winter, bad for Rose and Strawberry forcing, sharp frosts during night until lately, with a very heavy rain and snowfall. Grass is only just commencing to look green. In Virginia the early vegetables were killed this week and the Strawberry crop spoiled, the earliest fruit being almost ready for market. Oranges, Lemons, and Bananas have been very plentiful, cheap, and good in New York. The blizzard did great damage in New Jersey, the hardy evergreen trees and shrubs being almost stripped of foliage, the ground being

Covered with twigs cut off by wind and ice.—JAMES TAPLIN.

ORCHIDS.

W. H. GOWER.

CYRTOPODIUMS.

THESE plants, which were once general favourites, have for a long time been under a cloud. I was, therefore, much gratified recently to have seen a grand inflorescence of *C. Andersoni*, and I have just received flowers of *C. punctatum* to name. I have observed recently good importations of this plant, and I also hear of a new species (which, unfortunately, I have not seen) having flowered last year in Mr. Smee's garden at Hackbridge, in Surrey, so that, taken all in all, I think the culture of *Cyrtopodiums* is reviving, and, if so, I shall welcome them with a great deal of pleasure, as they are bold, handsome plants, and their colours serve to light up the Orchid house, while their flowers produce altogether a change of form. As these plants are again being sought after, growers begin to ask, What treatment do they require? and, on the principle of what is worth doing at all is worth doing well, I will relate how *Cyrtopodiums* were treated years ago. If they are not treated well they will not flower, and I believe this was one of the chief reasons of their losing favour with the Orchid-growing community. These plants are natives of Brazil and various parts of tropical America, and form long fusiform, fleshy stems, which grow several feet high, somewhat resembling those of *Grammatophyllum speciosum* or a gigantic *Catasetum*. They bear large plaited leaves, which are membranous in texture and bright green. The flower-spike comes up with the young growth, the scape attaining the height of 3 feet or 4 feet, and bearing a panicle of large and handsome flowers, which last long in beauty. These plants enjoy the warmest part of the East India house during the growing season, in conjunction with an abundant supply of water, but this element must not be allowed to remain in the young growth, or bad results may follow; neither should the flowers be syringed, or they will soon decay. After the flowering is over and the young growth matured the water supply must be gradually curtailed until at last it ceases altogether, when the plants should be removed from the East India house to the coolest part of the *Cattleya* or intermediate house. They may remain in this position all the winter and without water, unless the bulbs show signs of distress by commencing to shrivel, which, from their fleshy nature, they are not apt to do. At the same time the plants must be watched in order to avoid this, as it only impoverishes and weakens them. In the end of winter or early spring the plants must be looked over daily, and upon the first sign of growth starting some water may be given, and in a day or two afterwards remove the plants to the growing quarters, and, if necessary, repot or top-dress at once. They are large-rooting Orchids and require plenty of pot room. I used to grow them in rough peat and loam in the days when one did not think of applying manure to Orchids; but if I were to start with them again I should add a portion of dried cow or sheep's manure, whilst drainage of the best must be maintained. By the above brief remarks it will be fully understood that these plants are not suited for the cool Orchid house. To those, however, having accommodation for them, they will yield a great amount of pleasure for care and culture.

C. ANDERSONI.—This plant I have met with in Continental gardens under the name of *Tylochilus flavus*. The stem is stout and fusiform, and grows

to about 5 feet in height, bearing long plicate, sheathing leaves. The scape is about 3 feet high, stout, erect, and bearing a large panicle of rich yellow flowers, which are of good size. It is a spring bloomer.

C. CARDIOCHLENA is another species with rich yellow flowers, but entirely without the tinge of green seen in the sepals and petals of the previously named kind. Besides other distinctions of a botanical character, it does not, moreover, make such strong growth, and has the reputation of flowering freely, whilst *Andersoni* is usually considered a shy bloomer, but this may arise from the non-maturing of the growths.

C. PUNCTATUM.—This is not so tall a plant as either of the preceding, as its stems seldom exceed 3 feet in height, and some varieties I have had flower regularly every season. It produces a much-branched panicle, which attains a yard in length and is densely laden with rich yellow flowers, profusely spotted with red and brown. It is also furnished with numerous large bracts, which are similarly coloured. Independent of the extreme beauty of the flowers of *Cyrtopodiums*, they have a peculiar tropical aspect, and their leafy stems are very ornamental in an Orchid house.

THE ORCHID ALBUM.

THE April number of this work contains figures of—

LÆLIA ANCEPS SCOTTIANA.—A very highly-coloured form of this useful and beautiful Mexican *Lælia*, which is in the possession of Mr. Scott, of Nunfield, Dumfries. The flowers are said to be 5 inches across, of good form and substance; the sepals and petals deep violet-purple; the lip deep purple, with orange-yellow throat.

THUNIA VEITCHIANA.—A new hybrid between *T. Bensoniæ* and *T. Marshalliana*. It appears to have been first obtained and flowered by the late Mr. Fall, of Manchester, who named it *T. Wrigleana*, and soon afterwards by the Messrs. Veitch, of Chelsea, and was named by Prof. Reichenbach. It has the same habit of growth as its parents, but its flowers are distinct and beautiful; sepals and petals white, tinged with pink and tipped with mauve; lip pale purplish mauve or violet-mauve; disc and throat yellowish white, bearing several raised lines, which are fringed with purplish orange hairs, the crisp border being white.

PEBISTERIA ELATA.—An excellent figure of this old and popular species known as the Holy Ghost, or Dove Plant.

AERIDES EXPANSUM LEONIE.—A beautiful form of the typical plant, which, it appears, first flowered with Mr. Ross in Italy. The plant from which the present illustration was prepared, however, flowered in the choice collection of Mr. Tautz, of Shepherd's Bush. It bears a dense raceme of large flowers, which are white, suffused with delicate rose, spotted and barred with rosy purple, the sepals and petals being tipped with rosy purple.

Vandas from Camberwell.—Mr. R. J. Measures, of Flodden Lodge, Camberwell, has sent us flowers of several varieties of *Vanda*, and we are pleased to see that an interest in these lovely flowers is springing up. In the gathering were fine forms of the noble *V. tricolor*, one of the most charming of all *Vandas*, but the type is now eclipsed by the brilliant beauty of its varieties. *Aurea* is very distinct, as the sepals and petals are clear golden yellow, blotched with dull brown, the lip being almost white, but with a tinge of pink. *Patersoni* is exceptionally fine; it is thickly and regularly blotched on a lemon ground; this is set off by a marginal band of dull pink, the bright magenta lip further intensifying this colouring. The *Dalkeith* variety has not the exquisite expression of the last-named, but the flower is very highly coloured; the lip is paler than that in *V. Patersoni*, and the brown spotting is less profuse. *Planilabris* is of the character of *aurea*, but the yellow tinge is deeper and the spottings more decided; the lip also shows more of the pinky hue. Of the varieties of *V.*

suavis there were Veitch's variety, a neat, beautifully shaped flower, white spotted with brown and with a clear rose edge to the sepals and petals; the lateral lobes of the lip are very dark maroon, the front lobe being much paler. A rough, but massive form is *Rollisson's* variety of *V. tricolor*; the lip bright magenta, and the sepals and petals waxy white, spotted with brown. The variety *delicata* is well named; it is a chaste and delicately beautiful flower, with a bar of brown on a white ground; the lip pale magenta. Such forms of *Vanda* as these are well worth all the care and attention required, as the flowers not only have a bold form and brilliant colours of both decided and refined hues, but a sweet fragrance that gives them an especial charm.

DENDROBIUMS AT KEW.

As spring gives place to summer the Orchid house approaches its gayest aspect, and a few days ago there was a considerable show of bloom at Kew, where at no time is there a mass of colour as we find in many nurseries and private places, owing to the restricted space, so that no one species or variety predominates. The *Dendrobiums*, amongst others, were worth a note, and the subjoined are a few kinds that were in full flower recently, amongst them some that should find a place in every garden where this class of plants is cherished. A beautiful small-flowered species is *D. transparens*, which is appropriately named, as its flowers are of exquisite delicacy, pale transparent lilac, and neat in shape. It blooms in the same way as the famous *D. nobile*, of which there were also several specimens full of bloom. *D. Dalhousieanum* is a very large-flowered species, bold, striking, and handsome. The flowers are of a buff colour, with the lip covered with a soft felt-like down, and enriched with two very large eye-like velvety-crimson blotches on either side of the column. A contrast to this is such sorts as *D. superbum*, the delicately coloured *D. tortile* roseum, and the lovely soft primrose *D. Pierardi*. *D. eburneum* is a distinct species, noticeable for the sharp-pointed sepals and petals, which, together with the lip, are ivory-white; the latter is relieved with vermilion markings at the base. The flower on *D. Jamesianum* is like *D. infundibulum* in expression, and almost, if not quite, as large as that of *D. formosum*; it is pure white, which intensifies the stain of cinnamon-red on the lip. In one corner of the East Indian house, a plant of *D. aggregatum* is a mass of the rich golden yellow flowers, the centre deep orange, and in its colouring showing a likeness to the rich *D. chrysotoxum*. The heavy racemes of *D. thyrsiflorum* and *densiflorum* make a glow of colour; and near the glass the neat little *D. japonicum*, which has been used so much as a parent plant, is blooming freely. The delightfully coloured *D. crepidatum* is also in flower. Indeed, it is not often we have seen so many *Dendrobies* open at one time at Kew.

Lycaste Deppei.—An old inhabitant of our gardens restored to popularity, and, judging by the two grand examples of this plant I recently saw in bloom in the Wilton House collection, deservedly so. The plants in question were well grown, bearing fine foliage and upwards of fifty flowers each, nearly all of which are expanded. The sepals are spreading and green, profusely blotched and spotted with purplish brown; petals erect, white; lip yellow, ornamented with numerous crimson dots. These plants have been grown in a temperature between that of the *Cattleya* house and the *Odontoglossum* house.—W. H. G.

Odontoglossum Halli.—This is one of the finest species of the genus, and is at the present time very grand with Mr. Buchan, Wilton House, Southampton, several plants bearing four and five spikes, which are upwards of 4 feet long, and have from fourteen to fifteen large flowers upon each. One of the characters of this plant when not in flower is said to be its long, thin, narrow pseudobulbs; this, however, will not answer for the description of Mr. Buchan's plants, as they have large, fat bulbs, some 5 inches high and 8 inches round. These plants have all been grown here

under quite the coolest treatment, and their vigour and freedom of blooming at the present time amply testify to its being the correct system.

Cattleya citrina.—The flowers of this species are gorgeous in the extreme, and are, in addition, delicately fragrant. The plants appear to thrive best on the bare wood without Moss or peat of any sort. Some growers say that this *Cattleya* thrives in baskets with peat, and others say it should have peat and Sphagnum attached to a block of wood, but I am of opinion that the bare wood answers best. This *Cattleya* will do well if kept in a temperature just above that in which *Odontoglossums* are grown, in the company of *Anguloas* and *Lycastes*.—H.

Cattleya Lawrenceana delicata.—Unlike *C. Skinneri* (to which *Lawrenceana* is nearly allied), which until quite recently produced few or no varieties, but remained *C. Skinneri* pure and simple for many years, this species is no sooner introduced than varieties begin to occur amongst the imported plants. The most distinct and beautiful variation I have yet seen was a plant flowering with Mr. Buchan; the flowers are of moderate size; sepals and petals broad, and of a delicate rose colour; lip same colour in front, with a beautiful crisp margin; throat white; side lobes of lip rolled over the column, and white outside.—W. H. G.

Odontoglossum luteo-purpureum.—This is one of the most variable species in the whole genus. Various forms of it are now flowering in the collection at Wilton House, Southampton. Amongst them I noted *spectrum*, very fine, with three spikes, each bearing eleven and twelve flowers, and each nearly 5 inches across and very round; *radiatum*, also extra fine; whilst the typical plant was well represented with bulbs as large as those just noted as seen upon *O. Halli*. Plants of this species had four spikes, each a yard long, and bearing fifteen flowers each, whilst others had spikes with five and six branches.—W. H. G.

Aerides Warneri.—This lovely species is now rarely to be met with, saving in the best collections, although in my early days amongst Orchids it was comparatively plentiful. In habit the plant resembles a slender form of *A. crispum* with narrower leaves, which rise upwards and not at right angles. The spike is long and arching and the raceme is many-flowered, the individual blooms being waxy white, the segments all broadly tipped with rich rose colour. The flowers are very fragrant and last long in perfection. It usually blooms from about midsummer, but I recently noted it in full beauty in the first week in May, which is very early.

SHORT NOTES.—ORCHIDS.

Thunia alba and **T. Marshalliana** are two exquisitely graceful Orchids in bloom now. Both have flowers of glistening whiteness, with the lip beautifully frilled.

Bletia hyacintha is a most useful Orchid for pots as shown by the specimens in flower at Kew. There is a very richly coloured form named *purpurea* in bloom.

Aerides Fmerici in bloom a few days ago at Kew is a rare species from British India. It has a short raceme of small rose-coloured blooms, with little or no scent.

Epidendrum bicornutum has few rivals for intrinsic beauty. Its flowers are of exquisite chasteness and of neat form; they are white, relieved with a few crimson spots on the lip.

Odontoglossum triumphans is flowering in several collections. It is a bold, handsome Orchid, the brown and yellow bars making a rich contrast. Amateurs should certainly grow this *Odontoglossum*.

Cattleya guttata Prinzi.—This beautiful variety is flowering in the Orchid house at Kew. The plant has a spike of six flowers, which are pale lilac spotted with purple in the sepals and petals, and the lip is bright crimson-purple; it is a charming thing.

Odontoglossum citrosimum was showing flowers a few days ago at Gunnersbury Park. This charming species has pendulous spikes bearing several handsome flowers, white, tinted occasionally with pink, the lip being of a mauve colour.

Varieties of Cattleya Mendell are commencing to bloom at Gunnersbury Park. We noted several fine forms. One had a showy rose-purple lip, and another was of exquisite shape; the lip yellow in the upper half, the lower portion being rich purple, with the sepals and petals of delicate tint.

Hardy Orchids.—Two rare, pretty, and perfectly hardy Orchids were exhibited at the last meeting of the Royal Horticultural Society in the shape of

Cypripediums macranthum and *parviflorum*. The latter we have cultivated out of doors for many years, and when in full flower there is certainly no brighter or more conspicuous gem amongst hardy plants. It delights in a sandy, vegetable loam, and requires an abundance of water during the growing season. The flowers are of a pleasing yellow, and the sepals and petals are chocolate-coloured, the former being long and twisted. Many a time have I advocated the planting of this lovely and easiest managed of *Cypripediums* in our gardens.—A. D. WEBSTER.

STOVE AND GREENHOUSE.

A FEW CHOICE GREENHOUSE PLANTS.

ON visiting one of the leading nurseries for what is usually termed hard-wooded plants last summer, I was told that the demand for them had so greatly decreased that they might almost be said to be out of cultivation as garden plants. This can only be for a time, as the elegance and beauty of some of the New Holland plants in

Organ Mountains, where it was first discovered by Gardner at an elevation of 4500 feet. It was afterwards found there by Mr. W. Lobb when collecting for Messrs. Veitch at Exeter, where it flowered in 1846.

P. MACRANTHUM was introduced from Brazil by M. J. Linden, and it flowered in his garden at Brussels in 1864; the flowers are of the largest size and rich purple in colour, but the habit of the plant is not satisfactory and the flowers are not very freely produced.

P. elegans is, perhaps, the best of them for general cultivation, and whether it is grown as an effective plant for the greenhouse or as an exhibition plant, it is equally valuable. It can certainly be grown well in a greenhouse. It succeeds best, however, if placed in an intermediate temperature early in the year and until the first flowers begin to open, when it may be placed in the greenhouse. I place the plants in a vinery, which is started at 45° at night and increased to 50° in two or three weeks. I have

that the plants may take the bush form, which they really do naturally. They are apt, however, to become rather leggy unless stopped at every joint, as I have recommended, in the early stages of their growth. The plant is very free flowering, even when of small size. In Triana's monograph of the Melastomaceæ no less than 100 species of *Pleroma* are enumerated, and not a dozen of them have been introduced to this country. Probably some of them are not remarkable for beauty; indeed, the most recently introduced species, *P. Gayanum*, obtained by Messrs. Veitch, of Chelsea, through their collector, Mr. Davies, and flowered in their nursery in 1874, has poor whitish flowers. It is herbaceous and not woody, like *P. elegans*.

STATICE PROFUSA.—This persistent flowering plant is one of the most useful either for the greenhouse or for growing into an exhibition specimen. In fact, the exhibitor who neglects to provide a good specimen or two of this *Statice*, if the exhibition is in May or June, will be at a considerable disadvantage. It is of rapid growth, and soon forms a large handsome plant. A nice example may be purchased cheaply in any good nursery to start with, and it is strictly greenhouse; but during winter a very low temperature is injurious if long continued; it is better, I think, that it should fall below 45°. I do not think either manure or leaf mould are very desirable agents to mix with the compost, but the plants succeed well in a potting soil of equal parts good turfy loam and turfy peat, with some sharp sand added if necessary. These plants require good-sized pots, and until they are of moderate size should be repotted twice a year, but when large one potting each year will suffice. All these hard-wooded plants should, when growing, be placed near to the glass roof, and must not be over-topped with rapid growing *Pelargoniums*, *Cinerarias*, &c. Plenty of light and air are essential to the production of healthy specimens furnished with good foliage to the rim of the pots. The flowers last well when cut from the plants, and the latter will remain in beauty two or three months. The flowers are blue, with a white corolla; the white part drops off, leaving the blue portion, which remains attractive for many weeks after. The young plants grow most satisfactorily if the flower spikes are pinched off before the flowers open. This is necessary for the production of good specimens. Young plants will bloom quite as well as old ones if allowed to do so; but the free production of flowers prevents the rapid formation of large plants.



Statice profusa.

their endless variety of form and colour cannot be equalled by any other class of plants. The plants I wish to allude to are those having blue or purple-coloured flowers, such are not so often seen in our greenhouses as they ought to be. *Azaleas* are handsome and useful in their way, but they lack the characteristic beauty of such plants as *Leschenaultia biloba major*, *Hovea Celsi*, *Statice profusa* (here illustrated), and *Pleroma elegans* as well as *P. macranthum*, the last, however, a stove plant.

PLEROMA SARMENTOSA does not seem to be much known to cultivators. It is a handsome species, discovered in the first place by Humboldt and Bonpland in Peru, and subsequently by Dr. Jameson at an altitude of 8000 feet, near Cuenca. It was flowered in December, 1866, by Mr. Isaac A. Henry, F.L.S., who raised plants from seeds sent by Dr. Jameson. The flowers are of a rich blue-purple colour.

P. ELEGANS has larger flowers, freely produced, and of a rich purple colour. It is a native of the

propagated it freely in the greenhouse. The cuttings should be taken off with a heel attached from the parent plant in July or August. Half a dozen of them may be planted firmly in a 5-inch pot, using a compost of two parts peat to one of loam, add plenty of sharp sand to it, and finish off the surface with half an inch of pure sand. The cutting pot should be enclosed in a larger one, filling up the space between with sand, on which the bell-glass should rest. They must be shaded from bright sunshine, and the glass should be removed every morning and wiped inside with a dry cloth. The cuttings do not strike root so quickly in a greenhouse as they would in a warm propagating house, but they produce none the worse plants on that account. As soon as the cuttings are rooted they should be carefully potted. Three-inch pots are best. The plants should be placed in a house with a temperature of 50° to 55°, and as they continue to grow, pinch the shoots at every joint, and train out the growths in order

LESCHENAULTIA BILOBA MAJOR.—I would like to put in a word in favour of this good old New Holland plant. It never could be grown into a very large specimen, but it used to be shown well twenty-five years ago at the Regent's Park and other large exhibitions, and came in well as a corner plant in a collection of twelve specimens or more. Mr. John Fraser, of Lea Bridge, used to show it better than anybody. It requires some cultural skill to grow it into a well-formed bushy specimen, as the shoots grow more upright than those of the free-growing *L. formosa*, and they split off too easily when an attempt is made to tie them out in order that the plants may be trained into bush form. They require frequent tying out and pinching as growth progresses, and they must also be repotted as frequently as may be necessary. A little loam should be added to the brown fibrous sandy peat, which is the soil the roots take most readily to. The plants are well worth caring for, as the lovely blue flowers, which are freely produced, are charming. If they should at

any time seem to get into bad health, an examination of the shoots may reveal green fly closely clustering near the tips. They are quite the colour of the bark and not readily seen amongst the leaves. The plants may be dipped in a solution of soft soapy water, which destroys the pest, if fumigating with tobacco smoke is undesirable. This is also a greenhouse plant, and does not suffer so readily from cold in winter as the Statice. It may be freely propagated from cuttings inserted in sandy soil and placed in the greenhouse under a bell-glass.

HOVEA CELSI.—Another favourite New Holland plant which we have grown for twenty-five years is also now in flower. It is a plant not often seen, but when well managed its pretty blue-purple flowers seldom fail to please. It succeeds best raised from seeds, and small plants of it flower very freely, so also do large specimens twenty-five years old. It cannot be grown into a dwarf bush like a *Leschenaultia*, as the habit of the plant does not admit of it. The shoots will grow up, and bending them down will utterly spoil the plant. Let them grow, and when the flowering period is over cut them back to half their length. The potting soil and general treatment are much the same as that recommended for the *Leschenaultia*.

J. DOUGLAS.

White-flowered forcing Pelargoniums.—Two of the best of these are *Venus de Milo* and *Volonte Nationale alba*. In the case of *Volonte Nationale alba*, the deep rosy pink blotch is not so distinct as in *Venus de Milo*, but the former is the earlier. It is decidedly the best of the two early in the season, but later *Volonte Nationale alba* surpasses it. I saw these two at Messrs. Cannell's nursery at Swanley a few days ago, where they are largely grown for cutting from, and Mr. Cannell said they had been in bloom since Christmas, and they were still putting forth flowering branches. Both are of an excellent habit of growth and remarkably free blooming. The old double white, *album plenum*, should be noted as a very useful Pelargonium for cutting from. At Swanley I saw a white sport from the well-known *Madame Thibaut*, a pretty light pink variety which, if it can be fixed, can scarcely fail to be very useful. For supplying white flowers at Easter these Pelargoniums are invaluable.—R. D.

The shrubby Mimulus (*Diplacus glutinosus*). is a very old inhabitant of our gardens, and one that for some reason or other has almost dropped out of cultivation, though there are many far less deserving subjects than this for which a place is still found in most gardens. It is easily cultivated, for, given the protection of a greenhouse and potted in fairly good soil, this native of California will bloom for months together—indeed, it is seldom quite out of flower. There is a considerable variation in the colour of the blossoms, some being almost yellow, while others are nearly bright crimson. The majority of those that are met with have flowers of a buff or salmon-buff tint. In growing this *Diplacus*, the plants should as the pots get full of roots be assisted by occasional doses of liquid manure, as this is better than shifting them on into very large pots. Cuttings strike very easily, and besides that seeds are also readily obtained. By growing seedlings there is always the chance of raising some superior to the parent, even if these anticipations are never realised. Where, however, a superior form exists, the only method of propagation that can be depended upon is by means of cuttings. If planted out in the open ground during the summer the *Diplacus* will both grow and flower freely.—H. P.

Utricularia montana.—The Bladder-worts are receiving considerable attention just now from the hands of Mr. Sander, of St. Albans, whose collectors have from time to time been successful in getting several novel and highly-coloured species. It is to be hoped that the Bladder-worts will receive more attention from the hands of plant

growers than has hitherto been the case. They are looked upon as Orchids by a great many gardeners, but really have nothing in common with those plants, but as they enjoy an abundance of heat and moisture, they thrive admirably in the warm Orchid house. *U. montana* is the most familiar form, producing the largest flower of any kind yet introduced. It deserves a place in every garden which has a suitable place for it, the flowers being pure white with a stain of yellow at the base. This plant is grown in quantity by Mr. Buchan, Wilton House, Southampton, the hanging basket at the present time being covered all round with abundance of blossoms. The plants are grown in peat and Sphagnum and suspended from the roof near the glass.—W. H. G.

RHODODENDRONS FOR POT CULTURE.

AT the last exhibition of the Royal Botanic Society Messrs. H. Lane and Son, Berkhamstead, contributed a group of hardy Rhododendrons in pots, and they must have been cultivated in them in order to have had them in flower in April. I took the names of the following because they were distinct in colour, very free-flowering, carried bold trusses, and of decided decorative value: *Rosenn pictum*, clear pale rose; *Nero*, dark purple-crimson; *Sir Joseph Whitworth*, fine dark; *James Mason*, Beauty, *Pelopidas*, very fine, bright crimson; *Duchess of Sutherland*, white with broad margin of rose; *Sigismund Rucker*, purple-crimson; *Kate Waterer*, very fine; *Princess Mary of Cambridge*, white edged with rosy purple; *Star of England*, *Charles Bagley*, Mrs. J. Clutton, pure white, one of the best whites grown; *Sylvia*, delicate rosy pink; and *Cynthia*, also a charming light variety. It would be an easy matter to add to this list, but it may be taken as furnishing a very fair representative collection.

Rhododendrons that are intended to be forced should be lifted from the open ground in autumn and potted, reducing the balls as little as possible in the act of doing so. To trim the roots of Rhododendrons in too much in order to enable them to occupy certain pots will be certain to do some injury to the plants. The latter require to be brought on gradually in a moist and warm atmosphere, frequently syringing overhead, and when the buds are well formed, giving the plants some weak liquid manure occasionally when the flowers are expanded. They can then be taken to the conservatory, and should be shaded from the sun, and with due care and attention they will remain in bloom for a long time. When they have done blooming they should occupy some safe place until they can be placed in the open with safety, and then they should be planted out and allowed to rest for one or two years before being again subjected to the forcing process.

R. D.

St. James's Flower (*Lotus Jacobæus*).—There is little danger of confounding this free-flowering greenhouse plant with any other, as the deep velvety-purple (indeed, almost black) hue of its blossoms serves as a distinguishing feature from all its associates. The plant under notice is a near ally of our own Bird's-foot Trefoil (*Lotus corniculatus*), but in general appearance it is totally different. It forms a much-branched, but slender-growing plant, with hoary foliage and a profusion of Pea-shaped blossoms, the deep colour of which is still further intensified by the light-coloured leaves. *L. Jacobæus* is rather liable to perish during the winter, especially if it be long and severe, but when growth recommences in the spring the shoots then produced are not difficult to root. Seeds are also produced from which young plants can be readily raised, but they do not flower quite so freely as those propagated from cuttings. It is a native of the Cape de Verd Islands, and will both grow and flower well if planted out during the summer months; indeed, it is perhaps more showy so treated than under any other conditions. This *Lotus* is a very old plant in gardens, and at one time was more frequently met with than it is at present.—T.

Hoya carnososa.—This old plant which was once such a favourite is now in splendid condition in the

gardens at Birdhurst, Croydon. The plant in question is growing upon the back wall of a stove, and derives nourishment from no other source. It covers a space of about 7 feet by 5 feet, and at the present time has seventy-eight fully expanded umbels of its beautiful wax-like flowers, which yield a delicious perfume.—H.

SPIRÆA PALMATA.

THOUGH it is impossible to get this species in flower as early in the season as the white-blossomed *S. japonica*, it is nevertheless extremely useful for the decoration of the greenhouse from now onwards, as with just a little assistance it may be had in bloom at the present time, and by varying the treatment of a few batches, a succession may be kept up for two months. The one great essential to its well-doing, whether in pots or in the open ground, is an ample supply of water, whilst occasional doses of liquid manure are of great service, not only towards inducing the formation of large bold heads of blossom, but also in developing the handsome foliage, as a well furnished plant is so ornamental in this respect as to merit cultivation for the sake of its foliage alone. It does not seem to be cultivated by our Continental neighbours in the same wholesale manner as they grow *S. japonica*, but in this country Mr. Noble has for years made a speciality of this *Spiræa*, and disposes of great numbers every season. Good well-grown clumps should have the dormant crowns as large as the top of one's finger, and it is only from such crowns as this that the greatest measure of success can be hoped for when grown in pots. When planted in the open ground, a spot near a stream or some such position should be chosen, otherwise provision must be made for a liberal supply of water to the roots. The cultural requirements of those plants that are needed to flower under glass are very simple, provided, of course, that one has good strong crowns to commence with. They should be obtained while still dormant, and potted into some good soil, such as open loam with a liberal admixture of well-decayed manure, and, if necessary, owing to the consistency of the loam, some leaf mould to lighten the compost. The size of the pots will of course depend upon the clumps that are available, but in a general way from 6 inches to 10 inches in diameter, according to the size of the plants, will yield very satisfactory results. When growing, plenty of room must be allowed for the development of the foliage, and on no account must the soil get dry, as if this happens only once the leaves lose a good deal of their colour and the plant is consequently less attractive when in bloom. There is a variety with pure white flowers introduced from Japan a few years since by Messrs. Veitch, which forms an admirable companion to the normal type. Apart from the colour of the blossoms, the foliage of this kind is also of a lighter green. There is yet a third plant bearing a general resemblance to *S. palmata*, and reported to be the result of a cross between that species and *Spiræa* or *Astilbe japonica*, which origin, however, seems at least very doubtful. I allude to *S. palmata elegans*, which in any case is far less valuable from an ornamental point of view than either *S. palmata* or its white variety.

T.

SHORT NOTES.—STOVE AND GREENHOUSE.

Medinilla magnifica is blooming freely with Mr. Hindson, of Gunnersbury House. It is a curious and beautiful flower, having drooping panicles of rose-pink blossoms. It requires stove treatment.

Passiflora kermesina.—This is a very free-flowering and elegant Passion flower. It is of a brilliant crimson colour, and a beautiful thing for training along the rafters in the stove. It is in bloom at Gunnersbury House.

Tetratheca hirsuta is a charming flower; its slender stems are wreathed with lilac-purple flowers of delicate beauty. Mr. Roberts, of Gunnersbury Park, has a plant of it in full bloom.

Gloxinias are grown well at Gunnersbury Park, the plants throwing up a mass of bloom. The flowers vary considerably in colour from the purest white to the richest crimson; a white form seemed full of promise for the robustness of its bloom.

Begonia Comte de Limminghe.—This is one of the best Begonias for growing in suspended baskets, as the stems will hang down for a considerable distance and produce in great profusion

their reddish salmon-coloured blossoms. The foliage is also of a very pleasing shade of green, so that irrespective of blossoms a basket well furnished with this *Begonia* is a very pleasing object. Its loose, rambling habit, when treated in any other way than as a basket plant, enables it to be employed for furnishing pillars or for similar purposes. When grown with this object a good plan is to tie the *Begonia* in position as it increases in size until the space required is covered, when the shoots may then be allowed to grow at will. By this means there is a total absence of stiffness or formality which so often detracts from the beauty of pillar plants and climbers. Like the rest of its class, this *Begonia* will strike very readily from cuttings of the young growing shoots; indeed, just as readily as a *Fuchsia*, and under the same treatment.—H. P.

WORK IN PLANT HOUSES.

STOVE.—*BOUGAINVILLEA SPECTABILIS*.—This fine climber seldom answers well unless it is planted out, being too strong a grower to have its roots confined within the limits of a pot. Flowering as this species virtually does from the preceding season's wood, or on growths not more than a few inches long, it requires to be differently treated in respect to pruning to the better-known *B. glabra*, that blooms from the long, immature shoots of the current season, and which should be pruned in winter before the plants begin to grow. The right time for pruning *B. spectabilis* is as soon as it has done flowering, which in most cases will be now near at hand. The extent to which the cutting back requires to be carried depends on the space the plants have to fill, but in all cases the pruning should be such as to encourage the production of an even clothing of branches over the whole space the heads are intended to occupy. In the cultivation of this plant, it is necessary that a proportionate balance is kept between the room allowed for the roots and the top. Being naturally a free grower, if the roots have more space than is requisite, it is not easy to keep the head within bounds; yet the opposite course of confining the roots too much must be avoided. It will be an advantage if at the time of pruning a few inches of the old soil are removed from the surface of the border, and a mixture consisting of good fresh loam, rotten manure, and sand is put in its place. This, with the use of manure water later on when growth is being made, will secure the requisite strength in the young shoots. An impression sometimes exists that this *Bougainvillea* will not do without a high temperature, accompanied by means for roasting the roots during the resting period. This is a mistake, as the plant will answer with an intermediate temperature and keeping the soil quite dry through the winter. This last is essential to the free production of bloom.

SPRING-FLOWERING STOVE CLIMBERS.—It is a common occurrence to see the vigorous growing kinds of stove climbers thrive and flower well for two or three years after planting, and then begin to make weak, puny growth of a character that causes them to bloom sparingly. This often comes about through the supply of nutriment in the soil getting exhausted, and so the growth dwindles. The remedy for this is by removing a little of the surface soil and replacing it with new that has been made rich with rotten manure, and by surface-dressings of concentrated manure. Where these measures are taken at the right time there will be little falling off in the blooming of plants of this description, for so long as the drainage of the border keeps right, the sustenance required to maintain the strength of the plants can be given in the way described. Climbers of the character named that bloom in the spring should, as soon as they are out of flower, be cut in.

SUMMER-BLOOMING STOVE CLIMBERS.—Such climbers as the different kinds of *Allamanda*, *Dipladenias*, *Bougainvillea glabra*, *Aristolochias*, and others that either flower continuously through the summer and autumn, or produce successional crops of bloom, will now have got well hold of the soil after repotting, and should be regularly supplied with manure water. It is only by the plants being

well supported in this way that the growth can be kept up sufficiently to admit of the full quantity of flowers being produced. Where a liberal amount of solid manure has been mixed with the soil in which the plants are potted, this is sometimes thought to be sufficient, but quick, free-growing subjects such as those named soon exhaust whatever is incorporated with the soil, and must be kept going by manual assistance afterwards, or they will lack the requisite vigour. To make the most of the plants in question, it is requisite that the manure water should be used early in the season and applied as long as it is necessary, so that the plants should be kept moving freely.

NEPENTHES.—Cuttings of *Nepenthes* that were put in some time back should be potted off as soon as they are fairly rooted. On no account should they be left together in the material in which they have been struck until the roots get interlaced in each other. One of the essential conditions in the cultivation of these plants is to see that the material in which they are potted is of a character that will last long without getting too far decomposed for the roots to keep healthy in, as there are no plants in cultivation that have such a dislike to anything in the way of shaking out. The fibrous material from the best Orchid peat, with only a very little of the earthy matter left in it, with some chopped Sphagnum, small potsherds and sand, forms the best compost for growing them in; 3-inch or 4-inch pots are large enough to put the plants in at first. The pots should be one-fourth filled with drainage. Secure the stem of each plant to a small stick so as to keep it firm in the pot until it has got well established. After potting keep them as close for a time as found necessary to prevent the leaves becoming limp. If anything like flagging occurs it is most likely to end in no further progress being made. When the roots begin to move, gradually expose the plants to the full air of the house, which never should have so much air admitted as will dry the atmosphere to the extent that many things require. During the first summer they will make the most headway if kept on a stage next the glass on one side or end of the house, with the pots stood on material of some kind that will hold moisture. After a season's growth has been made it is best to hang them up close to the roof at the warmest end of the house, admitting no top air immediately near them. Plants that have had their roots so long in the same soil that it has got sour and adhesive, should be turned out of the pots and have all the old material washed clean away from the roots. This may be done by plunging the balls in a pail of tepid water, or by laying them on their sides and washing the soil away with the syringe. Put the plants in soil such as described. In potting, the material must not be pressed down close in the way that is practised with most things, or many of the roots will be broken. From this time onwards through the summer, *Nepenthes* should be watered daily, syringing them freely overhead in the afternoons when the air is shut off. A little thicker shading material should be used for them than for the generality of stove plants.

TREATMENT OF OLD NEPENTHES.—Old plants that have got stems so long that the pitchers have begun to come without the wing-like appendages should be headed down to within 6 inches or 8 inches of the bottom. Treated in this manner, each stem will produce two or three shoots, and so form much finer specimens bearing proportionately larger numbers of pitchers than possible with single-stemmed examples.

GREENHOUSE.—*LOMATIAS*.—These hard-wooded New Holland plants are seldom met with, yet the elegance of their foliage is almost equal to that of many of the most beautiful Ferns. The growth of all the species is slow, with little disposition in the plants to become weak or drawn. Even when kept in a house where there is not sufficient light for most things, such as a lofty conservatory where many subject would not thrive, the hard texture of the leaves is such as to enable them to last in a healthy condition for many years. For occasional use in the decoration of rooms or halls associated with flowering or other plants, the *Lomatias* can be employed with the best effect. The plants are also

of lasting character, and with ordinary treatment will keep on improving for several years, as when they get at all bare of leaves at the bottom by cutting them down they will push up a number of shoots so as to form a handsome bush. The best kinds are *L. elegantissima* and *L. silaifolia*, both of which are distinct and handsome. As already said, being slow growers, they require less root room than many things, but in the case of young examples that it is desirable to grow on, it is better to give proportionately larger pots than will be required when the plants become older. Plants that need more room should now have a shift. Good turfy loam answers best for them, and enough sand must be mixed with it to keep it porous for a length of time, as there should be no occasion for renewing the soil when once the roots have taken possession of it. After potting keep the plants a little close for a few weeks, and until an effective size has been attained it is well to give them warm greenhouse treatment during the growing season. This is not, however, necessary further than that it saves time in growing the plants on in size. In the first two or three years it is requisite to attend to stopping the shoots, so as to get the specimens to branch out sufficiently with a view to their keeping furnished at the bottom. The hard texture of the leaves renders them proof against insects, but a syringing overhead daily through the summer helps the growth.

T. B.

CINERARIAS.

JUST over thirty years ago the late Mr. John Edwards, who was in his day a representative florist, held that the *Cineraria* of that period should in its outline form a perfect circle, and the florets be arranged in a symmetrical margin without serration or indenture, and he asked if the florist demanded too much in holding up his ideal flower as a model. He did not require that Nature should vary any immutable law at the bidding of the florist, but in striving for a circular outline he held he was merely asking for an improved petal, and that he simply required of Nature such a development as she had furnished in the case of other flowers. Mr. Edwards did not live to see all his conceptions realised, but they were some way onwards towards realisation at the time of his decease. He also gave a diagram of what he conceived to be a perfect *Cineraria* bloom, and had he lived to see what Mr. James produced at the last meeting of the Royal Horticultural Society, he would have witnessed not only the perfect circularity of outline for which he contended, but also this desired rotundity of form in association with flowers of such size as Mr. Edwards never dreamed of. Another point in the quality of the *Cineraria* held in that day was that the diameter of the disc should nearly equal the length of that portion of the petal which is visible, or, in other words, it should appropriate about one-third of the diameter of the flower. This also was fully realised in blossoms found in the named varieties of fifteen or so years ago, and I think the blossoms of that time were so perfect in finish and refinement, as to be much more attractive than the much larger and certainly less refined flowers that find favour at the present day. With size has certainly come roughness, but it is held that such types are better for decoration than in the case of the smaller-flowered varieties which preceded them.

It was also held that the colours should be deep and well defined; and that if there were more colours than one they should be distinct and well contrasted. With time have come both depth and brilliancy of colour, and they are well defined, in that the shades, while they harmonise, do not run the one into the other and appear confused. Purity in the ground of the tipped varieties, *i.e.*, when the white band round the disc was edged with some shade of colour, was held to be indispensable, because of harmonious contrast. And it was further held that the disc and petals should harmonise in tone also, and the dark disc was held to be of greater value in securing this than the grey or light one.

But we are in danger of losing to some extent one of the chief points observed in the named

varieties of years ago, namely, the circularity in the zones of colour. In looking over Mr. James' collection I could not help being struck with the fact that in not a few cases of flowers having the white ground the marginal colour ran down into it in the form of peaks, breaking up the circularity of outline which added so much to the refinement of the flower. This rounded zone of white is to the Cineraria what the zone of white paste is to the show Auricula. In the Auricula the paste is a circle of brilliant white meal, smooth, dense and circular in all good flowers. An angular paste in an Auricula would rob it of its refinement, and the same holds good when the tube is also angular. And as in the Auricula, so in the Cineraria, each ring of colour in the case of edged flowers should occupy a fair and distinct proportion of the flower in about equal widths. "The standard may seem stiff in print, but in the living flower the free touch of Nature is precise without being formal and hard. The rounder and flatter the petals are the more distinct and unbroken the lines of beauty appear, and, as a rule, the greater the substance the longer the life of the flower." This was written of the Auricula, but it is equally true in the case of the Cineraria. In these days the latter is being greatly increased in size, but it is at the expense of some other good qualities in the flower.

R. D.

DESTROYERS.

GARDEN INSECTS.

A KNOWLEDGE of the habits of insects which are injurious to cultivated plants is always essential to the gardener, because it places him in a position for more effectually dealing with such enemies. Many insects pass through three or four stages in the course of their existence, and in one or other of these stages they can often be more easily destroyed or their ravages prevented. Therefore, the order and family to which a certain insect belongs, and the time and number of its transformations should be studied, so as to be ready to apply the needful specific at the proper time.

In the kitchen garden some insects are very destructive, the Brassica tribe, especially Cabbages and Cauliflowers, being particularly subject to them. The Cabbage moth (*Mamestra brassicæ*) is one of the worst, as the caterpillars of the moth which does the mischief bury themselves in the heart of the plant, and there in security carry on their work of destruction, soon spoiling the appearance of the plants, as well as rendering them unfit for the table. The larvæ thus being difficult to get at, our attention should be given to the moth, which flies at night. When I was an enthusiastic collector of insects, one of my best traps for obtaining the common Noctua moths was old bast mats. Wherever one of these mats laid in the garden, moths were sure to hide in it, and in the morning they could be shaken out and captured. This is one of the best means for destroying the Cabbage moth. The chrysalis is brown and shining, and is often found when digging in the winter time and should always be destroyed.

Every gardener is familiar with a large fat grub, commonly known as leather-jacket, from the tough nature of its skin, and which is so destructive to young plantations of Cabbage, Cauliflower, Lettuce, and many other crops. Even the flower garden does not escape from its depredations—Asters, Pelargoniums, and other things coming in for a share of attention. This grub is the larva of the Turnip moth or garden dart (*Agrotis segetum*). The moth or perfect insect appears in June, but the larva seems to be always with us, for, unlike that of most insects that pass the winter in this state, it does not hibernate, but keeps on feeding, merely going deeper into the earth as cold weather sets in; in the spring it comes again to the surface. Its whereabouts is only too well known by the appearance of the plants attacked by it, as they suddenly droop and die from no apparent cause, but if the plants are examined, the stems will be found eaten nearly through or quite severed just below

the ground line; while a little deeper in the earth the culprit will be found. We are greatly troubled with this insect, often finding two or three grubs at one plant, and generally losing a third before we can unearth and destroy all the enemy. They are smoke-coloured; the skin is very tight and shining, and when brought to the light they roll themselves into a ring. The best way to destroy them is to search in the ground by the affected plants till all are captured. The moths have smoky brown upper wings and pearly white under ones, and may be captured in the same way as recommended for the Cabbage moth. As a preventive, a dressing of gas-lime should be lightly forked into the ground before planting takes place.

The white Cabbage butterflies, large and small (*Pieris brassicæ* and *Pieris rapæ*), are well-known frequenters of our Cabbage plots, and in the larva state commit sad havoc by eating the leaves of these plants. There is less excuse for the destruction caused by these insects, as they are conspicuous in both the larva and imago stages and are easily destroyed. A lad with a gauze net will soon clear a garden of the butterflies if he goes gently to work; especially is this mode of capture to be recommended for the spring brood appearing in May, as by destroying these we kill two broods. The larvæ of the large one are easily detected from their size and the yellow stripes on their sides, and as they generally feed in gangs, they can soon be cleared off the plants by hand-picking. With the small one this is not so easily accomplished, for being of a green colour, resembling the leaves of the plants, to which they lie very closely, they require a very sharp eye to detect them all.

Except when the plants are in a young state the use of insecticides should be avoided, the idea of eating leaves which have been drenched with paraffin and soft soap not being very pleasant. One other enemy to the Brassica tribe I will mention is the Cabbage fly (*Anthomyia brassicæ*). This insect belongs to quite a different order, and would be taken by the general observer for a very small gnat, but its larvæ are capable of committing great havoc, and sometimes they attack the roots and stems of the plants, which soon flag and turn yellow. Where this pest is troublesome, the roots of the young plants, when being transplanted, should be dipped in a puddle made with lime and soot, and all infected plants should be burned.

A very troublesome insect belonging to the same order is the Onion fly (*Anthomyia phorbia ceparum*); to get rid of this pest from the garden requires time and patience. I have noticed that the plants most subject to its attacks are those growing in light soil, containing a quantity of humus. Manure should be withheld from such ground for a time, and a good dressing or two of lime applied. This will be the means of sweetening it. When the seed is sown plenty of fresh wood ashes should be placed in the drills, and when the plants are well above ground, a dressing of soot and wood ashes will prove a great check to the newly-hatched grubs, as the first eggs are deposited on the young plants, and the grubs descend to the ground before entering the bulb to feed. A weak solution of paraffin syringed on to the plants about this time will also prove beneficial. Any plants that show signs of the maggot by turning yellow should be dug up with a trowel and burned, soil and all, as if the plants are simply pulled up with the hand the enemy will still be left in the ground. When the crop is harvested burn all the unsound bulbs, also any weeds or rubbish on the plot, and if the surface of the ground is charred, all the pupæ will be destroyed. If the above course is persisted in the Onion fly will soon disappear.

A beautiful little fly, called the Celery fly (*Tephritis onopordinis*), is in some years very destructive to the Celery crop. Its presence is indicated by the appearance of whitish patches on the leaves. There seems to be no more effectual remedy than picking off the affected parts. This should be done on their first appearance, as several broods appear during the summer. This fly is, I think, not peculiar to Celery, but feeds on other plants.

Two of our choicest vegetables, viz., Peas and

Asparagus, are not liable to the attacks of very injurious insects. I have seldom seen an Asparagus bed where I could not find the little red-and-black beetle peculiar to this plant, but I have never seen it in numbers sufficient to cause serious mischief. Of the several insects injurious to the Pea, the most troublesome I have found is a small brown weevil, a species of *Bruchidæ*. It attacks the plants just as they are coming through the ground, eating the leaves round the edges, and in some instances, if the weather is dry, quite defoliating the plants. It was some time before I could discover this depredator, and I have no doubt many people attribute the injury it causes to slugs and birds; but on going to the rows one night with a lantern, I found the plants covered with these weevils. I have never found them amongst the seed Peas, but I fancy that is the way in which they are introduced. The best means of preventing their ravages is dusting the plants with soot and lime when wet, also tobacco powder. Treading the ground firmly close to the plants and giving them a good dressing with wood ashes will stop the holes and cracks in the soil into which the insects retreat during the daytime.

The Carrot has a very formidable enemy in the Carrot fly (*Psilæ rosæ*). In some gardens it is difficult to obtain a crop of Carrots owing to this insect. The grubs bore into the roots, and if they do not kill the plants outright, the crop is spoilt and unfit for cooking. In preparing ground for Carrots, plenty of burnt refuse should be mixed with the soil and the use of rich manure avoided; if a stimulant is wanted, guano or some other artificial manure is preferable, and when sowing the seed, mix plenty of wood ashes and soot with the soil for filling in the drills.

There are many other insects injurious to vegetables, but the above are some of the worst and most difficult to deal with, and when numerous they all require strict attention to eradicate them. Much may be done to prevent the attacks of insects by proper cultivation of the ground.

Hindlip.

A. BARKER.

GARDEN FLORA.

PLATE 649.

WHITE-FLOWERED AZALEAS.

(WITH A COLOURED PLATE OF AZALEA DEUTSCHE PERLE.*)

AZALEAS may be divided into two classes, the deciduous hardy kinds, and the evergreen or greenhouse varieties, to which we here confine our remarks. They belong to the Heathwort family, and are very closely allied to *Rhododendrons*. Thanks to the persistent efforts of the florist and hybridiser, Azaleas are now to be found of almost every shade of colour, whilst they are extremely free flowering, and their blooms yield a delicate perfume. These qualities combined have led to their becoming universally popular, and they are now almost indispensable, not only to those who have accommodation for them as window plants, but also for those who grow them into enormous specimens for the embellishment of their large greenhouses and conservatories, and for public exhibition. With all this popularity, however, I have never heard a good English name for these Indian Azaleas.

Azaleas are extremely free-flowering and ornamental, and they yield easily to the influence of artificial heat, so that with a little gentle forcing plants may be had in flower from Christmas to midsummer, if a sufficient stock can be kept to maintain the succession. Moreover, the plants that have been forced for a year or two will naturally produce their blooms earlier, and, therefore, these particular plants should be kept

* Drawn for THE GARDEN by H. G. Moon, from flowers sent by Mr. Denman, Covent Garden, January 18, 1888, and lithographed and printed by G. Severeys.



AZALEA "DEUTSCHE PERLE"

for the earliest bloomers, as very little forcing will be necessary. Those plants which have been forced should be kept in heat to finish their growth, and when this is completed, removed to the greenhouse, and afterwards to the open air, in order to thoroughly ripen their wood and set their buds for the next season, but those plants which have not been forced I prefer to grow in the open air, and if the plants are not too large and unwieldy planted out in the open. I am quite aware many disagree with this system, but I have never known anyone who has given it a fair trial have anything to say against it. The advantages to be obtained by adopting this system of planting out Azaleas are rich deep green foliage, entirely free from thrips, and with such an abundance of bloom as cannot be imagined by those who have only seen them under pot culture. It is true, however, that treated in this manner they do not increase in size so rapidly as those specimens grown under glass, because the growths made in a season are much shorter, but this is really an advantage to those having but limited space, at the same time the plants become very dense and compact. The only drawback I have found in practising this system was that as the plants rooted so freely when lifted in the autumn, they required, after a season or two, a much larger pot than was compatible with the size of the plant. To obviate this I had the sides of the balls of earth scored and slightly reduced every year before planting them into their summer quarters, a plan which I found to answer admirably. These Azaleas were not planted indiscriminately in the borders, but in properly prepared beds, and as the subsoil was sand no further drainage was necessary. The compost consisted of peat, loam, leaf-mould and sand, in the proportion of about three parts of the first and one each of the other ingredients. The plants were never allowed to become dry at the roots, and during dry weather the water was applied by means of a hose to the foliage and roots every evening, and I have never seen cleaner or more handsome specimens, and none which could approach them for freedom of flowering. All growers have not the convenience, however, to carry out the planting-out system, but I strongly advocate growing the general collection of plants in the open air. In the first place, it produces foliage of such depth of colour and cleanliness as is impossible to obtain under glass, even with great expenditure of labour and expense. The plants become well and regularly set with flower buds and not one-sided and gappy, as is often the case with indoor grown specimens. The plants should be set outdoors in an open space, so that the sun may shine upon them on all sides at some time in the day, and so arranged that each plant will shade its neighbour's pot. In order to prevent the pots becoming sufficiently heated to burn the roots, the outside row of pots should be surrounded by a low hedge or fence, which should not be higher than the pots, otherwise the bottom part of the plants may be deficient of bloom. In the autumn the plants should be housed before the frosts begin, and they should be kept cool and quiet, but not allowed to suffer from drought. An over-supply of moisture, however, is equally dangerous.

Azaleas are specially valuable for cut flowers, as they bear cutting with impunity. Azaleas are easily propagated from cuttings or by grafting. The latter process is the most usual, because many of the finer kinds are somewhat bad growers upon their own roots, and derive much benefit by being grafted upon a strong growing stock.

The following comprise some of the very best white-flowered Azaleas in cultivation :—

DEUTSCHE PERLE, the subject of our illustration, may be accepted as the very best double-flowered white variety in cultivation. It is a very early and free-blooming variety. The blooms in the bud state are very charming, resembling miniature Rosebuds, whilst they in all stages are of the purest white.

A. BORSIG.—A variety of good form, very double, and pure white.

BERNARD ANDRÉ ALBA is a compact-growing variety, and has a fine double flower.

FLAG OF TRUCE.—Flowers large, of good form and substance, and very double.

HELEN CARMICHAEL.—A very large double pure white flower.

IMBRICATA.—This form is the most perfect double flower I know; it is, however, sometimes streaked with rose.

LOUIS VON BADEN.—One of the best single whites.

MADELINE.—Flowers very large, smooth, and of great substance, pure white and semi-double.

MADAME CHARLES VAN ECKHAUTE.—Very handsome, large, pure white, the flowers having crisped edges.

Mlle. MARIE LEFEBVRE.—An excellent form.

MRS. WRIGHT.—A fine semi-double flower.

PRINCESS ALICE.—Finely formed pure white flowers.

PRINCESS LOUISE.—An exquisite double form of great substance.

PUCELLE DE GAND.—A very fine pure single white variety.

RAPHAEL.—A fine, sweet-scented double white form.

REINE DE PORTUGAL.—A double form of great substance.

ROSA BONHEUR.—A superb large single white-flowered kind.

SOUVENIR DE FRANÇOIS VERVAENE.—A very large free-flowering form.

W. H. G.

FRUIT GARDEN.

W. COLEMAN.

GRAFTING OLD APPLE TREES.

"A. P. S." in *THE GARDEN*, May 5 (p. 420), inquires if it will pay to behead and re-graft Apple trees from 35 to 50 years of age. If so, how long would they be before they begin to bear again?

Having myself devoted much attention to this matter, I am in a position to state from practical experience that it will pay, always provided the following conditions favour the operation. The cider varieties he wishes to convert must be clean, healthy, in good growth, what orchardists term right at the roots, free from canker, and perfectly sound in bole and limb. It is now too late to operate this season, as the heads should be cut back to within a foot or two of the points at which the grafts are to be attached early in February. Grafts, in like manner, should be taken off about the same time, and laid in under a wall or on the shady side of a hedge, as it is important that they should be kept moist, cool, and dormant until the sap in the beheaded trees is fairly on the move. Old writers say graft in March, and many modern advisers repeat these instructions, but the most successful operators, upon aged trees of Apples especially, are guided by the seasons, and not unfrequently pursue their calling down to the middle of May. April, however, in ordinary seasons, is the best month, as the sap by that time is active, but not too powerful to flood the scion and exhaust the tree by bleeding. The secret of success in grafting trees of thirty to fifty summers consists in attaching scions to a great number of small and intermediate

branches, in forming a corona of scions round the larger ones which it is absolutely necessary to cut back, and in allowing all the spray to grow wild the first and possibly the second year. The better to restore the balance between the heads and roots we invariably use two years' growths, if at hand, but strong shoots of the preceding year, and more of them, answer almost, if not quite as well, and when the time arrives for thinning, they form the best of all scions for future work, as they enable the operator to carry out the now popular system of double grafting.

As to the time it takes to restore these converted trees to a bearing condition, it is hardly necessary to say that much depends upon the success attending the mechanical part of the work, the condition of the stocks and scions, soil, situation, and, last of all, upon the varieties. By way of illustration, I may say I have seen scions of the current year studded with flower buds previous to detachment from the parents, swelling and maturing fine fruit the same season. But these are exceptional cases sometimes experienced by Grape growers who bottle-graft with scions whose bunches have been formed previous to selection from the parent Vines. Free-fruiting sorts, however, like Lord Suffield, Tom Putt, Worcester Pearmain, and many others which I could name, commence bearing the third year, whilst others, especially where the situation is a trifle too cold for them, may not produce much blossom under four years. Blenheim Orange, one of the varieties "A. P. S." wishes to increase or introduce, as all orchardists know full well, is not an early fruiter, young trees sometimes making ten or twelve years' growth before they become really fertile and profitable. When grafted on kind stocks, say thirty years of age, and allowed full extension, they set a few flower-buds the third season, mature fruit at the end of the fourth, and henceforth assume the character of thoroughly established trees. Claygate Pearmain and Cox's Orange Pippin in good situations are more precocious than the Blenheim, and I find come into bearing much earlier, but the last, "A. P. S." must bear in mind, does best on warm deep loams of the old red sandstone, and requires shelter from cutting winds in the spring. All Apples, it may be remarked, benefit by this protection, but Cox's Orange Pippin, one of our very best Apples, not only deserves, but pays for a special preparation and a warm sunny situation. Observing that the orchard in question is within this county, I venture to say I shall be very pleased to see "A. P. S." be he manager or proprietor, at Eastnor during the coming summer or autumn, and to show him trees quite as old as his which I have had grafted, and which are now progressing to my entire satisfaction. Also, I shall be able to supply him with a stock of kind wood of Blenheim Orange a second remove from the original graft if it is of any use to him. Possibly we may be near neighbours, if not acquainted with each other; but, be this as it may, I shall be glad to prove to him that the object we have at heart is as practicable as it is desirable. Due notice of his intended visit should be given to prevent mutual disappointment.

The Plum blossom.—As far as this district (Middlesex) is concerned, there is a marvellous wealth of blossom on the Plum trees to be seen on every hand. Last year was, on the whole, a good Plum season, but this year, should the weather prove favourable to the setting and stoning of the fruit, we may reasonably expect to see a very heavy crop. As I write I can look upon several hundreds of fine

young trees of Victoria Plums that are so full of bloom that they appear as if a light fleecy snow had enveloped the branches. The crop will be tremendous if nothing happens to diminish the bounty of Nature. Standard Green Gages are much fuller of blossoms than they have been for years; the same can be said of Prince of Wales, Jefferson's, Orleans, &c. What is wanted is warm nights and genial sunny days. But May is a treacherous month, and the frosts that happen between the 12th and 26th of the month are a terror to gardeners. May will indeed be wreathed in flowers during the present year, for Cherry, Pear, and Apple trees are breaking into blossom on every hand. A walk through the fruit gardens of Middlesex during the next week or two is one well worth taking. Let anyone interested take the District Railway to Mill Hill Park, change there into the Hounslow train, ride to Heston, walk from thence to Southall, and return by the Great Western train, and they will be able to witness acres of fruit trees in blossom and realise some idea of the contribution Middlesex makes to our fruit crops when the season is an auspicious one.—R. D.

STRAWBERRY CULTURE.

AUTUMN v. SPRING PLANTING.—In making new plantations from late runners I have hitherto been in favour of doing the work in early spring rather than in the autumn. I have thought that the plants were more likely to grow away freely when the soil had been subjected to aëration for a week or two previous to planting in spring. Everyone knows what the March winds do for the ground, how they extract noxious gases, and speedily bring it into that sweet, mellow condition which is so favourable to root-formation. When ground is dug up in autumn, it is apt to be brought by battering rains into a close and somewhat sour condition, this, of course, being especially the case with soils of a heavy, moisture-holding nature. The experience of the last two years has, however, exercised a modifying effect on the opinions I formed on this matter. The weather has each year during March been so very unfavourable for planting of any description, the ground being so hard frozen three weeks out of the four as to render the working of it nearly, if not quite, impossible until the end of the month. With all the expedition that could possibly be exercised the plants could not be got in before the middle of April, and although plants put in at this time will, if well looked to, do very well in a favourable season, they are liable to get caught by arid, parching weather before they have got good hold of the soil. Much labour, too, is incurred by the watering, which is absolutely indispensable if May and June are dry, and last year these months were so parching that spring-planted Strawberries had a difficulty in getting well into growth. They were, therefore, in a very unfit condition to combat the long period of heat and drought later on. There is no doubt that the only Strawberries that did really well last summer were those that were put out in autumn. Many that I planted in spring were little bigger in the autumn, and some that could not be watered perished. I came to the conclusion, that to be safe, some portion of the stock should at least be set out in autumn, so that as soon as I could I lifted the Potatoes and put Strawberries in their place. Beauty of Hebron was cleared off early in September, and advantage being taken of the few moist days that we had in that month, the ground was planted at once. The runners soon got well hold of the soil and became so well established by winter that they were not at all loosened by frost. Others put out in October also look very well, and beyond keeping them clean, I shall have no further trouble with them. There is, of course, a great difference in planting early in autumn and just before the approach of winter lowers the temperature of the soil. I should scarcely include November in the autumn months, but many do so, and are consequently rather misled by advice given on this subject. By another term, autumn-planting, as applied to the Strawberry, I should understand that period which commences the first week in September and ends by the last week in October

at the latest. Young runners put out after that time are very liable to be thrown out of the soil or loosened by frost, and are, of course, in a totally different position from such as were put out six weeks ago, and whose roots have gone down several inches into the ground.

AUTUMN MANURING.—Whether a Strawberry be in a pot or in the open ground, it requires until growth has ceased a certain amount of food. A prevalent impression that nothing more than clear water is needed after August is quite a mistaken one. The time of really active growth frequently only sets in towards the end of August, and this is just when pot plants are often root-bound and the soil in a more or less impoverished condition. A top-dressing at this particular period has a very beneficial effect on the size and substance of the crowns. I have more than once seen good plants go back considerably during September, simply for want of a little feeding just as the roots had taken full possession of the compost. Open-air plantations that have borne a good crop are much benefited by a good soaking of liquid manure, or by a top-dressing of some stimulant put on in a showery time.

RIPENING THE CROWNS.—That sunshine is necessary to mature a Strawberry crown is a fact that cannot be denied, but whether a plant is the better for full exposure to bright and scorching sun all through the summer is open to doubt. Give the plants all the sunshine possible is the advice often tendered on this subject, and the soundness of which may be questioned in a time of heat when watering twice a day is hardly enough to keep the requisite amount of moisture in the pots. The Hantbois in its native haunts never wanders far from the protective influence of the woods, and although the little alpine courts the full sun, it is where the heat is tempered by the cool mountain breeze and the crowns are sheltered by herbage; therefore, unless in a comparatively sunless summer, a little shade for pot plants would not appear to be misplaced; and, judging from my own experience, I should say it is beneficial. One of the finest lots of plants I ever had stood during the summer in a Strawberry pit, over the sashes of which a thin piece of canvas was laid for a couple of hours daily in very hot weather. I did this principally to economise the labour of watering, the pots being so full of roots, but the beneficial effect of the shade was very visible on the growth of the plants. I never saw pot Strawberries throw up so strongly as they did. One year I had some plants growing on a north border, and I laid a good many of the runners. They got the sun morning and evening, but during the great heat of the day they were in shade. They naturally made very strong foliage, but I had my doubts about the crowns being sufficiently matured, as I could not take them off until the middle of September. I then gave them an airy, sunny position, but of course the sun had lost much of its force, and it was a question whether the crowns would get enough of it to endow them with fruitful vigour. My fears were, however, unfounded, for the finest fruit I ever gathered came from these plants. It would therefore seem that the important point is to thoroughly expose the plants in early autumn. Provided they get plenty of sun and air then, they may well dispense with some solar heat during the hottest months of the year. In the case of fresh plantations made late in spring or in August from young runners, I would always shade a little if I could, as the succulency of the plants is better maintained, and when the refreshing rains come they have not to wait any time before being able to respond to them, which is often the case when they have become partially hardened by the intense heat and desiccating atmosphere of July and August.

BLIND PLANTS.—Are there really good grounds for the common belief that the runners taken from plants must necessarily yield a large percentage of barren crowns? We never know precisely what has produced blindness. It may be caused by some cultural defect, and why should not the same plant when placed in favourable conditions return to the normal fruitful condition of that particular kind? If cuttings are taken from a plant that has in some

way missed blooming, we do not expect the progeny to be specially liable to exhibit any particular tendency to a flowering condition, and why we should do so of the Strawberry I am at a loss to explain. I have always had my doubts on this matter, and am now confirmed in them by the following circumstance. Several years ago my stock of Sir C. Napier became weak, and the following year many of the plants went blind. I intended to renew the stock, but did not do so, and used the runners from these blind plants. The next season the percentage of unfruitful plants was much reduced; whereas if the commonly accepted theory were correct, I ought to have had very few fertile ones.

Last spring I obtained some runners from another grower and grew alongside of my own. This year I see that there are but few plants that are not throwing up strongly, and the best are from my own stock. This, I think, disposes of the theory that runners taken from blind plants are specially liable to sterility. My theory is that bad culture, or some untoward circumstance, by enfeebling the constitution, will drive out fruitfulness which good culture will again restore. I should not preferably take runners from sterile plants, but I should never again fear to do so. Although want of vigour will produce blindness, too high culture will also induce it. The finest looking lot of plants I ever had was certainly one of the most disappointing. The crowns were abnormally strong, but not more than one out of ten gave fruit. Probably their grossness hindered maturity; instead of ripening they continued growing, and so failed to form the germ of fruitfulness. The heaviest crops of fruit that I have ever seen, as well as the finest in quality, were grown on land that appeared naturally to suit this fruit and that was rarely manured. The plants do not increase very much in dimensions, but they last a long time, and the crowns do just what every Strawberry grower likes to see—they plump up into good substance by the end of autumn without showing any tendency to split up. Very strong crowns are often deceptive, as just before the moment of maturity arrives they are apt to split up into two or three, and these naturally are individually weaker than such as have grown less freely. The way to avoid blindness would appear to consist in growing healthy runners along freely, but not too liberally, with abundance of air and sunshine through the autumn. At the same time, certain kinds will exhibit a tendency to blindness in some places, and when this is the case, I would say try another variety. J. C. B.

SOILS AND SITUATIONS FOR PEARS.

THERE can, I think, be no question but that soil has as much or more to do with the quality of Pears as climate or aspect, for if the latter be ever so good, I find many of our best kinds become gritty or otherwise inferior in flavour when grown in heavy land, especially if at all inclined to be wet. Free drainage and plenty of water when the fruit is swelling are essential to successful Pear culture, and it is also necessary to have the fruit well exposed to the sun. This is why it is that often the best flavoured specimens are obtained from pyramid trees, as when grown in that way the fruits have the benefit of the sun and air, if the trees are not too close and are kept properly thinned. On walls, however, the fruits are only exposed to the sun for a portion of the day, unless on a south aspect, a situation that can rarely be afforded them. Late sorts, however, such as Easter Beurré, Beurré Rance, Ne Plus Meuris, Josephine de Malines, Bergamotte d'Esperen, require a southern, south-east, or south-western position, and the roots should be mulched during summer, a soaking or two of water being also beneficial. The swelling of the Pears is not therefore checked.

When grown on southern walls, I have seen excellent results follow by planting them on the other side and training the tops over. In many cases this might be done without interfering with Peaches, Nectarines, or Apricots, as the Pears may be trained cordon fashion, and confined to the cop-

ing, or the branches carried right and left just below or to a wire strained out near the front. As to soils, I could do nothing here with our trees on the Quince stock until I trenched deeply and added a heavy dressing of fine clay, which was mixed in regularly to a depth of nearly 3 feet as the work proceeded. Since this was carried out I have had good crops of very fine fruit. Here the land is very light and sandy, the subsoil being sandy gravel, which becomes hard during dry weather, and which the roots refuse to penetrate. Pears on the Pear stock do remarkably well in this garden on walls, where they can have plenty of space. On Glou Morceau, Passe Colmar, and Marie Louise I get some fine fruit from very old trees. In another garden not more than two miles distant from here, where the soil is clay, Doyenné du Comice is never fit for table, but here it is the best in its season. It well deserves to be classed in the select list of twelve or more that should be grown. S. D.

Suffolk.

Cider Apples—The names of Apples now used for grinding, unfortunately, are very numerous, but all on the best of soils, *i.e.*, the deep red sandstone clay or stiff loam, are not alike good. Some few of them, notably the Foxwhelp, the Garter, and the Styres, make the best of cider when ground alone. Others in skilful hands come out best when blended two or more sorts together. The manufacture of first-class cider of late years has become quite a science, and, thanks to the compilers of the "Herefordshire Pomona," the makers, like the Continental wine growers, by studying the analysis of the different varieties, can tell to a nicety which two Apples they should blend to give density of fresh juice—sugar and tannin. Many persons entertain an idea that cider and perry are not intoxicating; but this is erroneous, as well-fermented cider of good quality should contain from 5 gallons to 10 gallons of alcohol to every 100 gallons of liquor, and good perry yields 7 per cent. of spirit. By way of comparison, I gather that good claret of the first quality should contain from 13 to 17, sherry from 15 to 20, and port wine from 24 to 26 per cent. of alcohol. The best cider generally, but not always, is made from forbidding-looking fruit, which will neither bake nor boil. Still there are some exceptions, as we find the handsome Tom Putt or Izard's Kernel good for baking, boiling, fairly so for the dessert, and a most excellent variety for converting into cider. Blenheim Orange, on the other hand, makes a thin, poor liquor beneath the ploughman's notice. Going back to the time of Evelyn, we find the best authorities recommending Pearmain and Pippins, including the Golden, as well for the long life of the tree as for the quality and long-keeping of its cider; the John Apple mentioned by Shakespeare, and known to us as Deux Ans; Golden Harvey, Nonsuch, the Queenings, Russetings, and Greenings. For these, fortunately, growers of the present day find a better use, but still they do not get far beyond others which these old writers have named. Of these, as my list must be short, I may mention Foxwhelp, Garter Apple, Woodcock, Redstreak, Underleaf, Cowarne Red, Best Bache, Skyrme's Kernel, Forest Styre, Dymock Red, Joeby Crab, and Styre Wilding. Of wildings and modern varieties the name is legion, but the fact that the late Mr. Hill, of Eggleton Court, near Ledbury, and one of our best authorities, grew them, I may conclude this paper by giving the following names: Eggleton Styre, Royal Wilding, Black Wilding, Pym Square, Munno Red, Redstreaks, Bran Rose, and Red Styre.—W. C.

SHORT NOTES.—FRUIT.

Pear Jargonelle is noteworthy, not only for the lushness of its fruit, but also for the beauty of its large bunches of pure white flowers that have a fulness seen in few other sorts.

Mildew on pot Strawberries—Owing to cold winds being so prevalent this spring, it has been necessary to keep forcing pits rather close. This will, in many instances, have produced mildew on the fruit and foliage of the pot Strawberries. It hinders the fruit from developing fully, and the fruits of mildewed Strawberries are never so agreeable in flavour as those not so affected, but it may

be quickly cured by sprinkling a little flowers of sulphur on the affected parts, syringing it off again in two days, at the same time admitting as much fresh air as possible.—J. MUIR.

FRUITS UNDER GLASS.

PEACHES.

THE weather of late having been the reverse of favourable even to moderate ventilation, early Peaches now swelling up and colouring have not had the advantages we could wish. Forcing against time in such a dark, cold atmosphere is as detrimental to the grower's credit as it is to his trees; but by those who are not so tied and where plenty of night rest can be given, the ill-effects of an undue strain at least can be avoided. No amount of patience, however, or fuel will compensate for the continued absence of sun; consequently very early fruit, as a rule, will be smaller than usual, deficient in colour, and wanting in flavour. To prevent these defects a continuous stream of fresh air, be it ever so small, must be kept circulating through the house, and although the night temperature may fall to 50° or lower, the maximum heat of 75° to 80° should be secured whenever solar influences favour sharp closing on bright afternoons. The syringe, as a matter of course, must still be plied to the foliage, not once and one way only each day, but twice each way, otherwise many of the leaves now forming a complete canopy will not receive the slightest benefit from an apology for one of the most important operations in Peach forcing. Having so often pointed out the imperative necessity for draining well and watering profusely, I need not repeat this advice, but I may say the attainment of full size and other changes which to the experienced indicate approaching ripening must be the signal for shutting off stimulants altogether and the maintenance of a somewhat drier atmosphere. These changes, it must be borne in mind, should not be sudden. There must be no set days for increasing or reducing the temperature or for withholding the syringe where a few hours before it was in full swing; but all these seasons from first to last must glide into each other as imperceptibly as our fickle climate will admit. Heating, ventilating, syringing, and last, but not least, root-watering, should be conducted upon this principle. A house cleared of its fruit in June should have precisely the same careful attention to airing and closing, to heat and moisture for some time afterwards, and to full exposure to the elements during the season of rest. We should then hear less of failures, which must follow the neglect of a tree as soon as it has yielded its crop of fruit. I stated in my last that many of the points might be pinched to throw size into the fruit as well as to balance the flow of sap in the trees. The removal of a few tiny points from a number of shoots eventually to be cut away may appear a very trifling operation, but it tells greatly upon the weight of the Peaches, especially in free, vigorous, young trees. Old ones, which seem to know when they have made just enough wood to satisfy a non-pruner, swell up fine fruit under almost any conditions as to manipulation and judicious cropping, which, by the way, should not exceed a single Peach to each square foot of foliage.

Gathering the fruit.—When Peaches show signs of ripening direct syringing must be discontinued, but the stems and fruitless parts of the trees, also the walls and floors, may be well moistened once or twice on fine days, and, contrary to old customs, the supply of water to the roots must be equal to the maintenance of a growing condition of the soil. The roots, as a matter of course, will be confined to internal borders, which after the last watering may be heavily covered with some light non-conducting material, and, provided the fruit is allowed to hang until there is danger of dropping, this may be supplemented with a layer of soft, sweet hay in preference to suspended nets, which are always in the way and cut every ripe Peach on its descent from the trees. The practice of allowing Peaches to hang until they are dead ripe is another old custom more honoured in the breach than the observance, as it is a well-proved fact that a dead ripe fruit has passed

its best—has lost its fine, piquant flavour so much appreciated by connoisseurs, and is useless for travelling. For many years I littered all my houses with hay, but have given it up, as I never allow a Peach to become ripe enough to fall from a healthy tree. For home use they are allowed to soften and emit their aroma when they are detached with a pair of Grape scissors, placed in squares of silver paper, and placed side by side in padded baskets for removal to a light, warm, airy room, where they can be kept for several days without spot or blemish. For travelling they are gathered much earlier, as a London fruiterer will not look at a dead ripe Peach, which no skilful man can pack to be of use to him. Size and colour are the points insisted upon; flavour is a secondary consideration; and, notwithstanding the fact that tens of thousands of Peaches and Nectarines are quite hard to the touch on arrival, the dealers have ways and means of ripening them in their vaults, and willingly pay the top price for them.

Succession houses.—The wind at last having veered round to the south, we may now hope for mild, genial weather favourable to rapid progress, almost, if not quite, without the aid of fire heat through the hours of daylight. Having had so much dry fire heat, this change in more ways than one will be a godsend, for in the first place it will spare the fuel, and in the second it will favour giving more night air and closing early with sun heat and moisture. As growth under these conditions will speedily make up for lost time, the daily routine of syringing and watering must be equal to the demand, no small matter where extra large trees have all their roots inside, and thousands of tender perspiring leaves are within 16 inches of a covering of 21-oz. glass. If well drained, as all Peach borders should be, overwatering will hardly be possible, but much may be effected by liberal mulching with materials, poor or rich, according to the vigour of the trees and the crops they are carrying. My favourite mulch is fresh, but well worked, stable litter, which gives off a small quantity of ammonia after each syringing or damping, and being to a certain extent pervious to warmth and air it favours frequent feeding with warm diluted liquid. Old trees which make short-jointed growths may be mulched with rich rotten manure, but of two evils I would rather have them start weak than strong, as tank liquid, soot-water, or guano in a mild form can be given or withheld at discretion. Good syringing twice a day, the first time immediately after night air is shut off, the second after the house is closed for the day, will be imperative, and soot-water on two afternoons in each week, whilst giving colour to the foliage, will keep it comparatively free from spider. Indeed, there is no excuse whatever for the presence of this insect in the Peach house, as the syringe or engine, always charged with soft water, may be plied with great vigour.

Thinning the fruit in this compartment may be carried on with a free hand, as good trees after this period rarely drop their fruit. A matter of ten per cent. over the estimated crop will do no harm, but I always thin to the exact number when not larger than Filberts, as I rub off the pendent flowers and have top-side fruit only to work upon. By flower-thinning the strength of the trees is husbanded, a thin blossom invariably sets well, and much labour is saved when the time arrives for fixing the Peaches point upwards.

Tying and regulating.—All Peach shoots should be made to hug the branches from which they emanate by heeling in as soon as they are 3 inches or 4 inches in length, great care being observed in training them over the exposed parts of large stems. Once this operation is neatly performed trees in succession houses may benefit by a free and unrestricted growth, as the young fruit swells best under partial shade, and all plant growers know how kindly the young shoots forge ahead when left open to the moving action of spray from the syringe and a circulation of fresh air.

Trees in the latest houses, no matter how clean they may appear, should be moderately fumigated once or twice as soon as they are fairly out of flower. The syringe or engine must then be brought

to bear upon the whole of the house, which may be closed for a few hours on fine afternoons to give the young fruit a start. When clear of the decaying flowers and the size of Marrow Peas, the weather being mild and fine, shutting up may be discontinued unless the nights are likely to be frosty. Late Peaches being valuable in proportion to their lateness, and of good flavour in proportion to the amount of sun they get when ripening, all retarding should be performed by constant and abundant ventilation through the early stages of their growth.

CUCUMBERS.

Spring-raised plants now in full bearing will take liberal supplies of warm diluted liquid two or three times a week, and the syringe may be copiously and vigorously plied on all fine afternoons, when a tropical temperature of 90° will induce quick growth of vine and fruit, and reduce hard, dry fire-heat to a minimum. Some growers who make a point of shading give them a morning bath also, but certain varieties, notably Telegraph, not unfrequently resent this treatment by exuding gum when about half grown, and although the blemish is very small at first, it completely spoils the appearance of otherwise fine fruit when full grown. To prevent this unsightly blemish, the semi-coddling and systematic shading, which create a great deal of trouble and then do not produce the desired

possible to overdo them with generous liquid, and the top-dressing, consisting of turf, lime-rubble, and a dash of old cow manure free from worms, may be packed about the stems and over the rims to draw fresh roots away into the decaying leaf-mould. Cropping must be light; a few plants from time to time may be cut over to give a fresh start and a succession of young growths, and old leaves from all, as they can be spared, must be cut away to prevent the spread of spider and mildew. By adopting this plan I have kept winter plants fruiting throughout the following summer, but they give an enormous amount of trouble, and for this reason I now prefer making a complete clearance and cleansing twice a year, when vigorous maidens, put out a good distance apart and trained upon the extension principle, come quickly into bearing and produce the finest quality of fruit.

Frame Cucumbers.—Where house Cucumbers are grown all the year round, it is no unusual thing to clear some of the compartments to make room for Melons and meet the demand by planting pits and frames with black-spined varieties as they become clear of forced vegetables and bedding plants. A good start being half the battle, seeds of suitable sorts sown in April will produce very strong plants by the time they are wanted; but of two evils it is better to be a little late than too early, as stores

used. Frames being too shallow for trellises, it is a good plan to cover the beds with a thin layer of old lime rubble, a material which keeps the fruit clean and at the same time absorbs a quantity of water or diluted liquid so grateful to the plants when given off on hot days in the form of atmospheric moisture. When thoroughly established, vines from each plant should be trained outward in the direction of the four corners of the lights, and as these will form the main ribs of the leafy covering, they will require pinching when within a foot of their destined limit. The laterals from these should show fruit at the first joint, and must be pinched at the second, and so on until the frame is full of bearing wood, but the reverse of crowded. Frame Cucumbers being entirely dependent upon heat from steam generating materials should always have a chink of night air, to be increased as the day temperature rises to 80° or even as high as 90°, when very early closing with sun heat and moisture from the overhead bath of tepid water will produce conditions most favourable to rapid progress. This is a brief outline of the old-fashioned method of obtaining summer fruit, but having brick pits deep enough to allow for the introduction of a rough-and-ready trellis, the plants may be placed in large pots, boxes or 12-inch glazed drain tubes and regularly trained in the usual manner. The space usually occupied by fermenting materials being required



Crataegus glandulosa.



Crataegus Pyracantha.

result, should be given up altogether, when atmospheric moisture as the temperature rises, and free ventilation through the early part of the day, will be found the best curative substitute. As few plants under artificial treatment are more prolific, it is no uncommon occurrence to see the Cucumber over-cropped, exhausted, and infested with insects ever ready to fasten upon the weak plants, especially when the foliage is crowded up against the glass and a circulation of fresh air through the night is denied to them. The express grower who never gives a breath of air gets on very well until May or June, but the advent of hot weather upsets his arrangements, when spider, combined with untidiness, compel speedy removal, followed by a fresh start. To prevent these difficulties and disappointments, the plants should be carefully dressed, tied in, and stopped three times a week, the fruit liberally thinned when quite small, and the trellis being movable, it may be let down several inches to ensure a free circulation of heated air between the foliage and the glass. The latter, it is needless to say, cannot be kept too clean and free from accumulations above and below, and the lights being made to slide up and down, an occasional syringing from the outside on mild evenings by opening and cleansing the pores will tend greatly to the health, vigour, and longevity of the foliage. If old winter plants in pots, plunged over dry, hot-water pipes, must be retained, it will hardly be

should never become pot-bound. To avoid this a single light frame may be placed on a hotbed, and when in proper condition the requisite number of seeds must be sown singly on pieces of turf 6 inches square placed Grass side downwards. Light and air being so essential to the production of short-jointed, sturdy plants, it may be well to secure a temperature favourable to ventilation by the addition of good linings, which may be allowed to subside as the weather becomes warmer. When the seedlings have made two or three rough leaves, all the points must be pinched out to induce side breaks, and the sods in which they are growing will require frequent removal to prevent the plants from rooting through into the layer of old tan, ashes, or leaves which divides them from the staple of the hotbed. As Cucumbers put out in May or early in June do not require a strong bottom heat, an external lining applied to the frames in which early vegetables have been grown generally revives the fermentation in the bed, or, failing in this, an additional stimulus may be produced by digging out a trench 2 feet in width the whole length of the bed and refilling with fresh manure or leaves. Upon this new material the hills or ridges should be formed, and when properly warmed through the plants, one in each light, may be transferred from the nursing bed. To these hills or ridges good loamy soil must be added back and front as the roots protrude, but on no account must manure be

for the hanging fruit, all internal heat will depend upon external linings, which must receive regular attention, and the better to husband this heat the glass will require a night covering of mats through the summer.

CHERRIES.

In many early-forced houses these will now be ripe, and as it is desirable to keep such a pleasing, if not particularly valuable acquisition to the desert until fruit is ripe in the open air, steps forthwith must be taken for their preservation. Birds, stagnant moisture, and bright sun when dead ripe are the three fatal destroyers we have to contend with. The first may be met by netting the ventilators and doorways; the second, by a continuous circulation of fresh air in fine weather and keeping the house close or only slightly ventilated at top when the external atmosphere is loaded with moisture; the third and last, by some light shading conveniently arranged for running down the roof when actually wanted—not otherwise, as systematic shading is more injurious than no shading at all. Direct syringing should be discontinued as soon as the fruit on the different trees begins to change colour, but the stems and walls may be moistened once or twice on fine days until the Cherries are ripe. Then, to preserve them, give an abundance of air, as they cannot be kept too cool, and damp the floors whenever atmospheric moisture may be acceptable to the foliage on bright drying days.

Early Rivers and May Duke, two tender delicious varieties, should be used first; then come Black Circassian, Elton, and Bigarreau Napoleon, a trio which cannot easily be beaten for forcing, keeping, or eating. Where the late Bigarreus are grown under glass, the perforated pot is a most excellent contrivance when plunged in the borders for letting out a number of small roots, which forage and feed through the summer, and can be cut off when the leaves fall in the autumn. As the roots from these will now be working outward, the soil in which the trees are plunged should be well mulched and liberally watered, to keep it thoroughly moist and in a growing condition. The plants likewise must receive an abundance of diluted liquid, as the best of aid from external feeders cannot compensate for a dry ball at any time, least of all when the fruit is swelling or stoning. These late trees do not require fire-heat, although it is well to have it at command for driving out stagnant moisture when the fruit is setting, and again when it is ripe. At other times cold orchard-house treatment is all that is needed, and the fruit grown well and ripened thoroughly is infinitely superior to anything met with on open walls in our fickle climate.

W. C.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Cratægus (Thorns).—A few of the Thorns are familiar trees in most gardens, and very valuable ornaments they are, but the genus, numbering over fifty species, is not nearly so well represented as it should be. Some of the most beautiful kinds are seldom seen outside botanical gardens. Almost every Thorn is hardy in English gardens; some are remarkable for their flowers, others for their ornamental fruits, while in a few the habit of growth renders them most important to the landscape gardener. The commonest and perhaps the most beautiful of all the Thorns is the common *C. Oxyacantha*, the native Hawthorn or Whitethorn. The typical white kind is lovely enough, but being so common everywhere its varieties are most

Paul's Double Scarlet, undoubtedly the best of all, a tree that glows with rich crimson during the fortnight it is in bloom. Then there are the double pink, double white, the single scarlet (*punicea*), rose (*carminata*, or *rosea*), and various others. Some of the varieties are remarkable for their growth, like the graceful *pendula*, others have foliage different from that of the type, and a few differ as regards their fruit, there being yellow-berried as well as white-berried varieties. Altogether our native Hawthorn is one of the most important trees in our gardens.

The list of other species deserving of attention in private gardens is long; a selection of the very best would include the following: The Cocksbur Thorn (*C. Crus-galli*) from North America, usually seen about 10 feet in height, is chiefly remarkable for its peculiar growth, particularly that of the variety *pyracanthifolia*. In this the branches spread out horizontally like a table, and the older the tree becomes the more pronounced the table-like growth. There are other distinct sorts of the Cocksbur Thorn, such as *nana*, *linearis*, *ovalifolia*, and *prunifolia*, all of which are procurable from nurseries. The Scarlet-fruited Thorn, also North American, is beautiful both when covered with white bloom in early summer or with scarlet fruits in autumn. The Tansy-leaved Thorn (*C. tanacetifolia*) is very handsome in foliage. It may always be recognised by its cut leaves of a whitish hue, and by its being one of the latest of all Thorns to flower. Three very fine species in fruit are *C. Azarolus*, *Aronia*, and *orientalis*, all natives of the Levant, and, therefore, not quite so suitable for general cultivation in this country as the more hardy kinds. But they are so beautiful in autumn, with their fruits as big as Hazelnuts and coloured either scarlet or gold, that they deserve the attention of the tasteful planter. One specimen of either of these on a lawn would be quite sufficient in a small garden, as they are of spreading growth and grow in good soils quite 15 feet or 20 feet high. The Washington Thorn (*C. cordata*) has the merit of flowering when all the others are past; hence its value. *C. glandulosa*, also known as *C. flava*, has yellow fruits. *C. Douglasi* has dark purple haws, and those of *C. melanocarpa* and *C. nigra* are black. The *Pyracanth* (*C. Pyracantha*), so common as a wall climber, is a general favourite because of its profuse crop of orange-scarlet berries and luxuriant evergreen foliage. It is suitable also for planting in the open, and some beautiful effects may be made by

making the spreading and trailing growth of the *Pyracanth* serve as a margin to groups of taller Thorns, or other small trees. The variety *Lælandi* fruits more freely than the common *Pyracanth* when planted as a bush. The hardy Thorns are suitable for nearly all kinds of soils, flourishing with equal vigour in light as in heavy soils, while the majority are quite at home on chalk.

Chinese Hawthorn (*Photinia serrulata*).—This is a plant which I have generally noted growing in the neighbourhood of London, and have failed to see much beauty in it as a shrub. I was, however, agreeably surprised in going round the gardens of Viscountess Gort, at East Cowes Castle, where I noted the largest specimen I have ever seen, and which quite changed my opinion respecting it. The plant in question is about 40 feet high, tapering upwards, and perfectly symmetrical. The young shoots and leaves being deep reddish brown afford an elegant and pleasing contrast to the old foliage, which, by the way, is bright green, and has a very

polished appearance. It usually flowers at this time, but it is rather more backward this season. The tree is an evergreen, and the old leaves when they decay are tinged with a rich bronze-scarlet and yellow hue. In the south and west of England this species should be largely planted. Even in the neighbourhood of London it forms a magnificent object trained on a wall.—W. H. G.

FLOWERING EVERGREEN CLIMBERS.

THERE are not many climbers suitable for general purposes that combine the above-named qualities, the freest among them in the matter of flower being strictly deciduous, as in the case of the *Cydonias*, the *Forsythias*, the *Clematis*, &c. On the other hand, density of evergreen foliage, so requisite for the clothing of old, ugly walls, is not, as a rule, accompanied by bright flowers; instance the *Ivies*, the *Ampelopsis*, and the *Buckthorns*, and if the two are combined in the plant, there are often



Cratægus Oxyacantha semperflorens.

features that prevent any special effect arising from the combination, as the scarcity of flower in the evergreen *Magnolias*, or the uncertain colour of the *Escallonias*. Bearing these facts in mind, the selection of plants for clothing bare walls may be a pronounced success, but a neglect of them, on the other hand, will certainly promote a feeling of regret, if it is found after the said plants have attained considerable size that there are large spaces of wall which present during the depth of winter a bare and unsightly appearance. I have before called attention to the desirability of judicious planting in this matter, so blending, in fact, the many really good things that one can obtain for the purpose, that there shall only be occasional totally leafless spots. It is wonderful how interesting these old walls are when they are well covered with climbers; something fresh meets one at almost every step, and the combination of scent and colour is



The common Hawthorn (*C. Oxyacantha*).

important. We have now every gradation of tint in the Hawthorn from the deepest crimson, through pinks and carmines to the snowy whiteness of the double sort. Everyone now knows

most attractive. There is, too, in such cases a long season of flower; indeed, it is only for some few weeks that these walls are quite destitute of bloom, for the *Chimonanthus* is quickly followed by the *Forsythias* and the *Cydonias*, and these are succeeded in their turn by all the summer-flowering climbers which last until the autumn frosts nip the latest flowers. Just now the *Cydonias* are very pretty; breadths of wall covered respectively with the white and flesh-coloured varieties are literally sheets of bloom.

Two most desirable climbers, indeed two of the very best that can be found for covering unsightly walls, are *Ceanothus Gloire de Versailles* and the small white-flowered *Honeysuckle*. They combine all the requisite features so essential in climbers, viz., semi-evergreen foliage, brightness and profusion of flower, with a pendulous graceful habit. In the case of *Ceanothus Gloire de Versailles* it is rather remarkable that it not only supercedes *C. azureus* in flower and foliage, but that it is also more decidedly evergreen. Contrasted with the older variety, this has larger foliage of a darker and more glossy green, the individual racemes of flower are considerably longer and deeper in colour, and the plant itself is a stronger grower. I find both bear the most severe frost with perfect impunity, but the bitter winds of early spring have the effect, especially in the case of *azureus*, of browning and shrivelling the old leaves. This *Ceanothus* flourishes best in a deep, rather light loam, and given this it will furnish a large space of wall very quickly. It can easily be propagated in spring or early autumn from cuttings of firm, well-ripened wood, which may be inserted in a rather light soil under a hand-light and transferred to a nursery bed for a season before they are planted in permanent quarters. A capital companion for this *Ceanothus* is the small white *Honeysuckle*, a profuse and consistent flowering variety with a most delicious scent. This is a climber of great and exceptional merit, as in addition to its many good qualities it is practically evergreen, and being a very fast grower it is one of the best things that can be employed where old walls, old tree stems, &c., are to be quickly covered. It will flourish admirably in the compost advised for the *Ceanothus*, and may be propagated in a similar manner, although plants will be more expeditiously furnished from autumnal layering. I may mention in connection with both these climbers that any pruning required should be deferred until spring, as early cutting lays bare the young or tender growth, and when this is nipped by frost and biting wind, the coming season's flowers and foliage are injured.

E. BURRELL.

SHORT NOTES.—TREES AND SHRUBS.

The Judas Tree (*Cercis siliquastrum*) in the gardens of Gunnersbury House was a few days ago commencing to bloom freely. It is an excellent specimen and is planted against a wall. The flowers appear in clusters on both trunk and branches.

Double white Cherry is an exceedingly beautiful and graceful tree. The specimen near the rockery at Chiswick is wreathed with the pure double white flowers, and the wonder is, considering the great merits of this Cherry, that more do not plant it.

Callistemon viridiflorus.—This is another Australian plant which thrives in the shrubbery at Osborne, and affords evidence that many of these plants would easily become naturalised in this favoured island. The plant appears to flower most profusely, although it was too early in the season to see it blooming.

The Tasmanian Myrtle (*Fagus Cunninghamii*).—This is a handsome tree not often met with, but which is represented in the Queen's garden at Osborne by a specimen some 20 feet high. The leaves are somewhat triangular, leathery in texture, and coarsely serrated on the edges. This species is a native of Tasmania. It, with the other kinds peculiar to the antipodes, are called there by the residents *Birches*, instead of *Beech*.

The Flowering Currant.—Large bushes of the *Flowering Currant* (*Ribes sanguinea*) are conspicuous objects in the landscape just now. Well placed in the foreground of an evergreen shrubbery and allowed full freedom of growth, the *Flowering Currants* have developed into bushes from 10 feet to 15 feet high, and

as much through. They are now thickly covered with flowers and form masses of soft crimson very pleasing to see. Although the flowering season is rather short, the foliage is always good, and the autumn tints are frequently very handsome. This *Ribes* is one of our earliest and best flowering shrubs, and will grow anywhere even when heavily shaded with trees.—JOHN C. TALLACK, *Livermere*.

CHRYSANTHEMUMS.

E. MOLYNEUX.

EARLY-FLOWERING CHRYSANTHEMUMS.

EARLY-FLOWERING CHRYSANTHEMUMS may be divided into two classes—those which bloom in the borders when planted out, and those varieties which, when under glass, flower earlier than the ordinary November kinds, say from the middle of September to the end of October. During the autumn, flowers become somewhat scarce, the outside border plants, with the exception of *Dahlias*, being nearly past, and flowers under glass not over-abundant. A batch, therefore, of early-flowering *Chrysanthemums* comes in at a good time.

Those varieties which flower during the months named must have the preference in point of usefulness, and if the plants are properly managed they will provide a crop of bloom, when they can be removed to make room for the regular general collection. It is neither necessary nor wise to grow a large collection of different varieties. It is much better to confine the selection to a few well-tried kinds which are certain to prove remunerative in the end than to cultivate a large collection merely for the sake of novelty. For flowering in pots—

MME. C. DESGRANGE is the best variety we have. When the flower is expanding it has a cream-coloured shade of colour in the centre, but when fully developed it is pure white, and on this account is especially valuable for the decoration of churches at harvest festivals. When cultivated to produce large blooms the plants grow 2 feet 6 inches to 3 feet high. The leading shoot should be pinched at about 6 inches high, and the additional growths formed after this topping should be disbudded to five or six on each plant, removing all side growths as they are formed and retaining the first flower-buds which form before the end of July. This variety also carries such good foliage, that for mixing among other plants in groups at shows or the conservatory it is specially valuable; 8-inch pots are large enough to bloom the plants in, potting and other details of treatment being carried out in the same manner as for those of other sections.

G. WERMIG, except in colour, which is a primrose-yellow, is the exact counterpart of the former kind, from which it is a sport. The flowers of both varieties often each measure 6 inches in diameter under good cultivation. The treatment should be the same as for its parent.

MRS. BURRELL is a sulphur-coloured sport from MME. Desgrange; it is very dwarf, flowering freely even in small pots, and on this account it would be a profitable variety to grow. Plants of this sort topped twice make capital subjects for conservatory or house decoration.

MONS. E. PYNAERT VAN GEERT is a free-flowering Japanese variety, with deep orange-yellow flowers striped with crimson. It is best to allow, say, six stems to each plant after the first natural break. By this method it grows about 4 feet high. Where large blooms are not so much an object allow the same number of branches to grow, but the flower-buds should not be thinned so freely, allowing more to expand in clusters upon each stem.

BOUQUET ESTIVAL, which has rosy purple flowers, is a free-flowering sort, growing only 2 feet high. It is best grown with numerous flowers upon each shoot.

E. G. HENDERSON, yellow, shaded with crimson,

is very distinct and good. It attains 5 feet high when grown on the large bloom system, as it should be.

ISIDORE FERAL is rosy lilac and very free-flowering; the plants grow 3 feet high.

MRS. CULLINGFORD, a hybrid pompon, is pure white and very free-flowering. Top the plant once, after which allow, say, four growths to start, these in turn producing side shoots and numerous flower-buds, which should not be disbudded too freely.

BLUSHING BRIDE is also a hybrid pompon, and very free flowering. The peduncles being stout the flowers are shown off to advantage; in colour they are rosy blush, changing to a delicate shade under glass. It is a capital variety for cutting from.

LA PETITE MARIE is a very fine pompon variety for producing dwarf plants, which may be grown in small pots. The flower is pure white, and the plant grows 1 foot high.

LA VIERGE is a pure white reflexed variety, larger than an ordinary pompon, and being somewhat later than some of the earlier flowering varieties is all the more useful.

FLORA, bright yellow, is a valuable pompon where flowers of this colour are in demand.

LYON is a bright rosy purple pompon well worthy of cultivation. It gives a variety of colour and produces flowers freely, which are of good form.

ALICE BUTCHER is a sport from the previous kind, and produces flowers which are of an orange-red colour.

For planting to flower in the herbaceous or shrubby borders, early-flowering *Chrysanthemums* are valuable, as they come into bloom at a time when the regular occupants of the borders, as a rule, are past their best. The plants should be topped once or twice to induce a stocky growth and to prevent their growing so tall as they otherwise would if allowed to grow away at first without stopping. They are very liable to be damaged by winds if not properly secured to stakes during the early part of September, as at this time strong gales of wind are prevalent. Much care should be exercised in allowing sufficient space between each plant before planting out, which should be done about the middle of this month. A mulching of short manure put on during the summer will reduce the necessity of giving so much water to the roots, which must be done if the best results are to be obtained.

MME. DESGRANGE and its two sports, C. Wermig and Mrs. Burrell, are as useful for the borders as they are for pots.

NANUM, creamy white, is stocky in growth, and flowers freely at the end of July and the beginning of August. It is one of the best border varieties.

MIGNON, rich deep yellow, is one of the best of its colour, being dwarf in growth and producing a mass of flowers.

LA PETITE MARIE is specially useful for the fronts of the borders, as it is so dwarf in growth.

MME. JOLIVART, blush white, is good in habit and is also free flowering. It grows 1½ feet high.

MME. PICCOL, rosy purple, is also a fine sort. It attains a height of 2 feet.

FREDERICK PELE, crimson, tipped gold; Lyon, rosy purple; Early Blush, blush pink; Anastasio, light purple; and Golden Fleece, bright yellow, are also desirable varieties.

Chrysanthemum Beaute des Jardins.—Though we have had several lists from time to time in THE GARDEN of scented *Chrysanthemums*, I have not noticed this variety mentioned in any of them. The perfume of the blossoms of this is very pleasing. The variety under notice was sent out by M. Délaux in 1884 and belongs to the Japanese class, but the flowers are too small for exhibition purposes, though its pleasing shade of colour renders it very useful for decoration. The flowers are of a bright amaranth tint with a shade of violet, so that they afford a marked contrast to the light-flowered kinds. It is a variety that is certainly far more worthy of cultivation than

many of the so-called new kinds with which we are completely inundated, and the majority of which should never have been sent out.—H. P.

SEASONABLE NOTES.

WHERE a large collection of *Chrysanthemums* is grown, either for the production of exhibition bloom or specimen or bush plants, there will in many instances be considerable difficulty experienced in affording the necessary protection under glass, now that so many other subjects claim attention. Particularly is this felt where many plants are needed for subtropical bedding, as these plants need the protection of the frames for a longer period than do the ordinary bedding plants, such as *Pelargoniums*. Where a collection of *Chrysanthemums* intended for supplying large exhibition blooms, for instance, has been carefully attended to up to the present time, and for the want of frame room the plants must go outdoors, it would be unwise to stand them outside without any protection from the frost or strong easterly gales which are generally experienced about the middle of the month. Where plenty of air and space have been allowed between them, such plants will be in much better condition to take their place out of doors than those that had the reverse treatment to that named. A strong easterly wind is the worst enemy to the plants at this stage of their growth, as if proper shelter is not given, the leaves, owing to their succulent nature, become much bruised, if not broken off altogether. Where they become thus damaged at this early stage, a check to the growth must naturally follow. The importance, therefore, of proper measures being taken to avoid such a state of things occurring must be evident to all growers of *Chrysanthemums*.

If a position at the foot of a south wall is available so much the better, as some shelter both from frost and winds will be had. Failing this, and the plants have of necessity to stand in the open, they may be fenced around with hurdles thatched with straw, or canvas or mats may be quickly placed over the top, if provision is made for this by fixing a stake at intervals down the middle. Fasten to this a light rail over which the canvas or mats will hang, thus keeping the covering from breaking the points of the plants when placed on at night to ward off frost, while the hurdles by day will shield them from cutting winds. Nothing is better than a bed of coal ashes whereon to stand the plants, as it prevents the ingress of worms, and at the same time forms a free passage for the water to pass away after running through the soil. If the plants are placed at the foot of a south wall where it is not practicable to place ashes, boards, slates, or tiles should be provided to prevent the pots standing on the soil. Growth being quickly made at this stage, attention should be freely given to securing the points of each shoot to a stake, as they are more liable to be snapped off by wind when loose, thus causing disappointment later on. E. M.

KITCHEN GARDEN.

KITCHEN GARDEN NOTES.

ASPARAGUS.—Although rather late, Asparagus is now coming up thickly, and the quality is exceptionally good. Opinions vary as to the advisability of cutting or leaving the smaller shoots, but after having tried both plans I have arrived at the conclusion that nothing is gained by leaving the smallest growth. The best crowns are formed by the strongest shoots, and much depends upon the vigour of all growth made subsequent to the cessation of cutting. Allowing early and weakly growth to develop only weakens the later shoots, and in reality does more harm than good. What we obtain from a strong stool or clump this season was stored in the crowns last year, and the supposed gain, owing to improved root action consequent upon leaving young shoots uncut, is more imaginary than real. Those who are anxious to strengthen weakly plants should cut the smallest shoots, or merely thin out, leaving a number of strong shoots to develop, this being one sure method of increasing

the size of next year's Asparagus. In warm growing weather it is advisable to cut over the beds every morning. This should be done carefully, or much mischief may result. All the shoots from 6 inches to 8 inches in length ought to be traced down to the crowns and cut away without damaging more backward growth. The produce should be sorted over and neatly bunched up, all the points being perfectly level. The smaller shoots are in our case used in soups only. To have Asparagus at its best it ought to be eaten the same day as it is cut, but as this is not generally possible it must be stored till wanted for packing or use. No vegetables are improved, the reverse more often being the case, by long contact with water. And the Asparagus bunches ought therefore to be set on or buried in damp Moss, and kept in a cool place. By this time it will be seen how many failures there are among the newly-planted Asparagus. It is not yet too late to make good these blanks, but any transplanted ought not to be kept long out of the ground, and should further have their roots surrounded with a little old manure and good soil.

POTATOES.—A few warm sunny days have forwarded these considerably, both early and late varieties being in many instances well through the ground. We are not yet safe from frosts, low-lying localities being especially liable to injury by them as late as the first or second week in June. Directly the rows are plainly discernible, all should be moulded over, the tops being completely buried. This will save a portion of the stems. The most damage is done when the ground is in a cold, wet state, and the least when it is dry and warm, the warmth radiated from the ground frequently saving the young haulm; consequently, the moulding up should be done in the morning as much as possible, so as to admit of its being dried and warmed somewhat before sunset. The best time to apply soot, wood ashes, or special manures of any kind is in showery weather and soon after the first moulding up. If the dressing is then hoed into the surface on each side of the rows, it will be gradually washed down to the roots. When the application is deferred until the final moulding takes place much of it will be drawn into the ridges, where it probably will remain in a dry state, and, consequently, will not benefit the Potatoes. This season the ground was easily got into capital condition for Potatoes, and as the sets are starting very strongly there is every prospect of good crops resulting.

BORECOLES OR KALES.—During the latter part of April and up to the present time, green vegetables have been even more in demand than they were in the winter. Very few seem to have a good supply, and those depending upon the greengrocers have fared very badly indeed. All the while Brussels Sprouts were fairly plentiful there were fewer complaints, but owing to the failure of Broccoli in many gardens, and the premature "bolting" of spring Cabbage, there is nothing to succeed them. Instead, therefore, of growing so many Broccoli, it is advisable to plant a few rows, according to the requirements of each establishment, of the hardy and reliable Borecoles. The Scotch or Green-curbed are pretty generally grown, an improved form of Read's Hearting giving first a Savoy-like heart, and a good supply of greens later on. Cottagers' Kale, if established early, yields a long succession of fairly succulent greens and is very serviceable. Asparagus, or Buda Kale, is rather later than any of the foregoing, but in such seasons as we are now passing through is even more profitable. There are green and purple-leaved forms, which are equally hardy and good. During April, May, and part of June a few rows of plants, if kept closely cut over, will yield large quantities of succulent greens which rarely fail to please. It is also recommended for blanching and cooking similarly to Seakale; but I have not tried it in this way, and should say the young stalks would make a poor substitute for Asparagus. It is not yet too late to sow the seed for the purpose of obtaining plants suitable to put out in succession to other crops, or the seed may be sown any time in July where the plants are to remain. The drills ought to be drawn 18 inches apart, moistened if at all dry, the seed

sown thinly, and the plants eventually thinned to about 12 inches apart, or they may be left still closer if raised late.

COUVE TRONCHUDA.—This is included in all catalogues, but it frequently happens that those who order it are supplied with something very different and perhaps quite inferior to the true Couve Tronchuda or Portugal Cabbage. The genuine article, if well grown, forms a good-sized heart which boils very tender and is delicately flavoured. If preferred, the midribs only may be well boiled and served as a substitute for Seakale. It is harder than many imagine, and is in season during the spring months. The seed ought to be sown at once in the open, and the plants put out on fairly rich ground as soon as large enough. The rows may be 2 feet apart, a distance of 18 inches dividing the plants in the row. A single row or about thirty plants would in most small gardens be quite sufficient.

SPROUTING BROCCOLI.—This being harder than the ordinary Broccoli is very extensively grown as a speculative crop. Should the winter prove mild and Broccoli be plentiful there is but little demand for sprouting Broccoli, but in the event of a failure of the former it pays surprisingly well, quite fabulous prices being given for a few acres. This season immense quantities were cut and sold throughout the country long before any heads were formed or before they had arrived at perfection. Even if other Broccoli is plentiful, a few or many plants according to circumstances might well be grown in most gardens. They are most productive when raised and planted out on good ground early, but plants raised in May or June, if well attended to, will also yield several good pickings. When planted early the rows ought to be 2 feet apart and the plants not less than 18 inches asunder, but those raised late may be planted rather more thickly.

TWO GOOD BROCCOLI.—For use during April and the early part of May I can strongly recommend the Leamington, this, perhaps, being one of the most popular varieties in cultivation. No other variety, if we except Veitch's Autumn Protecting, can be relied upon to give such a long succession of hearts, and a good breadth may, therefore, be safely planted without the risk of an undesirable glut resulting. Moreover, it is fairly hardy and forms large, close white hearts of excellent quality when cooked. I have seen very fine heads of this variety, as late as May 20, cut from plants lifted and bedded in on a north border. Veitch's Model forms an admirable succession to the Leamington, and is in every respect first-class. It is of sturdy growth, not one of our plants being killed by frosts or cold winds, and during the whole of May plenty of close conical hearts are available. The inner leaves fold closely over the hearts and blanch like a Cabbage, and if we wait till these unfold, the heart also is open and to a certain extent spoilt. Cut early, and cooked entire, the quality and appearance of the hearts are equal to those of the best Cauliflowers. Our seed of these and other Broccoli was sown during the first week in May, but in warm districts seed may yet be sown on an open border. Others who have already sown these two varieties will do well to plant them rather extensively in preference to those that are less reliable.

SEED FAILURES.—In many small gardens but little space can be spared for raising the necessary quantities of Cauliflowers, Broccoli, Savors, and Borecole plants, and many prefer to buy what they require owing to repeated failures with seed. Unfortunately, the plants bought are not always to be relied upon, the varieties or stock in many instances being very inferior. If, instead of sowing the seed among fruit trees and bushes, or in other unsuitable spots, a pinch of each variety were sown in flat boxes or pans set in the full sunshine and properly attended to, every sound seed would germinate and plenty of plants be obtained. In one instance that recently came under my notice, an amateur sets a row of 13-inch pots thickly on a walk against a sunny wall. These are lightly drained and three parts filled with rich loamy soil, on this being placed about 2 inches of sifted sandy soil. Early in May these are utilised for raising a few dozens of the favourite autumn Cauliflowers, Broccoli, and such

like, all the winter green plants, in fact, with the exception of Brussels Sprouts, these being raised under glass much earlier. When of good size, and before they are drawn, the required number of plants are pricked out in an open spot in rows and duly labelled, being eventually transplanted to where they are to grow. Early in June a strong Tomato plant is placed in each of the pots, and the wall is soon profitably clothed. We seldom sow the whole of our seeds at one time, and if any should fail badly, more are at once sown in boxes and set in a warm position outside. Thus treated, Snow's Broccoli and other rather expensive varieties germinate more surely, and the plants soon overtake any raised a little earlier in the open ground. The seedlings in this case must be pricked off before being finally planted out.

THE RUBBISH HEAP.—During this month a large heap of Broccoli, Brussels Sprouts, Savoy and other stumps accumulate as well as much other rubbish. If there is a good proportion of dry woody material and any waste wood to spare, it is advisable to start a fire, gradually banking this up with the old stumps and other rubbish forked out from the heap. If kept well enclosed the fire will slowly reduce the whole to ashes, and a valuable

but one. Cottagers are great sinners in this respect, and for this reason their crops are soon over. One of our Sweet Pea raisers allows a foot apart between the plants, as only in this way can he well judge of the merits of a new variety. Let anyone by way of experiment allow a garden Pea of a fairly strong-growing kind to grow alone, and he will then see how unnecessary it is to have the plants thick in the rows.—J. C. B.

MARKET GARDEN NOTES.

I THINK that one of the best guides an amateur or cottage gardener can take in the matter of kitchen gardening is that of a good market gardener, should such an one live in their neighbourhood. Many a useful wrinkle can be picked up by walking through a market garden. Round London the market gardeners have just sown one crop of their Coleworts, or Collards or Collets, as they are variously termed. Young plants of Cabbage may be termed Coleworts, that is, before their hearts have become firm; but the old Devonshire Colewort is still amongst us, and is used largely by market gardeners for "bunched greens." The market gardeners sow the seed in drills, thinly of course, and then pull out all the forwardest plants and dibble them out in pieces of spare ground. This being done succes-

almost useless to sow tender things in the open air before the first week in that month, else there is so much danger of the plants being cut off by frost. The gardener should watch for the appearance of the seed leaves, and by means of his hoe draw some fine soil over them. Or, if he happens to have by him some of that useful material in a garden—Cocoa fibre refuse—a sprinkling of this overhead will be found an admirable protection. The earliest of the Runner Beans is the Painted Lady, which bears scarlet and white blossoms instead of scarlet only, as in the case of the well-known Scarlet Runner. The Giant White Runner has white blossoms, and the seed is white also. It is curious that in these three forms of the Scarlet Runner the Beans and blossoms also should differ in colour. Some of our market gardeners, in order to have an early crop of Runner Beans, will place three seeds in a 5-inch pot, raise the plants in a frame, and then plant them out in the open as soon as it is safe to do so. A hole is dug in the soil, some manure placed at the bottom, a little of the soil thrown in; the Beans are then turned out of the pots and planted in the form of a triangle, and stakes are placed to them. In this way they grow into fine plants, get into bearing quickly, and produce



Crataegus tanacetifolia Leeana. (See p. 465.)



Crataegus Crus-galli ovalifolia. (See p. 465.)



heap is the result. We find this of good service for mixing with composts, either for fruit or vegetable culture. Particularly is it valuable for stirring into the surface of heavy lands, as it serves to keep these from cracking and otherwise benefits them.

W. I. M.

Scarcity of green vegetables.—I am told that Carrots in the London markets have realised as much as 8s. per dozen bunches. I know that 6s. per dozen have been returned to the growers, which shows how scarce green vegetables are at the present time. This season a small breadth of Turnip-tops which the more genial weather of the last week or two has brought into succulent growth has proved very useful. When other green stuff fails Turnip-tops are very welcome, and a good breadth of Turnips should be sown in every garden expressly for the sake of the greens. Many like Swede greens, and I confess to a partiality for them myself, but the fact is, that in a time of dearth anything is welcomed.—J. C. B.

Thinning Peas.—Mr. Iggulden does well to direct attention to the evils of overcrowding in Pea culture. Comparatively few practise thinning, and thick sowing is so much the rule that in the case of main crops that are sown at a time that favours germination, there are generally three plants when there should be

sionally, there are successional crops, and herein lies a useful hint for the cottage gardener. The Colewort Cabbage possesses two good qualities: it is early and very hardy, and in the autumn and winter the Coleworts are pulled, stalks and all, tied into bunches, and sent to market. Some years ago a handsome, Rosette-shaped variety was selected from the ordinary green Colewort, and distributed under the name of the Rosette Colewort; but it is found that heads of this shape will come among seedlings of the ordinary type.

Any amateur or cottager having a small piece of garden can secure a good supply of spring Cabbages by making two sowings—say, one of Coleworts about the middle of July, and another of Enfield Market variety at the end of the same month. The plants of the last can be put out 2 feet apart each way, and between them lines of Coleworts. The last-named will be ready first, and the crop of Cabbages succeed later.

A great deal of the work of sowing will be done by this time, but a few Peas, such as Veitch's Perfection, Yorkshire Hero, or Omega, may be sown yet, also Scarlet Runners and dwarf French Beans, and some Lettuces and Radishes for succession. We are so liable to frosts at the end of May that it is

large and successional crops. The fine Ne Plus Ultra Runner Bean can be grown in this way for exhibition.

Of dwarf French Beans I give the preference to Ne Plus Ultra, the Long-podded Negro, a very fine form of which is now grown under the name of the Monster Long-pod, and the Canadian Wonder. These three turn in in the order of their names. Canadian Wonder is a rather late variety, a good grower and bearer, and fine for exhibition, producing long handsome pods.

Let me recommend amateur and cottage gardeners to grow some plants of Veitch's Autumn Giant Cauliflower. The seed should be sown at once on a sheltered warm border, and as soon as the plants are large enough be planted out in good ground. If the weather proves hot and dry after planting out, water should be freely given to prevent the plants from buttoning. It is perhaps best to sow in April, but it can still be done, provided no time is lost. This is one of the largest of Cauliflowers, and comes in very useful in the autumn. Formerly, Grange's Autumn White Cape Broccoli and one or two other rather tender sorts used to be sown in the autumn, but this Cauliflower is fast displacing them. The seeds of the Broccoli had

to be sown earlier, and they were longer in coming into use. Cauliflower is found to do best on light land if heavily manured, and a quick growth is promoted by liberal watering. In Holland fine Cauliflowers are grown in the sandy soil in which the Dutchmen grow their Hyacinths, with water at only the depth of a foot, and the ground is prepared by liberal dressings of cow manure, which with the moisture rising from below promotes a quick growth and a fine large head of excellent quality.

RADISHES may still be sown for succession crops; the Turnip varieties are best for summer work; they are crisper to the palate in hot, dry weather than the long varieties, and turn in for use more quickly. The scarlet and white oval-shaped varieties are well worth a trial. These were selected from the Turnip varieties, and time was required to fix their characters.

BET may be sown now; this is perhaps the best time to do it, for if sown too early, and a hot, dry, early summer follows, the plants, instead of forming their thick fleshy roots, are apt to run up to flower and be useless. It is best to sow thinly in drills, $1\frac{1}{2}$ inches or so apart. What is known as the Covent Garden Red, or Pine-apple Beet, is one of the best for general purposes, but if any one will be content with smaller roots, and at the same time have a plant that will not disgrace his flower garden, let him sow Dell's Crimson-leaved. The Cheltenham Green-leaved Beet is a green-leaved form of the Pine-apple, and is greatly esteemed by the market gardeners about Cheltenham. The Egyptian Turnip-rooted is very useful for an early crop. R. D.

BOOKS.

THE ART OF PREPARING VEGETABLES FOR THE TABLE.*

VEGETABLE cookery, as usually performed in this country, is practically in the hands of the under kitchenmaid or the half-taught cook. The professed cook too often relegates his or her duty in this department to the underling, as if it were a matter of secondary consideration, and this is probably due to the fact that very few among the educated classes appreciate vegetables sufficiently to require skilful and intelligent treatment of them for the table. No doubt there has of late been a growing interest in the subject, and the appearance of this little book is both evidence of the fact and a contribution towards a better understanding of it, and, for the most part, we are happy to speak of it as a valuable one. What is chiefly wanted is a knowledge of the best modes of cooking and serving good vegetables in the simplest manner so as to preserve their character and quality with their natural flavour and colour in tender and digestible form. This is essentially the service à l'Anglaise, and it is that which is illustrated in this little volume. For finished presentation of vegetables in association with abundance of sauce, butter, cheese *au gratin*, *en croquette*, &c., there are abundant directions in most cookery books of pretension.

It is the principle of conducting the elementary cooking of vegetables, with the objects specified above, which our cooks require to be taught, and this object is fairly accomplished here; at any rate, we know no other manual which has done it more effectually and practically.

The opening pages contain sensible directions and practical suggestions related to the general subject which are so often neglected and unknown in middle-class kitchens. Thus the remarks on the use of soda are excellent—too often used as it is without the slightest know-

ledge of its action. After these preliminary observations each vegetable is treated of separately, and most of the directions given are very good. Under the head of "Asparagus" (p. 9), we must remark, however, that the quantity of boiling water should be much more than "half" the depth of the Asparagus when boiled upright. Less than three-fourths will not suffice to begin with; the soft heads alone should be left to cook in the steam.

Few persons appreciate sufficiently small, young, and tender Broad Beans (p. 13). No finer vegetable exists than these when shelled quite early, about the size of ordinary Haricots (without the pods—nevertheless very good in their way, as suggested), and served with simple Parsley and butter. When old and strong, they are more suitable for pigs unless shelled, and then they are tasteless. For it is the shell of the very early Beans which contains the delightful flavour, and then only is the vegetable a delicacy.

The treatment of Kidney Beans at p. 12 is to be commended. Very rarely seen here when thus served, they are familiarly known in this form, and rightly prized in France as "Haricots panachés."

Few cooks can fail to derive useful hints from the paragraph on cooking Peas. The same may be said of Potatoes, always a matter of the highest importance at an English table. The directions for simple boiling so as to produce fine mealy specimens are good; but the use of a napkin under the lid during the last stage of cooking, to catch the steam and prevent its running back as condensed water, is not insisted on (p. 49), although its value is alluded to when the cooked tubers have been taken up and are waiting to be served.

The article on salad is defective. One way of making it is recommended, and the best and most approved methods are not alluded to. Will it be believed that in so good a work as this is that there is no mention of pot herbs, so essential an element to all good cookery? Fancy a salad without finely-chopped Parsley, or served without the "lurking atoms in the bowl" of Tarragon or Chervil, and, for some, of Chives, Shalot, or even a soupçon of Garlic. The agreeable sprinkle of fine Parsley also in small quantity over a dish of new Potatoes is not mentioned. It is almost inexplicable that the writer should have wholly ignored the abundant and priceless stores of fine scent and flavour which exist in the "cook's corner" of a kitchen garden, the bed of various pot herbs.

A dissertation on these, and not a mere mention, is wanting to render the work complete. There are a few other notable, but comparatively slight omissions in this little book. Thus Celeriac might have been named; also garden Cress among salads and Turnip-tops among table greens. In another edition these and some other little matters may be introduced with advantage, and unqualified approval could be given to what is at present a useful and valuable book, which may be profitably studied in almost every English kitchen. H. T.

Hardy flowers at exhibitions.—It is a sign of the greatly increasing love for hardy flowers that they should receive recognition now at our metropolitan exhibitions. There was, as seen by our report, a most interesting display of them at the Royal Botanic Society, not mere scraps, but large masses, so as to show what a really striking effect hardy flowers are capable of making when properly grown and judiciously arranged. Of course there are a number of exquisite alpine plants that are not suited for exhibiting in a large tent, but there is such a wide range to choose from that there need

not be the slightest difficulty in rendering the hardy garden flowers a feature at every exhibition held between early spring and autumn.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE.

MAY 12.

If all the summer exhibitions are to show the same falling off as the first one of the year, held last Saturday at the Crystal Palace, then we shall have to record in some respects a disappointing season. There were about eighty entries less than at the previous show of last year, no small number, and possibly testifying to the fact that the interest that was once so strong in exhibitions of this character has decreased, or it may be attributed to the general backwardness of the season. But while the exhibition was comparatively small, it had many good points, and though one might complain that the various exhibits were too much spread about, yet, on the other hand, this is far better than the stereotyped arrangement so much in vogue. The classes that were most poorly represented were those for Heaths, Dracænas, Caladiums, show Pelargoniums, Orchids, fine-foliaged plants, and Azaleas, and, with the exception of Orchids, these are just the plants that have lost the public favour once given to them, so that it seems if the summer exhibitions are to be made really interesting and attractive, some other features must be introduced to prevent the sameness repeated year after year.

FLOWERING PLANTS were naturally one of the best points, and Azaleas were amongst the finest things shown. Mr. Turner, in the class for nine varieties, exhibited model specimens, a mass of bloom, of such distinct kinds as Comtesse de Flandre, rich carmine; Duc de Nassau, very bright shade of the same colour; and Mons. Thibaut, deep scarlet. The same exhibitor also made an excellent display in the class for eighteen Azaleas in pots not exceeding 9 inches. The plants were well flowered, neat, and shapely, especially varieties such as Lady F. Hastings and Marie Lefebvre, both with fine white blooms. Stove and greenhouse plants in flower were quite up to the average of those seen within the last two or three years. Mr. W. Chapman, gardener to Mr. J. Spode, Rugeley, Staffs, was first, and he showed the rich lilac-pink Tremandra ericaefolia and the deep yellow Erica Cavendishi in excellent form; these were seen also in good condition in other classes. Mr. H. James, Castle Nursery, Norwood, was second with an even lot. There was very little competition for Pelargoniums, and in all the classes Mr. Charles Turner was the chief prize-winner, and thoroughly deserved it. In the class for eighteen he showed capital plants, conspicuous amongst them being the varieties Venus, white, upper petals blotched with pink; Mme. C. König, white; Rosetta, rose-magenta; Isabel, lilac and velvety crimson; and Alice, white and crimson. Mr. D. Phillips, gardener to Mr. R. W. Mann, Langley Broom, Slough, also exhibited creditable specimens of boldly coloured varieties. The show Pelargoniums gave a variation to the display, as the plants exhibited by Mr. Turner were full of flower, and included the almost black-coloured Emperor of Russia, the scarlet-flowered Edward Perkins, Comtesse de Choiseuil and Mme. Thibaut, both well-known kinds. We prefer the small neat-flowered fancy kinds to the others, and these were also exhibited well by the same grower; the dark crimson-flowered Sarah Bernhardt, pinky white Mrs. Langtry, and Mme. Marie Knecht, white, spotted with pink, are well worth cultivation. Mr. Chapman was first for a single specimen stove plant in bloom, showing an excellent example of the scarlet Ixora Regina; while in the corresponding class for a greenhouse specimen, Mr. Turner was the prize-winner, and he had one of the best plants we have seen of the rich scarlet Azalea Stella. Gloxinias were poor, except in the class in which two prizes were offered by the Messrs. Sutton, of Reading. Here Mr. Hopkins, gardener to Mr. M. Jacoby, Gipsy Hill, was first with well-grown plants. Roses were quite up to the average, and in the class for

* "The Art of Preparing Vegetables for the Table." By Sutton and Sons, Reading. Published by Hamilton, Adams and Co., 32, Paternoster Row. 1888.

eighteen, Messrs. Paul and Son, Cheshunt, were first with well-grown specimens of the lovely Innocente Pirola, the rich crimson Beauty of Waltham, the delicate Francisca Kruger, and the crimson Francois Levet. Messrs. G. Jackman and Sons, of Woking, were a good second.

It was surprising that more Orchids were not shown, as there was only one entry in the class for a group, but in the class for nine there was a better display. Mr. Henry James was first, and he had a good form of *Cattleya Mendeli*, with a deep crimson lip, and excellent specimens of *Cypripedium Lawrenceanum*, *Masdevallia Veitchi grandiflora*, and the beautiful *Dendrobium thyrsiflorum*. The same exhibitor was also first for a single specimen, showing a well-flowered *Dendrobium nobile*.

In shows of this kind fine foliage takes a leading place, and in several instances Mr. Albert Offer, Handcross Park, Crawley, was the most successful. He was first in the class for nine specimens, having *Cycas circinalis*, a rich green, handsome *Cycad*, *Dasylirocn acrotrichum*, and the beautiful *Asparagus plumosus nanus*, all of which are seen frequently. Crotons were remarkably well grown, and Mr. Offer was also first for these. The plants shown of *Weismanni variegatus* and the drooping narrow-leaved *angustifolius* were not too large, but thoroughly well grown. The Ferns from Mr. Thos. N. Penfold, gardener to Rev. Canon Bridges, Beddington Rectory, were fresh and beautiful, especially the specimen of *Dicksonia antarctica*. There was a very keen competition for table plants, but Mr. Hudson, of Gunnersbury House Gardens, Acton, was an excellent first, having those neat, clean plants so well suited for the table. In the section for fine-foliaged plants the best feature was the *Caladiums* from Messrs. J. Laing and Co., of Forest Hill. If *Caladiums* were only always shown like this the old love for them would soon return. In the classes for *Nepenthes* and *Sarracenias* Mr. James was the only prize-taker.

One pleasant exhibit was the group of plants, in which class Messrs. John Laing and Co. were first; it was a tasteful arrangement made up with a variety of choice Orchids and other things.

Amateurs did not show largely, and in several instances the quality of their exhibits was quite third-rate. The fancy and show *Pelargoniums* from Mr. D. Phillips were worth mention, so also were the stove and greenhouse plants from Mr. W. Chapman.

BOUQUETS were interesting by reason of the discussion that has recently appeared respecting them in THE GARDEN; and in the present instance we must say that the lumpy formal arrangement that used to please a few years ago is giving way to a lighter and more natural system of grouping. Messrs. Perkins and Sons, of Coventry, were first in two classes, in both exhibiting tasteful and not too formal arrangements, and in the class for a bridal bouquet, Mr. E. Morse, of Epsom, had a bouquet of Lilies of the Valley, Roses, &c., most exquisitely grouped in a graceful way. But perhaps the most natural arrangement was in the class for three vases, in which Miss Hassell, by the delicate handling of a few simple things, produced a charming effect. The first prize was awarded to this exhibitor. The bunches of cut greenhouse and stove flowers were also worthy of note for the choice variety exhibited.

Cucumbers were shown by Mr. G. Collins, gardener to Mr. J. A. Rose, Wandsworth Common, and Mr. W. Monk, Eastlands, Dulwich, in competition for the prizes offered by Messrs. Sutton and Carter.

The miscellaneous class was an important one, Mr. T. S. Ware, of Tottenham, showing a large group of Daffodils and several forms of Tulips, and bunches of the beautiful white *Ranunculus amplexicaulis*. Messrs. Barr and Son, Covent Garden, had several new Narcissi, nine of which were certificated. These were *Mme. de Graaff*, Sir Watkin, Leedsi Beatrice, Mrs. Langtry, bicolor grandis, Leedsi Duchess of Westminster, Incomparabilis Beauty, J. B. Camm, and Dorothy Wemyss. *Caladiums* Charlemagne and Marquis d'Albertas, from Messrs. J. Laing, were certificated; also *Viola Snowflake*,

white, from Mr. J. Chambers, Isleworth; *Anthurium Scherzerianum sanguineum* from Mr. H. James; and *Polyantha Rose Little Dot* from Mr. H. Bennett. The last-named exhibitor showed Princess Beatrice and Lady Mary Fitzwilliam Roses; and Mr. W. Rummey, of Waltham Cross, and J. Prewett, of Hammersmith, also had Roses. Messrs. H. Cannell, of Swanley, showed *Calceolarias* and a good variety of *Mignonette* named Cannell's Perfection. Messrs. Hooper and Co., of Covent Garden, exhibited beautifully spotted forms of *Gloxinias*, and Mr. J. Chambers had flowers of his double Violet Victoria.

A list of awards will be found in our advertising columns.

ROYAL BOTANIC SOCIETY.

THE summer exhibitions of the Royal Botanic Society are regarded as horticultural events of some importance, and on the occasion of the first one of the year, held last Wednesday, the large tent presented as gay an appearance as we have seen it, by reason of the character of the exhibits and their tasteful grouping. Of course, there were the usual stereotyped things, as lumpy, hard-wooded specimens, and formal Azaleas; but we were pleased to see Roses, Orchids, and hardy herbaceous plants thoroughly well represented. The hardy flowers made a charming break, and we only wish that all societies would follow the example set at the Botanic, as this is the way, when large tufts are shown, as they were on this occasion, to kindle a genuine interest in a class of plants that may be regarded as natural to the English flower garden. Our exhibitions would not have half the sameness that now marks them if only more variety were introduced, and this is not hard to find, even if we give less encouragement to trained specimens that have neither beauty in form nor naturalness to recommend them.

It was a wise thing to make a class for a group of hardy herbaceous plants, as three large groups, all composed of a variety of choice things, were put up. Messrs. Collins and Gabriel, Waterloo Road, were first, showing large specimens of the rosy-coloured *Primula Sieboldi*, the lovely double white Wood Windflower, *Cypripedium spectabile*, the scarlet *Lilium davuricum*, *Triteleia uniflora*, and the richly-coloured *Doronicum austriacum*. Mr. T. S. Ware, of Tottenham, had also a most interesting arrangement, in which the white pyramidal panicles of *Saxifraga pyramidalis* were conspicuous. There were also plants of the rich yellow American Globe Flower (*Trollius americanus*) and the exquisite *Trillium grandiflorum*.

ROSES are always welcome, and there were plenty to be seen on this occasion. There were three exhibitors in the class for twenty specimens, and all showed well-flowered plants, especially Mr. Charles Turner, of Slough, who was first. Such varieties as Sir Garnet Wolseley, crimson; *Mme. Margottin*, very bright yellow; *Edouard Morren*, rich rose-pink; Charles Lawson, full deep rose; and *Marquise de Castellane* were well worth a note for their freshness and beauty. There was also a class for nine Roses, in which Messrs. Paul and Son, the Old Nurseries, Cheshunt, were first, showing excellent plants of the delicately yellow-coloured *Céline Forestier* and the full, rich pink *Centifolia rosea*. In the other class for Roses, limited to amateurs, Mr. P. Perry, gardener to Mr. G. Rowlett, The Woodlands, Cheshunt, was first, and for an amateur the plants showed good culture.

ORCHIDS are always an excellent feature at the Botanic, and there was no exception to the rule on Wednesday. The usual bank was filled with them, Mr. J. Cypher, of Cheltenham, showing remarkably well-grown examples in the nurserymen's division. A most interesting class was for a collection of *Cattleyas* and *Lelias*, and Mr. Cypher had several splendid forms of the bold and handsome *Lelia purpurata*, now in perfection. One named nobilior had a rich purple-crimson lip and white sepals and petals; it is a beautiful flower. Also good were *Cattleya citrina* and *Cattleya Mossie superba*, a very richly-coloured variety of fine form. In the class for amateurs, Mr. J. Hill, gardener to Mr. H. Little, The Barons, Twickenham, had a fine form of *C. Warneri*, called Sander's variety, the flower large

and of vivid hue. Mr. J. Cypher was also first for twelve Orchids, exhibiting a fine mass of the delightful *Cattleya citrina*, which is rich both in colour and fragrance. Other beautiful species were the waxy *Chysis bracteescens* and the showy *C. Skinneri*. Mr. Hill was also first in the corresponding class for amateurs.

The largest class was for twelve stove and greenhouse plants in flower, but the specimens shown were not up to the mark, although Mr. James, who was first, made a satisfactory display. In the amateurs' class for ten specimens, Mr. W. Chapman, gardener to Mr. J. Spode, Rugeley, exhibited creditably, the plants being comparatively small, but none the worse in that respect. Mr. James also came first for six stove and greenhouse plants with fairly good examples of well-known things. In the corresponding class for amateurs, Mr. W. Chapman exhibited excellent specimens of *Dracophyllum grande* and *Aphelexis grandiflora*.

Fine-foliaged plants and Ferns toned down the brilliant colours of the Azaleas and other flowers. Mr. H. James and Mr. Offer showed well in the respective classes.

AZALEAS in the nurserymen's class for six plants were shown as well as they almost could be. Mr. Turner, who was first, had quite small pyramids of bloom. Such varieties as *Duc de Nassau*, the brilliant scarlet *Stella*, *Etendard de Flandre*, and *Jean Vervae* seem to be general favourites with exhibitors. In the amateurs' class, Mr. G. Wheeler, gardener to Sir Julian Goldsmid, Regent's Park, was first with excellent plants of leading varieties. In the open class for twelve Mr. Turner was first. We must also say a word of praise for the *Pelargoniums*, which were in admirable condition. Mr. Turner was first in the nurserymen's class for six plants, which represented excellent varieties and one mass of bloom. The specimens shown by amateurs were not far behind in point of merit from those of the nurserymen. Mr. D. Phillips was an excellent first. In the class for fancy varieties the chief prize-winner was again Mr. Turner, who well deserved the award.

Miscellaneous exhibits were of a high order of merit. Messrs. Wm. Paul and Son, of Waltham Cross, had a lovely bank of pot Roses and cut flowers as fresh and delightful as in mid-summer. We noticed blooms of the delicate yellow *Cloth of Gold* variety, and the exquisite *Violette Bouyer*, *Souvenir d'Elise Vardon*, and *The Crown Prince*, a variety of rich velvety purple hue and of full, handsome form. A silver medal was given, and also to Messrs. Low, of Clapton, for a most interesting group of Orchids, containing several varieties of *Cattleya Mendeli*, some of surpassing richness; and *Cypripedium laevigatum* and *Sanderianum*. Messrs. Cutbush, of Highgate, and Mr. B. S. Williams each made an excellent display, and received the award of a silver medal. *Cinerarias* of rich colours and excellent dwarf habit came from Messrs. J. Carter, High Holborn; and Mr. J. Walker, Thame, showed magnificent blooms of the *Maréchal Niel* Rose, perfect in colour and shape. Tuberous *Begonias* and *Pelargoniums* were contributed by Mr. H. Cannell, of Swanley, and it is surprising the advance that has been made with these flowers. A group of *Narcissi* and Tulips of various kinds was exhibited by Messrs. Barr and Son, of Covent Garden.

Floricultural certificates were granted to Mr. J. H. Virgo, Somerset, for *Myosotis dissitiflora grandiflora*; to Mr. Turner for Azaleas *Ami du Cœur*, *Vervaeana*, *Louise Vervae*, and *Theodore Reimers*, all useful additions; to Mr. H. Bennett, Shepperton, for the lovely Tea Rose Princess Beatrice, now well known; and to Mr. J. Laing for *Caladiums* *Charlemagne* and *Comte de Germiny*, also for *Clivias* *Orange Perfection* and *sulphureum*, and *Gloxinia Madame Bleu*. Mr. H. Cannell had a certificate for each of the following double *Begonias*: Mr. W. F. Bennett, Enchantress, and Lady Mary Fitzwilliam. The *Mimulus* from Messrs. J. Carter was also certificated, so also Messrs. Wm. Paul and Son's delicate yellow Tea Rose *Sappho*, the scarlet *Geum minia-*

tum from Messrs. Paul and Son, of Cheshunt, and *Narcissus poeticus grandiflorus* from Messrs. Barr.

Botanical certificates went to Mr. H. James for *Anthurium Scherzerianum sanguineum*, which has a rich crimson spathe, and to Mr. J. Cypher for *Lælia purpurata nobilior*, already described, and *L. p. Archduchess*, which has bluish white sepals and petals and a deep crimson lip.

ROYAL HORTICULTURAL.

MAY 17, 18.

It displayed an enterprising spirit on the part of the Royal Horticultural Society to hold a two days' exhibition on the Thames Embankment, and we only hope that the bold venture will be crowned with success. No better site could have been obtained than that of the Inner Temple Gardens, as it is a fine open space, and away from the noise of traffic, but the wretched weather, we fear, will have had the effect of marring this brilliant show, full of interest through the choice array of plants, a large proportion of which, we were glad to note, were hardy garden flowers. There were two large tents, each one filled with exhibits. In the smaller of the two were the hardy flowers and market plants, besides miscellaneous things; while in the other were splendid collections of Orchids and Roses. The exhibition which closed last evening will have, we hope, the effect of bringing the claims of the society under the notice of those who have not hitherto seen what an amount of good it might do if only it were thoroughly supported and a hearty enthusiasm awakened in its welfare.

The hardy flowers were abundant, and most admirably displayed. Messrs. Collins and Gabriel, Waterloo Road, came first for a group showing fine tufts of beautiful things, such as *Cypripedium spectabile*, *Spiræa palmata*, and the Florentine Iris, and in the class for cut flowers, Mr. T. S. Ware, Tottenham, came to the front with a charming group of Daffodils, rich in variety, amongst which the lovely double variety, sulphureous plenus and the Poet's Narciss, besides *Tulipa sylvestris*, the rich crimson *T. fulgens*, and the lovely ivory-white *Lilium longifolium*. Messrs. Paul and Son, of Cheshunt, were a good second, exhibiting twigs of hardy trees, besides other things. Messrs. Barr and Son, of Covent Garden, had a splendid group of Daffodils interspersed with fine-foliaged plants, and the effect was most natural and pleasing. There were Tulips of various kinds, as *T. retroflexa*, *cornuta*, and *elegans*. *Trillium grandiflorum* was delightful in several stands for its purity and freshness.

The Tulips and Daffodils from Mr. Walker, of Whitton, made a great show of colour. Especially worthy of mention were the Lilies of the Valley from Messrs. Hawkins and Bennett, of Twickenham. It was named the Victoria variety, and had bells of surpassing beauty, with the spikes firm and sturdy. A very choice group was that from Messrs. Paul and Son, Cheshunt. There were Iris paradoxa, a deeply-coloured flower that might be likened to a death's-head moth. *Arnebia echioides*, or the Prophet's Flower, was represented by a specimen one mass of its cheerful yellow flowers. There were also *Muscari armenaicum*, rich blue, *Gentianella*, the scarlet *Geum miniatum*, and two late Primroses, named Original and Brilliant, both finely coloured.

ORCHIDS were exhibited in the large tent, and a most interesting display they made. Baron Schröder, The Dell, Egham, was first for a group, which contained a most choice selection, and a few of which only we can particularise. *Cattleya Schilleriana* Regnelli was resplendent in colour; it is remarkably rich. *Aerides Williamsi* is a choice white flower of great delicacy; it has a dense, short raceme. Especially noteworthy were the plants of *Cattleya Skinneri* (a brilliantly coloured form), *Cypripedium Lowianum*, the chaste *Odontoglossum cirrhosum*, and a form of *O. crispum* with the flower of regular proportions, and boldly stained with a rich crimson colour. Mr. H. M. Pollett, Bickley, was first in the class for a group of *Odontoglossums*, having a choice selection, in which were the handsome *O. Edwardsi* and *O. Pollettianum*, the flowers covered

with brown blotches on a dull rose ground. For a group of *Cattleyas* and *Lælias*, Mr. J. Cypher, of Cheltenham, was the most successful, staging a charming collection, in which the fragrant *C. citrina* was conspicuous. A tasteful exhibit was that of Major Lendy, of Sunbury-on-Thames, who exhibited the best cut spikes of twelve varieties. Mr. Cypher was also first for nine Orchids, and he also had a miscellaneous group containing fine varieties of *Lælia purpurata* and *Cattleya Mossiae*. Mr. G. Barker, gardener to Mr. J. Hemmerde, Elliott Place, Blackheath, had charming forms of *Cattleya Mendeli*, rich in colour and exquisite in form. Groups of Orchids came from Mr. D. East, gardener to Mr. F. Wigan, Clare Lawn, East Sheen; and Messrs. Page and Sons, The Nurseries, Teddington.

Messrs. Sander and Co., of St. Albans, had an excellent display, varied, and of large extent. Numerous forms of *O. crispum* were shown, also *Cypripedium ciliolare* (St. Albans var.), and *Cattleya Mendeli Rothschildiana*. The first-mentioned is an exceedingly fine flower, robust in character and well coloured; the petals are reddish in colour and covered with brownish spots; while the lip is large, and the dorsal sepal striped with green. The *Cattleya* is a flower of delightful beauty, so clear in the exquisite blending of colours; the sepals and petals are of a pale rose, and the lip bright rose-purple. A good form of *C. Mossiae* is *Londinensis*, the sepals and petals rich pink, and the lip deep rose-purple. *Scuticaria Keyseriana*, also shown was in the way of Steeli, the flower dull yellow, sparsely blotched with chocolate. Messrs. Low, of Clapton, had a fine group of *Cattleya Mendeli*, an Orchid now in full perfection.

Sir Trevor Lawrence, Bart., Dorking, had a group mainly composed of Orchids, but having also several *Anthuriums*, one named *Wardi* bearing a brightly coloured spathe of large size. Amongst the Orchids were *Aerides Houlettiana*, *Ansellia congoensis*, with beautifully spotted flowers, having a yellow lip. The most notable thing was, however, the *Lissochilus giganteum*, an Orchid with a stem of great height, crowned at the top with a cluster of large, dull rose flowers; it is a plant very seldom seen.

ROSES filled one side of the large tent, and were both fresh and well exhibited. Messrs. Paul and Son, of Cheshunt, were first for twelve pot specimens, with Messrs. Jackman, of Woking, as second. A lovely collection of cut blooms was put up by Mr. W. Rumsey, of Waltham Cross, the flowers, especially of *Souvenir d'Elise Vardon*, *Maréchal Niel*, *Innocente Pirola*, and *Anna Olivier* being perfect in finish and colour; Mr. Turner was a close second. A representative group of Roses was staged by Messrs. Wm. Paul and Son, of Waltham Cross, who had, besides pot plants, several boxes of cut flowers.

An important class was for a group of market plants, and there were several contributors, all of whom had a varied display. There were two first prizes given, one of which went to Mr. J. Sweet, New Lodge, Whetstone, who had foliage plants, and equal seconds went to Mr. H. B. May, of Edmonton, who had Ferns, and Mr. Rochford, Millham Nursery, Cheshunt, who showed, amongst other things, *Hydrangeas* and *Mignonette*. Messrs. J. Laing and Co., Forest Hill, were first for a group arranged for effect.

PELARGONIUMS came from Mr. Turner, who was first in the class for nine specimens; and Messrs. J. and J. Hayes, Lower Edmonton, were the most successful for a group. A collection of seedling varieties of considerable promise came from Mr. W. Clay, Kingston-on-Thames; and *Pelargoniums* were also shown by Mr. W. Braid, Winchmore Hill. *Azaleas* gave brilliant colour to the show, Mr. C. Turner coming first with splendid specimens, and in the class for a group of *Calceolarias* Mr. J. James, Farnham Royal, was the most successful.

Of course there were a number of miscellaneous exhibits, which, indeed, contributed largely to the show. The bouquets, especially the charming arrangement of Roses shown by Mr. P. H. Garcia, of Covent Garden, were a break away from the usual run of such things. Messrs. H. Cannell and Son, of Swanley, exhibited *Calceolarias*, the

flowers of brilliant and diversified colouring, double and single *Begonias* and cut *Pelargoniums*. The latter flowers were also sent by Mr. J. R. Pearson, Chilwell Nurseries, Notts. They were all varieties of his own raising, and such kinds as the showy salmon-rose-flowered *Perdita*, Mrs. Miller, rich scarlet, and Nello, glowing rose-pink, testify to the improvement Mr. Pearson has effected in this flower. Mr. H. B. May, Dyson's Nursery, Edmonton, had excellently-grown plants of *Calceolarias*, showing a great range of colours; and Messrs. Laing and Son, of Forest Hill, put up a nice arrangement of miscellaneous things, also a fine bank of *Caladiums*. The latter plants were also well exhibited by Mr. J. Nicholson, gardener to Mr. W. Nelles, Chingford, Essex. Mr. K. Drost, Richmond, showed a group of plants; and *Cinerarias* of an excellent strain were contributed by Messrs. J. Carter, of High Holborn, who also had plants of *Mimulus*, the flowers very large. The *Calceolarias* from Mr. J. James, Farnham Royal, need no description. The group from Messrs. B. S. Williams, of Upper Holloway, was of large extent, and made up of a variety of choice plants.

There were three good collections of Apples, and the fruits, considering the season, were fresh and well preserved. Messrs. G. Bunyard, of Maidstone, Messrs. J. Cheal and Sons, of Crawley, and Mr. A. H. Smee, The Grange, Wallington, were the exhibitors. The Blenheim Orange, Cox's Orange Pippin, Besspool, Sturmer Pippin, Hanwell Souring, and the Wellington were particularly good. An interesting feature was the collection of Channel Island produce from Mr. G. Monro, Covent Garden, consisting of Melons, Grapes, and Peas. Mr. Thomas, of Covent Garden, sent American Apples Nonpareil and the Golden Russet, also the Jaffa Orange, a luscious, juicy fruit, and excellent samples of Australian Apples, as the Cox's Orange, Ribston, and Blenheim Orange Pippins, all in excellent condition and noticeable for their evenness and bright colouring. Several valuable cups were given, but want of space prevents individual mention.

Death of Francis Rauch.—With deep regret we announce the sudden death of Mr. Francis Rauch, director of the Imperial Gardens, Laxenburg. The sad event occurred on May 13 at Laxenburg.—LOUIS KROPATSCH.

Death of John Smith.—The announcement of the death of Mr. John Smith, the second ex-curator of the Royal Gardens, Kew, will be received with no great surprise, as it has been known that for some time past he has been in failing health, through which he resigned his post of curatorship two years ago. Mr. Smith was born in Roxburghshire, and first commenced his gardening career at Floors Castle, Kelso, and from thence by his ability and kindness worked his way to the position of curator at Kew. He filled this post for twenty-two years, and was respected both for uprightness of character and earnest work in the position he filled.

Death of Mr. R. Valentine Leach, of Devizes Castle.—Anyone who has visited Devizes and walked into the Castle grounds will remember the singular picturesqueness and beauty of the pleasure grounds at the base of the tower and the fruit gardens upon the sunny slopes facing southwards. All this was designed and carried out by the late proprietor, Mr. R. V. Leach, who died at Bordighera, Italy, on the 7th inst., at the age of 82 years. From being a tradesman in the market-place of Devizes, Mr. Leach rose, by his own exertions, to become the proprietor of the Castle grounds, and carried out one of the dearest objects of his life—the erection of a new castle. This he accomplished, beautifying the place, and making a lovely garden of what was formerly little better than a neglected and forsaken spot. From the Castle magnificent views can be had of the surrounding country. The Castle grounds and gardens are well worthy a visit during the spring, summer, and autumn months.

Names of plants.—*W. Leach.*—*Maxillaria Harrisoniae*; *J. S. S.*—1, *Andromeda floribunda*; 2, *Gaultheria shallon*; 3, *Narcissus Jonquilla minor*.—*J. M. and S.*—THE GARDEN itself is the only recent work that will meet your wants. If an older book is wanted, you might pick one up in the second-hand bookshops.

WOODS & FORESTS.

THE NUT PINE.

(PINUS SABINIANA.)

It only for its remarkable cones, which are little inferior either in size or colouring to those of *P. macrocarpa*, this peculiarly distinct and decidedly ornamental Pine is well worthy of a far greater amount of attention than it has hitherto received at the hands of cultivators in this country. True, it is a miffy plant, and one that has not done well in several situations, but this I am inclined to attribute in a far greater degree to our hitherto want of a thorough knowledge of its likes and dislikes than from any unsuitability on its part to withstand the climate of, perhaps, any part of the British Isles. Indeed, to a great extent this has already been proved, and we are now happily in a position to point out that this most distinct and desirable species of Pine, hailing although it does from the warmer districts of California, is well fitted for planting in almost any part of the country. Differing from, perhaps, every other Pine, not only in its long, drooping and glaucous grey foliage, which is so thin, fine, and loosely arranged that the sunbeams have little difficulty in penetrating through it, but in the remarkable cone, which to those who have seen it for the first time is simply a marvel, not only of size and shape, but beauty of colouring.

In the specimen now before me, which, however, is not home-grown, the size, shape, and even colouring put one in mind of a huge fully ripe Pine-apple. It is 8 inches long and fully $6\frac{1}{2}$ inches in diameter at the widest part, but a friend who has seen the tree in its native wilds tells me that these dimensions are often exceeded, and that specimens of nearly a foot in length are occasionally met with. The seeds are large and edible, only 280 going to the pound weight, these being fewer than in the case of any other Conifer, except *P. macrocarpa* and *Salisburia adiantifolia*. Like the cone, the seeds when fully ripe are of a pleasant yellowish brown, but not nearly so glaucous or oily-like.

If the cones are handsome and conspicuous, so, indeed, is the foliage, it being about a foot in length and of a most unusual and hard-to-describe colour—a light bluish green, or, perhaps better, a greyish blue, and quite glaucous.

The peculiarly graceful manner in which the tufts of foliage are arranged in this Pine never fails to attract attention, for they grow upright for several inches and then with the easiest grace fall backwards and outwards almost in a circle around the point from which they originated and for sometimes as much as 10 inches in length. This peculiar lie of the foliage renders the tree so distinct from any of its fellows; indeed, imparts to it a weeping, but easy habit of growth, and which at a little distance away puts one more in mind of some tropical plant of the Palm family than a member of the genus *Pinus*. In a richly furnished pinetum not long ago I noticed how well the Nut Pine was shown off by being planted in close contiguity to the Irish Yew and upright Cypress, the stiff, formal outlines and dense, dark foliage of these latter affording such a striking and pretty contrast to the silvery greyish weeping spray, and easy, graceful outline of the Pine in question.

When viewing this pretty combination, I could not but think that far too little attention is usually bestowed on the sites chosen for special trees, Conifers in particular, for when the distinct contours of many are considered, and how easy it is to furnish beautiful contrasts and at no additional expense, the only wonder is that so much higgledy-piggledy planting is engaged in from time to time. When about to plant out permanently a specimen of the Nut Pine, a sheltered situation had better be chosen and the soil well worked, and if stiff, made free and porous by the addition of a couple of cartloads of sandy loam. The Nut Pine is rather difficult to transplant with safety, unless, indeed, very particular care has been bestowed on

its nursery management, for, like the Cluster Pine (*P. Pinaster*) and one or two others, it produces a stout tap root and but very few, unless it is induced to do so, of the fibrous roots on which the planter depends so much for successful shifting from one site to another.

A friend who has had considerable experience in the raising and after management of this Pine on the Continent tells me that in order to induce the free growth of roots, the long and stout tap root must be cut off (a spade is preferable to any other instrument for this purpose) when the young plants are being lifted from the seed bed, or at least when first lined out. The seeds are placed in lines about 6 inches apart (this on account of their large size) and covered with an inch in depth of light sandy soil. In the treatment of seedlings of the Nut Pine, and this solely on account of their producing an abnormal tap root and few others, it is usual to cut the long tap root with a spade shaped for the purpose before the plants are removed from the seedling lines. This plan, my friend says, has been practised with the greatest success, not only on the present plant, but likewise on *Pinus Pinea*, *P. Pinaster*, and several other shy-rooting Conifers, and I have just been wondering if a similar course of treatment would not be highly beneficial in the case of *P. Laricio*, for one of its greatest faults is that it produces too few fibrous roots, these, unless special care is taken, being substituted by a long deep-running tap root.

The soil that is best suited for the cultivation of this Pine is a sandy loam, but whether the latter be vegetable or not would seem to be a matter of no moment, for equally fine specimens may be seen growing with a fair amount of luxuriance in either. On the Continent it is usual to assign to the Nut Pine the more sheltered portions of the forest and soil inclining to be sandy, or in which a quantity of broken rock exists; indeed, from the seedling state onwards by far the best results have been obtained by having naturally in the soil or otherwise adding to it a due proportion of sand. It delights in warmth and sunshine, and will thrive well under such conditions where few others of its tribe could eke out an existence, and where hardly any soil is to be found amongst the detached masses of rock.

In Ireland this handsome and peculiar Pine does well, while I fancy that in the wind-swept Isle of Man Mr. Farrant has told me it does well planted in gravelly loam inclined to peat, but should this meet his eye we will no doubt have the mistake corrected, or the assertion verified. There are numerous fine examples of the Nut Pine in England, some being of large size, while in Scotland it does fairly well, and shows off to perfection its peculiarity of foliage and mode of growth. In point of hardihood we think there is not much to be feared for the Nut Pine in this country; indeed, any tree that can withstand the rigours of a Crimean winter, which this Pine does with never a shadow of harm, and in which place it produces full-sized cones, may be put down as hardy enough for any part of the British Isles.

Very little information regarding this Pine is to be found in any of the numerous works on trees, the fullest description being in the "*Pinetum Britannicum*," and where there is a life-like and full size coloured drawing of the cone as well as twig. As a timber tree the Nut Pine is never likely to attract much attention, at least in this country, for the simple reason that it is of too slow growth and requires certain peculiarities of soil and situation that cannot always be conveniently procured.

It is, likewise, a rare Conifer, one that is rarely offered in nursery lists, and, consequently, to get a fair-sized specimen entails greater expense than the forest official is, in nine cases out of ten, prepared for. In ornamental planting it will always hold a high place; indeed, when its perfect hardihood is no longer questioned, we may find so distinct and ornamental a Pine included in a far greater number of collections than, unfortunately, it is at present. To Douglas, the intrepid Scotch botanist and traveller, we are indebted for the introduction of this valu-

able ornamental Fir, he having sent it from California fifty-six years ago. A. D. WEBSTER.

PRUNING.

I HAVE no desire to prolong discussion upon this subject unless some useful purpose can be served, but one or two of Mr. J. B. Webster's latest remarks (p. 448) require notice. Mr. Webster takes exception to my reference to the landscape value of a tree whilst dealing with its timber qualities. Such an objection as this is weak, as one of my chief points was to show, taking the Elm as a type, that the perfect timber tree and the perfect landscape tree were practically identical. This, from what he says further on, is, I know, not Mr. Webster's view. A wide experience with timber of this description has led me to the conclusion that whether we call it pruning or mutilation, any considerable interference with the natural growth of a tree must result in mischief more or less serious. I do not, of course, go so far as to say that in cases of accidental damage the wound should not be trimmed, but I do most emphatically repeat that the constant manipulation of growing trees, whether done scientifically or ignorantly, is a waste of time and money, and will result in the ruin of the timber. If trees had always to be cut into long and large scantlings, and used up in this form, I concede that a few sound knots would not be greatly detrimental. It is not, however, in this form that the wood is wanted for the best purposes. Generally speaking, clearness of grain is of greater value than abnormal length; in fact the clearness of grain is the factor that decides the worth of a tree. For first-class uses clear-grained wood alone can be employed, so it practically matters but little whether the pruning is carried out upon "well-defined rational principles" or not. My experience has led me to expect that where a branch has been removed a knot will be found, and that where the symmetry of the bole has to be preserved by these means, the multiplication of knots will go on. Only this week I have had some trees of this character to contend with, which, if they had been left to ramify in the way Mr. Webster affects to ridicule, would have been quite the percentage more valuable for cutting up that I indicated in my remarks in THE GARDEN, April 14 (p. 352). D. J. YEO.

Evergreen underwood.—A difficulty is often experienced in establishing underwood, more especially when the forest trees are large and thick. Among the worst to deal with in this respect are those plantations in which the Beech prevails. At Longford Castle, near Salisbury, there are more Beech trees probably than all other kinds of deciduous trees added together; but, on the whole, there is yet a capital undergrowth of Tree Box, Aucubas, and common Yew, all of which are found to transplant readily, and if kept well supplied with water during the summer following upon removal no great check is experienced. It must, however, be understood that the work is done well, pains being taken both in the preparation of the fresh sites and the removal of the trees. I have also been fairly successful in establishing good-sized plants of the Tree Box and common Yew among mixed trees, but in every case plenty of fresh leaf-soil and road trimmings were disposed about the roots, and during dry weather heavy waterings were given. When trees are crammed into small holes and no fresh compost added to the dry and very poor surface soil usually prevailing under forest trees, and, in addition, are left to take their chance, no wonder need be felt if the greater part of them rapidly wither away and die.—I.

Abies amabilis.—Professor John Macoun detected this species during the past summer upon many of the mountains of Vancouver's Island, where with *Tsuga Pattoniana* it is common above 3000 feet over the sea level. The northern distribution of this species as well as some other British Columbia trees is still a matter of conjecture. It has not been noticed north of the Fraser River, but it is not improbable that *Abies amabilis* will be found to extend far to the north along some of the mountain ranges of the north-west coast.—*Garden and Forest*.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

FRUIT GARDEN.

W. COLEMAN.

PACKING TENDER FRUIT.

ALREADY the performance of this delicate operation is engaging many hands, forced Strawberries, Cherries, and Figs coming first, Peaches and Grapes following close in their wake. Although many chapters upon this important subject for some years past have been published in every known horticultural periodical, a systematic method of arranging the gardener's most precious produce for safe transit by road or rail still exercises many minds, and not without good reason, as a false start represents the loss of many pounds, and not infrequently the reputation of not a few otherwise good growers into the bargain. If anyone doubt the truth of these remarks, let him turn to Barron's revised and enlarged edition of "Vines and Vine Culture," and there he will find in the chapter upon packing Grapes for market that this fruit alone, by no means difficult to pack, sometimes sinks one half and frequently one fourth in value by the time the consignments reach their destination. In the good old times when only a few were engaged in culture for market, when prices were eight times higher than they are at the present day and fruiterers were dependent upon that small knot of growers, an occasional shaking up made little difference; but the whip has changed hands, and fruit in every way perfect and spotless is the only commodity for which the trader will now deign to offer his own price. In my notes upon timely thinning I have endeavoured to show how mediocre fruit glut the markets, but this defect includes only half the indictment, as I know for a fact that private growers rob themselves of large sums through mismanagement in the packing room. It is not my intention to write or re-write a long chapter in detail, as matter of a most exhaustive nature can be found in back volumes, and it is to these that I would direct the attention of young beginners who have been disappointed with their returns, or who do not feel quite sure of the cunning of their own hands at the packing table. In the few general remarks I am about to make I may say nine-tenths of faulty consignments of tender fruit sent by rail are damaged through nervousness on the part of the packer, who allows too much space for his bunches, his drupes, or his berries, which move in transit and spoil each other. When fruit of any kind is to be sent away, the first thing to be considered is the size of the box or basket, the selection and preparation of the most suitable material for keeping it in position without bruising, and last, but not least, an arrangement by letter or wire for a trusty porter to dupe the unmerciful delivery companies by meeting the train on its arrival at the terminus. If forced Strawberries, say, in quantity are to be sent off regularly, and shallow trays or boxes for dropping three or four into a case be preferred, all the trays and cases should be of uniform size and depth, to prevent the possibility of giving the slightest trouble to the busy trader or salesman. These should not be too large—say 8 inches by 12 inches and $1\frac{1}{2}$ inches

in depth—as it is always practicable to fill any number of duplicate trays, independently of the fact that several small boxes travel better than one or two large ones. The best packing for the Strawberry is its own leaves, which should be picked overnight and placed in a dry, airy room to become limp by the time they are wanted. The fruit cannot be too dry at the time of picking, and on no account should the berries be placed one upon another in the tray or basket used for conveying them to the packing-room. Having well padded the bottom of each tray with leaves—some use a sheet of wadding—and weighed the bulk, all fruits of even size, one by one, should be placed in separate leaves and packed as closely as they will lie without bruising each other. A double leaf here and there may be put in to keep each row of fruit tight, and a few soft leaves over the layer will complete the operation.

PEACHES may be packed in boxes varying from $3\frac{1}{2}$ inches to $4\frac{1}{2}$ inches in depth, but the length and breadth, say 24 inches by 14 inches, should never vary, as several can then be tied together, when their weight and bulk will protect them from frequent disturbance. I always line my boxes with cap paper, allowing the half of each sheet to hang over the sides for turning up when all is finished. Gather the fruit dry and under-ripe; fold each Peach in a square of tissue paper, and pack tightly in well-beaten, elastic Moss, the best and cheapest of all packing materials. Here, as with all soft fruits, the secret of success rests in starting with a good bottom of Moss and very tight packing, with half an inch or a little more of the Moss forming the divisions between the Peaches and making each cross row of four secure at the sides. A covering of Moss rising an inch or so above the sides is then placed upon the Peaches, and the paper is turned up, when the slight pressure of the lid makes the whole mass quite tight and yet elastic. Some use cotton wool or bran, the last a costly, heavy, deceptive material, as it shakes down into a solid mass, no matter how carefully it is pressed, when the Peaches rise to the top, roll against each other, and are ruined. Wool being expensive and apt to sweat, it should be avoided, clean, short, well-dried Grass from the mowing machine being preferable. If thoroughly dried and put away when the weather is fine, this excellent substitute where Moss is scarce may be had for use throughout the Peach season.

FIGS we roll up in soft, dry Vine leaves, then in squares of tissue paper, and pack in very dry Moss or paper shavings. Either, however, will do, provided the fruit is carefully folded in leaves which do not stick to the tender skin. Ordinary Figs can be packed in boxes 3 inches to 4 inches in depth, and extra large ones travel well in Peach boxes divided into equal parts by a transverse partition running across the centre. As some may inquire why wool is not recommended, I may say the Fig being so liable to mould in hot weather, a material more likely to absorb than produce moisture, to let in rather than exclude air is most suitable. On this account I am not quite sure that I do not give first choice to paper shavings, as they admit most air and favour the escape of moisture.

GRAPES.—The methods of packing these now are legion, the modern basket system recently figured in THE GARDEN having grown rapidly into favour. Having in THE GARDEN, Nov. 26, 1887 (pp. 492, 493), fully described the different methods of packing for long and short journeys, the reader may refer to my notes and satisfy himself by practice as to their soundness. The basket is a most excellent substitute for the

box where changes upon the route can be avoided, or where, as in transit from the Channel Islands, the porters quickly learn to handle and transfer them as deftly and carefully as any trained gardener. For cross roads and by roads where little mercy may be shown to fragile goods, the box must still be used, and then, as I have just remarked, the great secret of success will be found in packing so tightly that it will be impossible for one berry to injure another by friction.

FIGS ON OPEN WALLS.

THE examples of Fig trees which I have seen this spring are in the most promising condition, and should favourable weather continue, the crop in many gardens will be an abundant one. Every twig of moderate strength is bristling with fruit. What is particularly noteworthy is, that those trees which are the most vigorous are not showing so many fruit as those which have a greater number of rather small and well-ripened shoots. I think the condition of the trees affords an instructive lesson, for I find that those which have a large root run in a deep and well pulverised surface soil are deficient in fruit, while those which have the root space restricted and the surface trodden quite firm, and in some cases paved with stones, are promising much the best crops. Those trees which were allowed to make shoots 2 feet and more in length, and as thick as one's thumb, clearly, by the absence of fruit, tell us the way how not to grow Figs. Then, again, I find that young trees are not so fruitful as old ones; all this evidently showing that the cultivator who expects good and regular crops must not aim at securing an undue luxuriance in the growth. From many years' observation of the Fig in various parts of the country I am quite satisfied that the character of the staple occupied by the roots has as much influence on the fruitfulness of the trees as climate, and an over-luxuriance in the growth is as injurious to the crop as an ungenial position. If the roots are too well fed the growth is strong, and in the majority of seasons indifferently ripened, and a light crop is the result.

With regard to the influence of climate on the Fig, it is quite clear that, except in very favoured positions in the south and west of England, it cannot be relied upon to pass through a severe winter away from a wall. I have seen standard Fig trees twenty years old killed down to the ground in Somersetshire, and in exposed gardens on walls I have known them injured by frost when not protected. I am aware that there are exceptional instances where pretty regular crops are obtained from trees not protected by a wall, but the positions are peculiarly favourable and should not influence anyone in coming to a decision as to the capacity of the Fig to endure the severity of a long winter unprotected.

The present is a favourable time to ascertain the condition of the trees, and also to decide on what steps to take to induce barren trees to become fruitful. Where the growth is too luxuriant, root-pruning may safely be resorted to, to check it, although perhaps somewhat late for that operation, but as it is the only reliable way of checking the growth, I should not hesitate to adopt it to a limited extent. I find, however, that one requires to be cautious in this and not over-do it, as by cutting asunder too many of the largest roots too great a check is caused, and very opposite results are obtained. Something may be done to stop any excess of vigour by pinching the strongest shoots during the summer, but it must be done as early in the season as the growths will allow, and only the long thick branches should be dealt with in this way. As soon as the shoots have grown about 15 inches long, about 4 inches of the tops may be taken off, but the trees should not be pinched more than once in the season.

J. C. C.

Barren Strawberries.—I can support "J. C. B." in his statement in THE GARDEN (p. 462) that Strawberries, after being sterile one year, will become fruitful the next. At the present time I have two rows of

plants that did not produce a bloom two years ago, but last season, and again this year, they are flowering abundantly. Last year the fruits these plants produced were very fine. I also agree with "J. C. B." with respect to the cause of sterility. Over-luxuriance is quite as likely to produce it as anything else. I should not hesitate to take runners from sterile plants, although preferably I would have them from those that have borne fruit.—J. C. C.

PEACHES FAILING IN COLD HOUSE.

THOUGH our Peach trees were covered with flowers there are no fruit. The trees are planted outside and brought in. The house is a lean-to and unheated. Notwithstanding the water famine with which we were visited last summer, I supposed that we had given enough water to prevent mischief. All through the autumn and up to the present time ample water was available. R. L. A.

** In answer to the above, an insufficient supply of water to the roots at some time or other since the last crop was gathered is undoubtedly the cause of failure. Make a thorough examination of the border by delving with a hand-fork quite down to the drainage, and if it is found that the substratum is still dry, correct the defect by repeated waterings; then mulch well to keep in moisture, and treat the barren trees precisely as though they were carrying full crops of fruit. Although root drought after the leaves fall is the most common cause of buds dropping when they should commence swelling, the fact that they passed this stage and opened freely leads one to suspect that the mischief was done before the leaves fell; that great heat with a short supply of water caused them to ripen prematurely before all the delicate organs of fertilisation were properly formed. Rain and copious watering later on caused them to swell and in due time to open, but with imperfect male organs and minus pollen, fertilisation could not take place. Only a few weeks ago a case of this kind came under my notice, when, notwithstanding the fact that thousands of flowers opened, not more than one in fifty contained perfect male organs. These, as a matter of course, fell off the trees, whilst the perfect flowers, although the weather was wretchedly bad, set freely, and the owner out of a magnificent looking blossom has just managed to secure a fair crop of fruit. The past year, it is only fair to "R. L. A." and his gardener to say, was most trying, especially where, as is honourably admitted, a water famine has prevailed, but this and the case I have just mentioned are not the only ones, as, independently of my own experience, I learn from several quarters that this season in the open air as well as under glass there is a great dearth of good pollen. From these remarks, founded upon practical observation, "R. L. A." will gather that his crop of Peaches may have been doomed as far back as August or September last, otherwise a full blossom having opened it is only reasonable to suppose that a fair percentage of the strongest flowers would have set fruit. It is just possible that frost or the prevalence of bad weather may have destroyed the flowers, but it is more probable, nay, almost certain, that a failing supply of water is at the bottom of the mischief. This information will not restore the crop of fruit, but it should absolve the gardener from blame, and at the same time satisfy "R. L. A." that Peaches cannot be grown without a full and abundant supply of water. Further, the knowledge that many who have suffered from scarcity are in the same boat may convey a grain of comfort to a gentleman who has our deepest sympathy.—W. COLEMAN.

Apple bloom.—"A very thin Apple bloom." Such is the market growers' verdict throughout the whole of the West Middlesex district. As compared with Pears, Plums and Cherries, the diversity is remarkable, for whilst these latter have been almost garlands of flower, Apple bloom is very scarce. It is now very evident that whilst the trees were thickly studded with bud spurs, yet those were not matured for fruit. The result will be that we shall see next year an unwonted profusion of bloom coming out from stout spurs. With respect to the present promise, in looking through

orchards which include old trees, now and then there are met with blooming freely a few, but invariably some trees which fruited lightly last year. Thus we see the value of having some trees which rest whilst others fruit; on the other hand many fine trees are without a single flower. The average bloom, however, is about one-fifth or sixth of what would be regarded as a good show. It is therefore certain that in this extensive fruit district Apples will be if fine, yet a moderate crop. On young trees the sparseness of bloom is perhaps more marked, even where the trees are growing on holding soil. I notice that an old tree of Waltham Abbey Seedling, which never fails to produce a crop more or less, is this year again blooming very well, and so it has gone on for the past twenty years. I regard this kind as one of the most persistent fruiterers and reliable friends to be found amongst Apples.—A. D.

GUMMING IN STONE FRUIT TREES.

MOST of us who possess, or have the management of gardens know something about this disease, so far at least as its effect upon the trees is concerned. No fruit tree subject to it can have a long or prosperous life. There may be—probably there is—a predisposition to gumming in certain trees. The Moorpark Apricot is a notable sufferer, and, I suppose, speaking generally, there are at least four young trees of the Moorpark sold for one of all the other varieties put together, but the question that has often occurred to my mind is this, Do nursery propagators always exercise sufficient care in choosing the subjects from which they obtain their buds? If buds are taken from an unhealthy tree, we can easily understand that the young trees will be subject to gumming and dying of the branches. In a secondary sense gumming may be said to be due to a parasitic fungus; but even in the case of a tree predisposed to gumming, the fungus can only establish itself in an open wound, and to a certain extent give the cultivator power over it, if he takes proper care in the pruning and training of the trees. Gumming is often caused by some injury to the branches or a too free use of the knife. A careless man perhaps gives a branch a tap with the hammer when he is training the tree, and forthwith the fungus spores which are floating in the atmosphere find a home, and shortly afterwards the gum is seen to be exuding from the wound. A tight shred, by forcing the branch into contact with a nail, may break the bark and produce a genial home for the fungus. As regards the cure, the same measures must be taken as a doctor would take in dealing with a wound in a similar condition with the human subject. He uses the knife, cuts out what untechnical people call the proud flesh, and uses the proper means for cleansing and healing up the wound. When gum is seen exuding from a branch or branches, if the tree is to be restored, cut out the infected part, and put on a poultice of cow manure, lime, soot, and clay, filling the wound with it and binding it on with a piece of cloth, and keeping the air from it until the wound has healed and filled up with new bark. But it is necessary to act promptly, as if the remedial treatment be delayed the disease will kill the branch, and then amputation will become necessary. Trees which are predisposed to gumming should be pruned chiefly in summer, and the knife as far as possible kept off them in winter and spring. If the rungs of a ladder placed against the wall come in contact with a thick branch a wound is created, and a home for the fungus made perhaps without anyone suspecting it. There are predisposing causes in cultivation, the most common being planting young trees in land which has been made too rich with manures, or the immoderate

use of turfy loam. If the land is naturally suitable for stone fruits, I think a fairly plain diet at the beginning is better than rich food, which is calculated to promote grossness. E. H.

MANAGEMENT OF VINE BORDERS.

IN a general way market Grape growers do not concrete the bottom of their Vine borders, neither do they go to much expense in changing the soil. But no man would embark his capital in Grape growing as a commercial speculation on a bad site. He looks out for a soil that requires nothing beyond manure to make it suitable for the object in view. I fancy the day for making large excavations for Vine borders is passing away. If the subsoil is not quite the thing, or if the situation is damp and cold, make the border altogether above the ground level and save the expense of digging out the soil and carting it away. The Vines will certainly do better with their roots lifted out of the cold, damp border and brought up into the genial sunlight. And there is another and a further advantage attending this. The cultivator may, if he likes, easily keep touch of the roots of his Vines, just in like manner as he has full command over the branches.

As regards top-dressing the border, if the food supply is ample both as regards moisture and manurial stimulants, not forgetting that essential ingredient, lime, the roots will keep near the surface. When Vines get out of reach, which they frequently do in the holes usually dug out of the cold subsoil to receive them, it is because there was no regular supply of food close at hand, and they were compelled to go in search of it.

Water is the great necessity of vegetable life, and when a Vine border becomes too dry for healthy root action, the instinct of self-preservation, which is as powerful in the vegetable as in the animal kingdom, teaches the roots where to go for moisture, and under the impulse of the drooping leaves the roots descend to where water can be found. This always leads to derangement of the condition of the plants and brings on all sorts of evils, and renders root-lifting a necessity at no very distant day. This also is Nature's way of teaching the careless or unobservant cultivator that in future it will be better and cheaper to place a supply of food and water—especially the latter—within easy reach of the roots. Top-dressings of bone-meal may be given to both inside and outside borders now. A mixture of guano and nitrate of soda has considerable effect as a change for one season or so. In the old days very good Grapes were grown in old-fashioned houses without artificial stimulants; but this is an age of progress, and the wise man takes advantage of every aid to growth the chemist and the manure manufacturer place at his disposal, and it is certain that money laid out upon artificial stimulants for Vines will pay if judiciously employed. We want, of course, to get our manures as cheaply as possible, and it is to be hoped that the days for making large and rapid fortunes not only by the manure manufacturer, but also his agents and sub-agents, are relegated to the past. There is nothing lost by selling at a fair profit. Artificial manures will, in the future, be much more extensively used than they have in the past if they are sold at such a price as to give the cultivator a profit on their use. It is customary at this season to

Mulch down Vine borders, but in doing so it is as well to bear in mind that though this may check evaporation, and may to a certain extent husband the resources of moisture in the border, it will not make soil already dry moist. It may be, perhaps, stated that a border lifted up above the ground-level increases the labour, and it does so to a certain extent, undoubtedly, but compensation is found in the fact that it offers facilities for making the water that must be given, a carrier of the necessary stimulants which will expand the bunches, swell out the berries, and increase the strength and productiveness of the plant generally. Very few inside borders, unless special facilities exist for watering, get moisture enough for enabling the plants to do their best. The fact that in some in-

stances a large provision has been made for a water supply in vineries shows that cultivators are becoming more awake to the necessity of this than was formerly the case. E. H.

SENSATIONAL STRAWBERRIES.

AMONG other items of news contributed to *The Standard*, May 14, by its Berlin correspondent, not the least interesting was the fact that the Countess of Pembroke had sent to the Emperor of Germany a box of very fine Strawberries. They were said to be larger than have ever been seen before, "each berry being about the size of an Apple." It was further added that "the fruit arrived in excellent condition, not a berry being crushed, and the Emperor expressed great pleasure at the gift." Doubtless many readers smiled when they read about the size of the fruit, and their thoughts would travel back to the big Gooseberry season. As it happens, there is no exaggeration in the matter, the fruit being all that was stated about them. It is my good fortune to be well acquainted with Mr. Challis, the Earl of Pembroke's gardener, at Wilton House, near Salisbury, and he has kindly favoured me with information worthy of publication, and which, let me add, is unimpeachable. The box sent contained not more than thirty fruit, these weighing 4 lbs., or on an average rather more than 2 ozs. each. They were not big, ugly fruit, but were full and handsome, and certainly as large as many Apples. Nor were the fruit unduly favoured in order to swell them to such an exceptionally large size. The plants were grown in 6-inch pots, and each perfected eight or more fine fruit. They were set in small saucers on shelves in ordinary forcing houses, were well attended to in the way of watering, and received the usual amount of liquid and artificial manure. Auguste Nicaise is the name of this truly sensational variety, and although I have not tasted it, I have good reasons for believing it is of fairly good quality.

Such fine fruit required extra good packing, and this it evidently received. As a rule, shallow and light wooden boxes are used for packing purposes at the Wilton House gardens, but in this instance, for reasons which need not be given, a different mode of packing was resorted to. Two cardboard boxes were used, one being placed inside the other. The inner box was first lined with a good layer of cotton wool, and, to prevent this tainting the fruit, it was covered with a sheet of tissue paper. Each fruit was then placed in a large and previously "flagged" Strawberry leaf, and packed in a single layer as closely together as they could well be laid, being then covered with a few more of the softened leaves; on these more thin paper; and, finally, another layer of cotton wool, on which the lid shut down tightly. The box was then set in a bed of cotton wool in the larger box and then covered with more of the same material, and thus packed, nothing short of an extraordinary accident or wilful damage could injure the fruit. W. I.

Gooseberries.—The produce of Gooseberries this year is certain to be a remarkable one, for the bushes are already rich in leafage, whilst hanging quite thickly with fruit. The chief trouble has been found in places where birds are too plentiful, the creatures having so largely picked off the snuffs or blooms from the fruits. This mischief is attributed to the sparrows, which just now are very injurious, and, there is too much reason to fear, deserve all that is said about them. I do not agree with those who attribute this action to mischievousness, as I do not think that birds are actuated by any such motives. It is far more probable that just at a scarce time of the year some sort of food is found by the birds on the Gooseberry blooms. Small gardens suffer most, but on large breadths where fruit is produced by hundreds of bushels no great harm is done. Looking over a big breadth of this fruit the other day, I was very much taken with the appearance of a variety named Merry Monarch, one, I think, not too well known. It was showing abundance of fruit and full of leafage, whilst the growth is rather moderate. This variety has large blooms and seems not to be touched by the birds at

all. It is very highly spoken of as a first-class kind. It was raised at Hammersmith, and the raiser determined that for a name he would depend upon the result of the next Derby race. That was won by Merry Monarch; hence the appellation. Currant bushes are full of bloom, presenting just now really an interesting sight. Black Currants promise to be a wonderful crop should all go well.—A. D.

THE MULBERRY TREE IN MESOPOTAMIA.

THE Mulberry tree is found growing in the wild state throughout the whole region of the Euphrates and the Tigris, but occurring most frequently in sandy districts and in plains formed by alluvial deposits. It ranges from the 36th degree of N. latitude through the whole of the sub-tropical zone to the table-lands watered by the rivers from the neighbouring mountains of Persia. No garden in this region is without its plantation of Mulberry trees (usually in the form of hedges surrounding the walls), as the tree is easily grown, and, in a country which is entirely destitute of timber trees, is valuable for making various articles of furniture. The native name for the tree is "Touth."

The following are the species or varieties which I have met with:—

1. FAHAL (Male).—This is the wild stock, a tree with grey bark and slender pliant branches, which are usually weeping; leaves alternate, lacinate, finely cut, glistening on the upper surface, and almost always of the shape of Maple leaves. It forms a handsome tree, with ornamental foliage, but is not known to produce any fruit, and is used as a stock for grafting.

2. AEN-EL-BEZOUN (Cat's-eye).—This is the common white Mulberry, well known in Europe, whither, whatever may be said to the contrary, it was imported from China, as none of our old writers mention it. It grows from about 25 feet to over 32 feet high, has greyish bark, and divided, palmate or heart-shaped leaves. The fruit, which is white, is very small, and is speckled with a great number of small black dots, whence its name of "Cat's-eye." It is easily propagated from seed. The variety Naringhi (Lemon-like) has the leaves larger, more serrated, and more numerous than those of the preceding kind.

3. TOUTH ABIADH (White Mulberry).—An improved variety of the preceding kind, which, when grafted on the wild stock, produces fruit that is highly esteemed by the natives. It has the habit of the preceding kind, but its leaves are light-coloured, long-stalked, large, not thick, glistening, heart-shaped, lanceolate. Fruit pretty large, juicy, ripening in April and May, and offered for sale in the markets just like Strawberries in Europe.

4. HAMRI (Red).—A tree with whitish bark, and strong slender branches disposed in tiers; leaves large, thick, glistening, heart-shaped, toothed, and with honeycombed veinings. Fruit deep red, acidulous, pleasant to the taste, as large as that of the preceding kind, and much esteemed by the natives.

5. TOUTH SHAMY (Damascus Mulberry).—A black-fruited, white-barked kind, with thick short branches and brown buds. Leaves thick, in shape like Plane tree leaves, downy, rough, and leathery. This is the species mentioned by the Greek and Latin naturalists. It is usually spoken of as a native of Persia, but here, it appears, the people believe that it was imported from Damascus.

The cultivation of the Mulberry tree for the silk-worm industry is not now as flourishing in these regions as it formerly was. The coloured handkerchiefs and other silk goods of Bagdad were at one time highly valued for their substance and good quality, but for the last half century the silk industry here has declined, chiefly on account of the ravages of the silkworm disease. Native silkworm eggs which were experimented on in Europe were rejected as useless for the production of silk. The Pasteurian system is quite unknown in these regions, where science has not yet taken the first step. It was even with difficulty that, some time since, the natives were induced to carry out the good idea of importing sound silkworm eggs from France into

the provinces of Broussa and Smyrna, which are in constant commercial communication with Europe. In the inland provinces, unfortunately, the case is different. Few of the natives there now occupy themselves in silkworm culture, and the Mulberry is looked upon only as a fruit and timber tree—a most valuable one, certainly, to the native carpenter. It may further be mentioned that it is only the varieties of the common black and of the white Mulberry of which the leaves are of any use for feeding silkworms, as the leaves of other species, which contain much woody matter, are not capable of being digested by them, and it has been even remarked that when they are not rejected by the caterpillar, they cause its death. The finer the leaf is in texture, the better it is for the silkworm, which is itself as delicate and precious as the silken thread which it spins.—*Revue Horticole*.

Apple Winter Peach.—This variety of Apple was recommended in *THE GARDEN* some years ago as being an excellent one for dessert purposes late in the season. When making a selection of the best varieties here about four years ago, three good trees of this variety were planted. I find all the trees of the other varieties are now either in full flower or the blossoms are opening, but on the trees of Winter Peach there are neither blossoms nor blossom buds. The trees are not growing all together, but are planted in different parts of the garden. We had a few fruits last year, and they were well formed and late. It is very singular certainly that not a single blossom should be on any of the trees. I may add here that the promise for a crop of fruit is excellent. The Apricots have not set well, as the blooms were injured by the frost; but Plums, Cherries, and Pears have had a good time of it, and all the trees smothered with bloom. Now the Apples are either in flower or their blossom-buds are bursting, and I would ask, Is there a more lovely sight in the garden than a collection of Apple trees in full blossom? We generally expect the first green Gooseberries on Whit Sunday, but we will not get them until two weeks later.—J. DOUGLAS.

The Wild Goose Plum.—The Wild Goose is a typical variety of the Southern or Chickasaw type of native Plums, found growing naturally in great abundance in the valleys and ravines and skirting the edges of the prairies in the South and West. These Plums are early, most prolific bearers, and if not so delicious as some of the foreign varieties, they find a good market, and all the growers we know of who raise them declare they are the leading Plums for profit. Spring frosts do not seem to hurt the blossoms, but heavy winds or wet weather at blooming time prevent the fertilisation of the flowers. The South-western natives are greatly attached to this fruit, and it seems to grow well over a wide range of country. The fruit comes to our markets when there is a scarcity of anything larger than berries, and the brilliant colour, so effective in the arrangement of desserts, as well as the refreshing qualities of the juice, cause them to be sought after. Mr. Hawkins, of Orange County, N.Y., writes of his experience with this Plum: "In the autumn of 1882 I obtained from a nurseryman near Newburgh a few branches of the Wild Goose Plum. Having no other than Peach stocks, I worked them on those, and they took as well as Peaches. The second year, having about forty out of the fifty trees budded, they were transplanted into the orchard, where they made a rapid growth. The wood appears to be tender, breaking with very little bending, whether in consequence of being on Peach stock or natural to the tree I am unable to say. The second year after transplanting the trees bore a few dozen Plums, the following year about 5 bushels, and last year (1887) we had something over 50 bushels. They were picked and packed in handled baskets holding 1 peck each, which sold for an average price of 3s. 8d., the baskets going with the fruit. The fruit commenced ripening about July 10, and the picking season lasts for about six weeks. One peculiarity of their ripening is that they drop to the ground as soon as ripe. The Plums appear to be carculio-proof, and the tree proof against all

diseases, as they adjoined a number of trees infested with black knot, and not one of them shows a blemish. Every branch is as smooth as a first year's growth. The fruit is nearly all juice, having less pulp than most Grapes, and of about medium quality, becoming a favourite with about two-thirds of those who taste it. They are not desirable for canning, being too watery, but for a 'pound-for-pound' preserve are unexcelled." The low growth of the trees renders picking easy and agreeable.—*American Garden.*

HARDY FRUITS.

ALTHOUGH we have not been quite free from spring frosts, so far they have been of a very mild character, and quite inadequate to the destruction of the most tender blossoms. The ground, too, as well as the walls and atmosphere, being so extremely dry and trees unusually late, fruit prospects generally down to the present time are exceptionally promising. With all these factors in our favour, we may reasonably hope for an abundance; but taking into account the great uncertainty of our climate we must not be too sanguine, as there yet remains plenty of time for a single frost after a wet day to do serious damage amongst choice garden fruits before the bulk of our orchard trees come into full flower. One unfavourable notice only so far has reached me this spring, and in this instance the writer bewails the loss of Apricots and predicts a thin crop of Peaches. Such may be the case, but it is difficult to realise the fact that fruit trees, after such a brilliant ripening summer and a good winter, can already be playing false where the cultivator has properly performed his duty. There are, of course, some wonderful hits of fruit in the worst of seasons; and, on the other hand, a percentage of complete failures when the land is overflowing with plenty. Also there are some persons who meet trouble midway, and this, I hope, is a premature cry, as I never saw trees of all kinds so beautifully clothed with bold, globular flower-buds. So remarkable is this, that I cannot forbear stating a fact, due no doubt to the past hot season, which, to my mind, clinches the argument in favour of the long pruner and extension trainer. Apples and Pears generally, and Plums especially, have furnished their longest and strongest shoots of the past year with perfect flower-buds from base to point, and, all going well, will yield to the non-shortener many bushels of fine fruit where the restrictive pruner has consigned two-thirds of the crop to the fireplace. If vigorous young trees were improved by hard pruning, then no one need depart from the old lines; but the reverse is the exact fact, as unrestricted trees give the greatest bulk and the finest quality. Moreover, having fully-developed lungs, they throw off such trifles as gum and canker; and last, but not least, with copyright in the far distance, one of these young giants may prove more than grateful for being allowed to do duty for a dozen cripples.

When the failure scare is over the glut ruin will have its run, and crops we must expect to hear will not pay for gathering. If the community at large derived benefit from this over-production the growers only would suffer, but no matter how plentiful fruit may be, this advantage to the public as yet has not been realised. How then is this benefit to the masses and ruin to the growers to be regulated? Why, by the establishing of more wholesale centres on the part of the public; by thinning and better culture on the part of the producers. Mediocre produce in seasons of scarcity even does not pay, but first quality always commands a good price. To secure this, all crops, as far as is practicable, should be well thinned, and now is the time to commence operations. I always thin Peaches by taking all the flower-buds which fall to the finger when drawn sharply down the lower side of each shoot; this already has been done, and, judging from the way in which every flower is setting, many thousands still remain to select from. Pears, Plums, Cherries, and Apples of reasonable size or against walls in like manner may be well thinned, whilst larger trees out of reach of the hand may be greatly assisted by good mulching

and feeding. Turning to the calendar, the first fruit which claims our attention is the

STRAWBERRY.

Rain just now would greatly benefit the plantations, old and new, but lacking this, no time should be lost in treading firmly the young and mulching with fresh stable litter the old to keep in every ounce of moisture. In well-managed gardens this work will have been brought to a close, but where, through force of circumstances, it has been delayed, no time should be lost, as every day abstracts root moisture, whilst the rapid growth of foliage and development of flower render the operation more difficult. To young plantations, after weeding and treading, I always give a liberal dressing of short manure comparatively free from straw, and wash it well in with the hose when the rainfall is too light for the roots, as yet but a few inches below the surface. If fresh plantations still have to be made no time should be lost, and good maiden plants of the past year should be used in preference to enervated and spidery plants which have been forced, as it is now too late for either to produce a crop of fruit this season. Forced plants give a quantity of fair sized fruit the second year, that is, provided they get an abundance of water to prevent the large balls from becoming dry, but the maiden put out in April and May will be three or four years before it gives the finest quality, and this, I believe, is the aim of every good Strawberry grower. Last year I drew attention to Lovell's system of planting single rows in April and pegging down runners right and left throughout the season; at the same time, I put their method to the test, and now have beds 3 feet in width literally covered with robust young plants about 9 inches apart flowering profusely. The varieties include Paxton, President, Dr. Hogg, and British Queen. The last two do not succeed in every garden, but pegged down in this way upon open, airy quarters and treated as annuals, I am confident they will succeed, the undisturbed plants at the present time being quite as strong and full of flower as Paxton. With so many operations now pressing, this is hardly an opportune time for giving select lists, still, knowing how prone the amateur is to rush into endless variety, I must say Pauline, Héricart de Thury, La Grosse Sucrée, Sir Charles Napier, Filbert Pine, Elton, and Oxonian, in addition to the above, will keep up a full supply of the best of fruit from the beginning of June until the end of August. After this date early varieties which have been forced and planted out may be induced to give a few dishes of fruit in September. Returning to the walls, the first requiring attention is the

APRICOT,

for not only is it the first in flower and fruit, but it is the first to demand manipulation, thinning, and watering. When a good set is secured, half-a-dozen, sometimes a dozen, fruits are found upon a single spur, and as some of these rush away quickly, timely thinning to prevent waste of power and distortion is imperative. As this work is carried on, dis-budding—not generally practised—the pinching of foreright shoots, and the destruction of grub should receive attention. Grub in some gardens, especially upon old walls and aged trees, is very destructive, often decimating the crop before its presence is suspected. Hand-picking or pinching the curled or flattened leaf is the only remedy; but prevention being better than cure, the constant use of soap-suds, whenever the trees are not in flower or fruit, in a few seasons will result in a complete clearance. As few deciduous trees when in leaf perspire so freely, the Apricot should never feel the want of water. After such a dry winter and spring, a few steady waterings with pond or open tank water will greatly benefit the roots, which should be kept constantly covered with fresh stable litter to prevent evaporation and draw young feeders to the surface. Some point up the borders to let in the water, but it is better to allow a portion to run away and repeat the supply, as the trees always do best when the wall paths become hard and solid. Syringing or washing with the garden engine as soon as the fruit is set, and occasionally afterwards, is helpful to the trees; but one must be a good weather prophet before

he can venture too freely. When the weather is cold and wet, or frosty mornings prevail, the foliage cannot be kept too dry. When bright and mild and nights are warm, the liberal use of these implements once or twice a week will be found highly beneficial.

PEACHES

in many early gardens will now be sufficiently advanced to require disbudding, but unless the weather is fine and settled and any of the trees are unusually strong, I prefer being a little late rather than a single day too early. From strong trees still sheltered by fishing nets or canvas through the night all foreright shoots may be taken, double and treble breaks reduced to one, care being taken that the fruit in every part of the tree is left well covered with foliage. Weak trees, especially those which show signs of past overcropping or sharp root-lifting, should be left till last, as leaves not only make mouths, but stimulate sluggish roots into activity. When the balance is restored the work may be carried briskly along—piecemeal, of course—until the shoots are reduced to the regulation number. Thinning in due course must be carried on in the same way, the small, the badly placed, and the worst of the triples being taken first, as these, it is a dead certainty, will not be wanted. As this work is carried on, all curled or blistered leaves, and the first shoots touched with aphids should be taken off, carried away, and burned, when spots affected may be syringed with weak tobacco water. By adopting this plan I have often kept fly in check until genial weather favoured general washing with fresh clean water. This operation in a mild form we have commenced to-day (May 8), and the weather continuing mild, the hose will be plied after each disbudding. Trees on the best heavy Peach soils as yet do not feel the want of water. On lighter soils the case may be different; therefore, knowing how impatient they are of drought or anything approaching dryness at the root, it is always well to be on the safe side—first, by examination; second, by plying the hose pretty freely. Good water never yet injured a well-drained tree when in growth, but thousands become a prey to spider and blight, if they do not cast their fruit through the want of it. The spring having been so dry, young trees, especially those which have been recently planted, must now be looked to. If nailing or tying in has been delayed, no harm has been done, as the roots have had time to settle with the compost. Some of mine still remain free, but before these lines appear in print they will have been secured, mulched with burnt earth, and watered. This material does not always find favour with believers in strong animal manure, but for absorbing warmth, keeping in moisture, and giving to the trees all they require without producing grossness, it is as invaluable as its manufacture is simple. If a powerful feeding stimulant is wanted, all we have to do is to make all out-of-the-way nooks and corners tidy, burn the refuse with trimmings and prunings—the more wood the better—saturate the ashes with liquid manure and soap-suds, and dress thinly throughout the growing season. If anyone doubts this let him purchase expensive guano—which leaves the soil as poor as it finds it—and test it with this satisfying compound, which costs little beyond the labour devoted to the cremation of unsightly accumulations.

PEARS, PLUMS AND CHERRIES

on walls at the present time are one mass of bold blossom, and bees, tempted by bright sun and settled weather, are labouring most diligently, not only for the nectar which they know how to appropriate, but also for man, as no artificial contrivance can touch them at fertilisation. If this month continues and ends as it has commenced there will be urgent need for the thinning scissors, otherwise that glut of mediocre fruit which some are pleased to term over-production will result in disappointment and loss, as overcropped trees will balance their account by bearing lightly next season. A great number of growers of hardy fruits are now turning their attention to the thinning of the flower-buds, and this is the only method of avoiding gluts and failures. Before the buds burst no doubt is the best time to set about the work,

But wall trees, now one sheet of flower, may still be thinned with great advantage, as scores of trusses a great distance away from home can be taken at a glance by any careful operator. The cut-and-dry calendar says pinch Plums, Pears and Cherries in May. But this proverbially flowering month being rather late, my advice to manipulators is this: Leave pinching alone for the present, get fairly out of the wood before you expose tender fruit to spring frosts. Let root-pruned and newly planted trees have a thorough grip of the soil before checking the roots, and ply the syringe on mild fine days instead. Encourage the roots, fruit and foliage by being a little too slow in preference to being too fast, and the trees at the end of the season will be all the stronger and better for it. When these trees have set their fruit the garden engine or hose may be brought to bear as a substitute for the syringe, when a dash of soap-suds even upon Plums will do no harm. Weak soot-water, too, will be found an excellent stimulating insecticide, as these pests make little headway upon fresh vigorous shoots and foliage. The best time to wash trees, at least for the present, is about 3 p.m., as the foliage and fruit then get dry before nightfall. And then it should be borne in mind that one thorough drenching equal to the removal of spiders' webs and rubbish is preferable to a series of dribbles which wet the trees and lay them open to morning frosts, but do not cleanse the walls and spur-wood.

GOOSEBERRIES AND CURRANTS

with us give promise of the heaviest crops imaginable. The first were carefully netted for about six weeks, and this plan, I maintain, is much better than the partial success secured by the mutilation of trees with shot, and the wholesale murder of bullfinches. The latter have gone away to the woods, but our skeleton frames and side latticing remain ready for use when the wily blackbird puts in an appearance. So far, the removal of the surface soil followed by dressings of soap-suds, quicklime, and fresh top-dressing have kept us free from caterpillar, but should it appear, the first mutilated leaf will be the signal for a repetition of the lime and handpicking. Full crops of good Gooseberries and Currants are quite as valuable as Grapes and Peaches; why then should we neglect them? Young plants, also cuttings put out in the autumn, will now require attention; if loosened by frost, firm treading will be necessary; if throwing out side shoots too near the ground or beneath the surface, they must be rubbed off to ensure clean stems, at least 9 inches in height, but this precaution, it must be understood, does not apply to the Black Currant, which grows and fruits best when allowed to stool beneath the surface. If ordinary bushes are wanted, pinch the leaders when about 6 inches in length, but allow the latter to grow, and stop all side shoots when cordons for walls and trellises are in course of formation.

FIGS,

like all other wall fruits, are late, but, judging from the appearance of the uninjured points, they look like giving a quantity of fruit, if only we can induce them to swell and ripen. So long as Fig trees remain apparently dormant, I prefer leaving them alone, but once the sap begins to rise and the young Figlets to push forth, I think the time has arrived for giving them encouragement. Wall Figs, as all who follow the pages of THE GARDEN have learned, are managed in two distinct ways, viz, the leave-alone, and the catch-all-they-can, or go-without water, on the one hand, annual root-pruning, close training, and winter protection on the other. Having myself practised both systems, and, like many more thrifty cultivators, tried a combination of the two, I may venture to say, the first point to be secured is ripe wood strong enough to carry fruit, and hard enough to pass through the sharpest winter without receiving injury from frost, for once the point is lost all chance of ripe Figs from that particular shoot is over for the season. The cultivator who mulches with manure and feeds to secure fine fruit, root-prunes annually to keep the summer growths within manageable bounds. The leave-alone

grower who allows the roots and shoots to ramify and multiply professes a great liking for the stable-yard, as he finds a mulch of paving-stones the best of all preventives of the ingress and egress of moisture. In fact, once a Fig tree makes a start its roots will travel an immense distance in search of aqueous food, of which, like all other parasites, it must have a regular supply or perish. As outdoor Figs never produce more than one crop of fruit, and that from the points of the past year's wood, these should now be regulated, thinned, and tied in or out to secure an even spread of foliage the reverse of crowded, whilst others which can be spared with advantage may be cut back to a single bud to ensure a relay of short-jointed shoots for fruiting another year. By adopting this plan, whether the trees be trained close to the wall or the shoots have full liberty, an even spread of fruit-bearing and succession growths about equally balanced can always be secured. In warm districts fruit-bearing shoots are thinned back to a single bud as soon as the last Fig is picked in the autumn, but in cold, damp localities less favourable, it is best to defer pruning until the spring. As the roots of the trees revel in warm, well-drained borders, a light covering of fresh stable litter will form the best mulch for the present, but later in the summer this may be supplemented by a good covering of heavier material, when copious supplies of tepid water will assist the crop of fruit swelling to maturity. The average rainfall in ordinary seasons may suffice, but seeing that garden trees are invariably placed in the hottest and driest corners it rarely happens that a few barrels of warm water do not in July and August, if not before, tell favourably upon the quantity and quality of the fruit. W. C.

THE ROYAL HORTICULTURAL SOCIETY.

TO THE EDITOR OF THE GARDEN.

SIR,—Mr. Fish, in THE GARDEN, May 12 (p. 427), has ably stated his views as to lowering the subscriptions for fellowship so as to allow practical gardeners to have a vote. It seems to me the question is one of finance. I do not think the society could carry out its work fully if it depended for funds on lower subscriptions than one guinea. It must be remembered that each Fellow involves cost now, and that when the society with more funds becomes more active, this cost will be increased. I believe that the cost for each Fellow for proceedings, reports, notices, &c., will amount to something like 4s. or 5s. a head, so that if the subscriptions were reduced in many cases to 10s. 6d., there would not be much left for general charges.

The council, by admitting associates to the shows, and by placing a "practical" gardener on the council, have, I think, met the wish that all classes of gardening interests should be represented. "Practical" gardeners have always formed an important part in the floral and fruit committees. A fair number of "practical" gardeners have already become guinea Fellows, and I hope that more will do so, but I think the society must trust mainly for support to those who get most advantage from its work—the owners of gardens, who learn by the judgments of its committees what are the best novelties in the way of flowers, fruits, and vegetables to introduce into their gardens. If they are only made to realise what they are to the society, they will help it by becoming guinea Fellows if they live far in the country, and if they live near enough London to be able to attend the interesting and very good "fortnightly" shows held in the London Scottish Drill Hall, they will often subscribe £2 2s. for the sake of the extra tickets. Forty-six owners of gardens within a walk of here have now joined; other districts, please copy. GEORGE F. WILSON.

Heatherbank, Weybridge.

Dicksons, of Chester.—We learn that a union between these two well-known Chester firms will take

place on July 1 next. The union referred to will, we are informed, secure for the joint business the personal management of those who have for so many years been connected with the separate firms.

NOTES OF THE WEEK.

Phlox nivalis is a beautiful kind for the rockery. It makes a dense mossy growth, studded at this season with pure white flowers.

Old Clove Carnation when forced loses none of its rich colour or strong fragrance. There is a very large batch of it in Mr. May's nursery at Edmonton.

Snowdrop Windflower (*Anemone sylvestris*), when seen in large masses is delightful. In the Tottenham Nursery it succeeds remarkably well.

Genista præcox is in perfection now. There is a large specimen of it on the Chiswick rockery, and it is one mass of the sulphur-yellow flowers.

Souvenir de la Malmaison Carnation is highly valued for the market. Mr. Cole, of Feltham, grows it largely, and also Mr. May, of Edmonton. The flowers are very large, full, and of delicate colour.

Apple French Crab in May.—We have seen lately in Covent Garden some very fine samples of this, as fresh and sweet as when first gathered from the trees in October.

A pretty combination in the rock garden at Kew just now is Forget-me-not, rising out of a silvery carpet of *Achillea Clavennæ*. The harmony of the silver and blue is charming.

Mme. Crousse Pelargonium is one of the best varieties for market. The colour of the flower is a rich pink, and it is very free blooming. In Mr. Cole's nursery there are two very large plants that yield a quantity of bloom.

The crimson Tulipa *gesneriana* is at its best now. It is a magnificent species, as the flower is large, excellent in shape, and rich in colour, this being deep crimson. Bold clumps of it on the rockery are remarkably striking.

Alpine Wallflower (*Cheiranthus alpinus*) is one of the showiest dwarf alpine plants of the week. It is flowering with great freedom at Chiswick, and the masses of it in the Tottenham Nursery make a great display of colour.

Oxlip Prince of Orange comes to us from Mr. Hartland, of Cork. It is a good, showy, fragrant plant, and we should like to see it in quantity. The stem sent bore a very large head, the result of fasciation.

Lilium Harrisii was quite a feature at the Temple show. In the group of Messrs. Veitch, of Chelsea, several remarkably fine plants of it were exhibited, which, together with Japanese Maples and Pæonies, had a charming effect.

Gardeners' Orphan Fund.—We learn that the promenade fête in the Flower Market in aid of the Gardeners' Orphan Fund will be held on Wednesday evening, June 6, between the hours of 9 and 12, and that Messrs. Deal, Dickson, Assbee, and Richards are appointed to carry out the necessary arrangements.

Roses from Nice.—After the very hard winter which prevented the Roses flowering in the south of France there has been an enormous bloom. Princess Kotschoubey sends us from her beautiful garden at the Villa Montebon some fine blooms of the better-known and best Roses. In the garden there they run over the trees as the Honeysuckle does in our woods.

White Lilacs.—Messrs. Smith, of Worcester, send us some of these which are very welcome, particularly as they show improvements on the common and rather poor white. They send *alba grandiflora* and *virginalis*, the first-named being very fine. We often wish English gardeners would take a little more interest in these shrubs, forcing them as well as growing them in the open air.

Apple Russian Crab.—We enclose you a specimen branch with flowers of the Russian Crab Apple, which amongst other Apples in our nursery stands out as the most beautiful and distinct.—R. V. & S.

* * A very showy variety, the petals being striped with bright pink and rose. The unopened buds are lovely.—Ed.

Opening of Ravenscourt Park.—This park, situated in Hammersmith, was formally opened by the Metropolitan Board of Works on Saturday last, and is a rich addition to our now numerous open spaces in the outskirts of London. The former owner was a Miss Scott, who laid out the grounds in true park-like character, the noble avenue of Elms that borders one side

being one of the finest of its kind. The people of Hammersmith may well congratulate themselves that such a lovely spot has been obtained. It is 32 acres in extent, and cost £58,000.

A note from Scarborough.—I send you a few spikes of the Early Orchis (*Orchis mascula*), which is very plentiful in some of the woods in this neighbourhood. I also send a spike of a plant I found growing in a piece of stagnant water, but I am afraid it does not travel well. It is pretty when freshly gathered.—THOMAS ROBINSON.

* * The name of the specimen sent is the Buckbean (*Menyanthes trifoliata*).—ED.

Japan Pyrus from Mr. Anthony Waterer, of Knap Hill Nursery, Woking, are extremely fine, having flowers far larger than those of the common sort. One, a seedling of *P. japonica*, raised at Knap Hill, has large flowers of a bright scarlet colour, a contrast to those of the variety *cardinalis*, also sent. This is very free-blooming, the twig being covered with showy flowers, which are more of a rosy hue than in the other.

Primula Sieboldi was flowering with great vigour recently with Mr. T. S. Ware, of Tottenham. It is grown entirely without protection, although considered by some as a tender plant. There are few more useful *Primulas* for the amateur, as it increases rapidly and succeeds under ordinary conditions. *Lacinata* is one of the best and most popular varieties, and another that deserves notice is *Nelly Ware*, the flowers being striped with rose on a white ground.

The Meadow Saxifrage (*Saxifraga granulata*), when seen by the half acre and in full flower, as it is now in a certain Kentish field I know of, is, beyond doubt, a treat both rich and rare. The sheep do not seem to care for it, so the pretty white flowers are left untouched, and to see it in quantity tossing in the wind impresses one with how meagre our attempts are in gardening to get a taste of how charming a plant looks when growing in masses in its native wilds.—A. D. WEBSTER.

Vaccinium serpens is an interesting and pretty shrub, native of the Himalayas. It has a large root-stock like a Turnip, and from this it sends up long, slender stems that twist in a graceful way. The evergreen leaves are small, and the tubular flowers are about an inch long, bright red, and veined with V-shaped markings. A plant presented to the Royal Gardens by Mr. Elwes in 1881 is in flower in the Cape house at Kew. Its synonym is *Pentopterygium serpens*.

The Sicilian Heath is a very pretty little shrub of dwarf, neat growth. The urn-shaped flowers are delicate pink, as are also the sepals, which are arranged in quite a star. The flowers are very numerous and the plant of it to be seen in the Heath house at Kew is quite an attraction to those interested in uncommon plants. It is a native of Sicily and Malta, and therefore too tender for open-air culture in England. Its name is *Pentapera sicula*, otherwise *Erica sicula*.

Hardy flowers from Holland.—Messrs. C. G. Tubergen, of Swanenburg, Haarlem, have sent me a gathering of choice flowers from their hardy plant nursery—*Iris iberica insignis*, from a cold pit, the flowers of large size, distinct in colour; also flowers, over 4 inches across, of *Narcissus poeticus grandiflorus*, the latest and best of this lovely group. From the open ground they send large, well-grown flowers of the brilliant *Trillium grandiflorum majus*, and examples of what I take to be *Muscari commutatum*. *Tulipa Kaufmanniana* is also in flower in their nursery; it is a really handsome species, with flowers of very large size, creamy yellow with orange centre.—J. DOUGLAS.

Tree Pæonies deserves a note now, as the gaudy flowers are amongst the most striking objects of the season. We have many fine varieties, and a few worth mention are the following, which we recently noticed in bloom with Mr. T. S. Ware, of Tottenham: *Hisseana*, semi-double, large, full, and white, with stripes of crimson-lilac; *Souvenir de Chevaux*, carmine; *Mme. Stuart Lowe*, fine bright rose-pink, single; *Raineri*, an immense semi-double flower, rich rose, with the petals blotched with crimson;

Blanche de Noisette, white, tinged with lilac at the base of the petals; *Donckelaari*, very double, lovely peach colour; *Souvenir de la Couvellerie*, tinted with lilac; and *lactea*, white, stained with lake colour at the base of the petals. The name that the *Pæonies* often go under now is *Whitsun Roses*.

Cytisus stenopetalus.—A shrub a good deal like the common *C. racemosus* and *Everestianus*, but superior to both, the flowers being larger, the clusters denser, and borne more profusely. The yellow, too, is several shades richer and the foliage is larger than in *C. racemosus*. It is a first-rate greenhouse shrub and ought to become as popular as the others. It is grown sometimes under the name of *C. elegans*.

The green-winged Orchis (*O. Morio*) is now beautifully in flower, and enlivens by its wealth of rich purplish flowers many of the Kentish downs and fields. Usually it prefers the drier hilly knolls, or where moisture is never excessive, and, perhaps, is rather partial to a rich loam on the chalk formation. The Kentish specimens are deliciously fragrant, and a posy of them just now on my table is as rich and choice a floral treat as could well be desired. Half-a-dozen specimens planted in a 6-inch pot and brought indoors just as the flowers are opening can well hold their own with any pot plant of similar size that I know of.—A. D. WEBSTER.

Exacum macranthum.—The stoves at Kew just now owe much of their brightness to the glowing blue tint of this splendid *Gentian-wort* from Ceylon. There are groups of plants rising about 2 feet in height, each carrying dense clusters of flowers about the size of a crown-piece, and of the deepest indigo-blue, with a cone of bright yellow stamens in the centre, though we cannot say that such a violent contrast of blue and yellow is pleasing. This is, without question, a valuable stove plant for early summer, but though the plant has been introduced many years, it is scarcely known outside of botanic gardens. The successful way in which it is cultivated at Kew shows that the peculiarities of this reputedly difficult genus are well understood.

Auricula Parkinson's Tannetta.—I am fond of hunting up old plants, and if you look up the pages of *Parkinson* you will find the accompanying *Rembrandt Brown Auricula* or, as he calls it, *Tannetta*, from its peculiar colour, I suppose. It belongs to the *Dusty Miller* class, and is a very free-flowering plant, with a perfume not unlike that of honey. A nice subject for a drawing. Indeed all the old plants should be reproduced as we find them.—W. B. HARTLAND.

* * We should like to see it in large groups. The usual mixture of seedling *Auriculas* is not nearly so pretty as the good colours in groups and pools of simple colour.—ED.

Apple Green Costard.—Some time ago there was some correspondence in *THE GARDEN* respecting the beauty of different kinds of Apple blossoms. The sort we call the "*Green Costard*" has the most beautiful and finest individual blossoms of any sort which I know, and I have measured blossoms over 3½ inches in diameter. I send you a bunch of blossoms, by which you will see I have not exaggerated. If the blossoms only lasted a little longer how beautiful would be their beauty in the open.—JOHN WATKINS.

* * Very large blossoms. It is not only for their size that Apples should be studied as flowering trees, but for colours of blossoms or buds; season early or late; effect of tree as a whole, apart from beauty of blossom; form of tree drooping, upright or broken.—ED.

Eranthemum cinnabarinum.—This lovely *Acanthad*, which was introduced a few years ago from Martaban, is one of the chief attractions at the present time at Kew, and, indeed, has been so for some weeks past. We look upon it as an invaluable stove plant, and, perhaps, the finest of all the *Eranthemums* yet introduced. Its growth is straggling, the stems being tall and slender, and are now bent down by the weight of the enormous panicles of blossoms which put one in mind of magnified Lilac clusters, except that the colour is more carmine than lilac. The flowers are each

1 inch across, and have centre blotches of a rich crimson. There is a variety named *ocellatum* which has white instead of crimson-eyed flowers. It is singular that such a handsome plant should have escaped the notice of nurserymen, for we believe it has not been exhibited in London. It is of easy culture, and the lengthened period of its flowering season adds greatly to its value. Another pretty *Eranthemum* in flower in the stoves is *E. eboracense*, a neat growing dwarf bush covered with a profusion of snow-white flowers.

ROSE GARDEN.

MARECHAL NIEL ROSE.

WITH reference to the correspondence which has taken place in *THE GARDEN* as to the age of plants of this Rose, I am sure that information obtained from widely different sources will reveal a great diversity of opinion. I do not think anyone can fix on a stock that will prolong its life better than its own roots. Such, however, is my experience of it, as for the last twenty years I have had plenty of space both in heated and unheated houses to experiment with it. I have tried it budded on the Brier and seedling Brier, and on the *Manetti* as well as on its own roots, and I find it lives as long on the last-mentioned as on any other stock. The oldest plant I ever had is on its own roots. This plant is in a heated house, with the whole of its roots under a floor paved with tiles. It is now ten years old, with a stem 5½ inches in circumference at 2 feet from the ground. It produced a splendid crop of flowers in the month of March last, and is now in the most vigorous health, so that, looking at the short-lived character of this Rose generally, I think I am justified in holding the opinion I do. At the same time I am far from wishing even to infer that anyone can depend on its doing well on its own roots. I know to my cost the precarious character of the *Marechal*, and would be only too glad if I could assist in any way to make it more reliable. It is just a question whether we do not spur back this Rose too much. I believe it resents such treatment. The loss of the growth engenders a weak root action, which ultimately ends in a collapse. The cutting of the branches hard back early in the summer and taking up young rods is a different matter. In spurring the growth back in the winter I believe the growth is weakened, and the capacity of the plant to produce a good crop of flowers injured. In proof of the latter statement I send you some branches cut from a plant that until last winter had had all the growth spurred back. Last December, however, when pruning other Roses in the same house, I found that this particular plant of the *Marechal* was gradually getting weaker, so I decided to leave it unpruned. The plant was so weak under the hard pruning that I never got more than two flowers from a spur; now there are five and six blooms, and altogether a more vigorous appearance in the foliage. J. C. C.

* * The shoots sent testify to the truth of the above, being strong and vigorous and bristling with flower-buds.—ED.

Stripped shoots of W. A. Richardson.—Has Mr. Rettop watched his plant of this Rose to see whether it is visited by starlings? A good many spring-flowering plants here lately kept mysteriously disappearing, until by watching it was observed that starlings carried them bodily off. Mr. Rettop does not mention whether the shoots or buds disappeared entirely, or were left lying on the ground. The damage seems more like the work of birds than of insects.

The Japanese Rose (*Rosa rugosa*) and the white variety are both excellent lawn shrubs, or for planting in a prominent central position on a large rockery. The delicate tender buds can now be observed nestling amongst the rich green leaves. Every shoot has its cluster of buds and flowers. The plant spreads out and grows to an immense size. The large orange-red fruits are also very attractive in the autumn. I do not know any more vigorous-growing plants in the whole genus than these, and they are not at all particular as to soil. The plants make handsome bushes of their own accord. I would not allow a pruning knife to touch them.—J. DOUGLAS.

BUDS OF TEA ROSE ANNA OLLIVIER.

ROSE ANNA OLLIVIER (an engraving of buds of which we here give), planted quite in the open and unprotected for the last two years, has proved with us a quite hardy and long-blooming Rose. The summer blooms differ a good deal in colour from those of the autumn. It is a constant and profuse bloomer, but its greatest charm is perhaps in the buds, which have a peculiar urn-like form, especially those of the summer. Gathered for the table they are most graceful and distinct. The very changefulness of the flower, the different aspects it presents at different times of the year, are delightful. It is a beautiful Rose for grouping.

FLOWER GARDEN.

NOTES FROM SUFFOLK.

THE lovely varying tints of the fresh young foliage every day add some new beauty to

beauty, but the double form, of deeper colour, is brilliant still. Among the Rhododendrons the old free-flowering *Narcissus biflorus* is a sheet of bloom, but here and there the Poet's *Narcissus*, of purer white and with brighter chalice, steals a march upon its earlier less distinguished relative. The Plantain Lilies are unfurling their deeply veined foliage, and one notices with pleasure how full of promise are the bold-looking buds of the *Pæonies*. *Magnolia purpurea* is slipping off the green calyces, and soon the showy sweet-scented blossoms will cover the spreading, and at present bare, branches with beauty. The Lilacs will be late this year, as everything else is, but the last warm days have developed them fast. The Austrian Brier Roses and the little Scotch Roses are peeping as buds from the unfolding leaves, a few bunches of Banksian Roses are quite out, and the Tea Roses on the walls are fast swelling their buds. In orchard and fruit garden the Bigarreau Cherry blossom is beginning to fade; the Black Eagle, too, is

The cottage gardens and allotments are gay with fruit trees in bloom, and sweet, old-fashioned spring flowers brighten the tiny plots. Here and there among some yellow orange-cupped *Polyanthus Narcissi* I notice how beautiful are patches of the Forget-me-not. But neither garden nor hedgerow, brook nor lake can compass half the beauties of May, for over the heath as far as eye can reach, the Gorse, like a golden mantle, is spread in ample folds over hill and dale, and waiting its turn to bloom; the yellow Broom (*Genista*) grows close beside, and the fragrance of the Gorse fills the air. SUFFOLKIAN.

Menziesia empetrifomis.—As an alpine shrub for the embellishment of the rockery, this is one of the most beautiful I have ever seen. In habit it somewhat resembles *Cassiope tetragona*, compact, neat, and producing its exquisite bell-shaped flowers in such profusion as to surpass any of the hardy Heaths I have yet seen tried for this purpose. In company with the *Cassiope*, *Trilliums*, American Lilies, and Orchids, *Lycopodiums*, and such like moisture-loving subjects, the *Menziesia* is quite at home, and just now is one of the brightest objects in the whole garden. In the north, and especially in the neighbourhood of Edinburgh, this *Menziesia* is cultivated perhaps more successfully than anywhere else, but in a cool shady spot such as indicated above, and even in the full blaze of the sun close to a running stream, the rosy purple bells are so plentiful as to almost hide the leaves, and that within easy distance of London. We have also seen it called *Phyllodoce*. Native of North America. *M. cærulea*, also flowering now, is paler than the above, and need only be sought after for full collections. —K.

Notes on Narcissi.—There are some who seem to think that there are too many hybrid *Narcissi* and too many named varieties. That may be, or may not be, but assuredly the best only will live and survive in the catalogues, and even as some of the old Roses have dropped out from the standard lists, so will it be with the *Narcissi*. Some of the finest hybrids are at present far too rare to be known to all, but every year they should increase, and I trust will increase, so that more of us may enjoy them. I advise those who think that hybrid *Narcissi* are too much alike to get bicolor *grandis*, the two Camms, *incomparabilis* Princess Mary, *incomparabilis* Beauty, *incomparabilis* C. J. Backhouse, *incomparabilis* Queen Sophia, Barri conspicuus, B. Sensation, and B. Flora Wilson. Let them also get Backhousei and Backhousei Wolley Dod, also Burbidgei Little Dick and B. Crown Princess, this latter if they can, as I believe it is not yet in commerce. To finish the list, Leedsi Beatrice, Leedsi Duchess of Westminster, Leedsi Princess of Wales, and if then they declare that hybrid *Narcissi* are too much alike, I have nothing more to say. I will send Mr. Wolley Dod some of the white Pseudo-*Narcissus*, as found in a garden near here, or rather I will ask the gentleman who has it to send it him. It has been there from time immemorial. And in addition I will send him a bulb of N. Backhousei Wolley Dod, if he cares to have it, in return for his interesting article in THE GARDEN on the albino Daffodil.—GEORGE H. CAMMELL.

The creeping Forget-me-not (*Omphalodes verna*).—A near ally of our Forget-me-nots, quite as beautiful and certainly more amenable to ordinary cultivation. The true Forget-me-nots with very few exceptions are moisture-loving plants, and although we may get them to flourish in the mixed border, they are rarely satisfactory after the first or second year. The clumps die out in the centre and want constant renovating, which is not always practicable in small gardens. In the case of the creeping Forget-me-not (*O. verna*), a truly ubiquitous garden plant, as I never remember to have seen a garden where it had been tried and failed. It is, however, seen at its best on the border of a



Buds of Tea Rose Anna Ollivier. Engraved for THE GARDEN from a photograph of buds gathered at Gravetye.

landscape and garden. Even the Acacias have thrown the lightest veil of green over the withered-looking seed-pods which still hang on the trees. These seeds form a favourite repast for the wild as well as the tame pigeons. Poultry also, I am told, eat these seeds greedily. I have heard, too, that a favourite sweetmeat abroad is prepared from the blossoms of the Acacia. But, setting use aside, what a noble ornament for lawn or shrubbery is a fine Acacia covered with its milk-white bloom—the perfume so sweet, and the humming of the bees among the flowers a very rustic and soothing melody.

The single Ribes has lost its first fresh

past its best, but the May Duke is in full beauty. So, too, will be the Morellos on the north wall in a day or two; while, of Pears, the bloom on Williams' Bon Chrétien and on the great baking Pears Grosse Calebasse and Uvedale's St. Germain looks as if the trees were modelled in snow, so pure and white and so densely covered are they with flowers.

But at this season of the year all the country-side seems converted for the time being into a garden—the Blackthorn in the hedges, the delicate Stitchwort, the wild Violet on the banks, and beside the running brooks the golden Marsh Marigold in its matchless colouring being in great beauty.

neglected shrubbery or some such place, allowed to grow at will into large patches, as it very soon will do, the sheet of clear blue white-eyed flowers having a charming effect. It seems to affect the shady rather than the sunny side of the border, a decided advantage to the grower, as the flowers last a considerable time longer than they otherwise would. The pearly white variety, which is not so plentiful as the blue, is very effective in patches by itself. The two forms, however, go well together.—K.

Narcissus S. A. de Graaff.—This very interesting plant has been long known in gardens as *tridymus* S. A. de Graaff, which is clearly a mistake, as the name *tridymus* was given by Mr. Burbidge to a plant of the Nelsoni section, bearing two or three flowers on a scape. The above plant, however, I find further to agree entirely with N. Sabini, figured tab. 762, *Botanical Register*, and in this case it is an old friend returned from the Continent under a new name. Of the Macleai or short trumpet section three divisions have been made by florists, Backhousei, Nelsoni, Macleai, which I would submit as worthy the consideration of the Narcissus committee. So far as I can see, there is exactly the same distinction between Nelsoni pulchellus and Macleai as there is between Nelsoni pulchellus and Nelsoni type, and again between Nelsoni type and Nelsoni major. The others could all find a place under Macleai, naming on the same lines as already adopted by the committee.—K.

Alyssum pyrenaicum.—This pretty little Alyssum, a native of the Pyrenees, proves to be a most useful alpine for the rockery in early spring. It seems to be almost unknown in English gardens, although we are told that it is very plentiful and luxuriant in its native habitat. It is all the more wonderful, too, seeing how easily it can be raised from seed and how readily the little seedlings establish themselves. From seeds sown last year we have now a fine batch of healthy plants, each throwing up from two to three large, compact heads of pure white Hawthorn-like flowers. The leaves are not unlike those of *A. saxatile*, smaller, whitish, pubescent or woolly, and make an attractive tuft even in the absence of flowers. It, of course, proves perfectly hardy in the open air, doing best in those positions which suit such plants as *Lychnis pyrenaica*, *Potentilla nitida*, and the smaller crusted Saxifrages. When grown in too rich soil it has a tendency to throw up shoots instead of flower-stems. The soil we give is simply lime rubbish, leaf-soil, and a little loam, and the result seems to justify us recommending this compost to other growers.—K.

Large-leaved Saxifrages, or Megaseas, make an interesting group of bold-leaved plants that seem especially suited for giving beauty to those rougher portions of the rockery and border usually bare of vegetation. Their coarse aspect and vigour best fit them for associating with rougher things than the delicate Squills or frail alpine Anemones; so plant them in sunny positions where the richly bronzed leafage and noble spikes of brightly coloured flowers are well seen, and at the same time not fully exposed to every wind that blows or to keen frosts that nip the flower in the bud. A few days ago the Megaseas were flowering at Kew, where they are planted on a low rockery, associated with spreading Saxifrages and allied subjects. At Messrs. Paul and Son's nursery at Broxbourne there are large masses of Megasea, and last week *M. ligulata*, with its lilac flowers and handsome broad leaves, was in full beauty; and the rich purple-flowered *M. cordifolia purpurea* was approaching perfection, this being earlier than the heart-shaped-leaved type. The variety is in its way quite an ornamental-leaved plant, as the foliage is of the richest green, abundant, fresh, and without the ragged appearance characteristic of some of the Megaseas. *M. Stracheyi* is a rare beauty, from the Himalayas, and the large bright pink, salmon-eyed flowers give a change from the purplish shades. Those who are interested in this group will also grow *M. ciliata*, *purpurascens*, and the white *Milesi*.

The Rock Forget-me-not (*Omphalodes Luciliae*).—One of the most beautiful of the alpine

Borage-worts, and a plant one rarely meets with even in large collections. True, it is somewhat difficult to establish, but if the proper soil is used and the best exposure chosen, the worst of the difficulties are certainly got over. Its appearance first led us to use lime rubbish in large quantity in the soil, since which time we have had no trouble whatever with it. It seeds freely every year, and bids fair to usurp the ground at a yard radius from the original plant. Old mortar, broken up into small pieces the size of marbles, to which is added a little leaf-soil and stiffish loam, is the compost we use. The position due south. Procure a healthy specimen and plant and leave it to take care of itself. The flowers are larger than those of *O. verna*, paler, but produced in greater quantities; the leaves glaucous, resembling closely those of our native Oyster Plant (*Mertensia maritima*), but with a compact habit. It is a native of Mount Taurus, and may now be procured at any of the leading hardy plant dealers.—K.

NOTES ON AURICULAS.

ROT AND CANKER.—These two enemies of the Auricula—I might probably much more accurately term them diseases—will put in an appearance in the best managed collections. Rot sets in round the neck of the plant just below the leaves, and when once it has circled round the stem the case is hopeless. It is a singular fact that while the Polyanthus appears to enjoy being potted or planted low down in the soil, the Auricula is most impatient of such treatment, and as this is now the potting time, when the great bulk of the plants undergoes the process of re-potting, this fact should be borne in mind. Leave the lowermost leaves a quarter of an inch or so above the soil at the time of potting. A heavy and close, and therefore unsuitable soil, as well as want of sufficient drainage, will also cause rot. The plants should be placed out of the range of drip falling upon them, as water lodging in the axils of the leaves will lead to rot, and finally kill the plants. If there is reason to fear that the house or pit in which the Auriculas are placed is liable to drip, a visit should be paid at the time rain is falling to see that not a plant is in a position of danger. Then there is canker. This takes the form of a dry and brown-coloured decay of the stem below the leaves, and the plant will suffer much from this cause, and carry on a kind of partly-suspended existence before it shows that it is feeling the strain. Respecting canker, the Rev. F. D. Horner remarks—

There is one sharp remedy—that of removing every trace of the disease with a sharp knife, cutting or picking it all out. If there be a ring or heel of wood left from which a root is possible, there is a hope of life. The wound may be dressed with charcoal dust, and the plant put or potted into any sweet soil. The plant will not be injured by becoming very limp, and when the wound surfaces are well dried over, a little more moisture may be given. If planted wet and raw, it may easily go the wrong way.

THE WOOLLY APHIS.—This cannot be called a disease, and really serious injury can scarcely be traced to it. No doubt the act of repotting disturbs the intruder, and it may be safely assumed that its presence means mischief. It is singular that the woolly aphis has found its way to almost every collection of Auriculas, however remote. How it found its way to them is something of a mystery. I think it does some injury, as it is to be found upon the fine points of the roots that are around the sides of the pot, and it will also cluster round the neck of the plant on the surface, as if finding some kind of nourishment in the young roots that are put forth at that point. When repotting I carefully cut away the portions of the roots that are affected by the aphis and burn them. If it is not advisable to cut away the roots, then they can be washed in a solution of soft soap and water until they are clear of it, and the small remnants that gather about the neck of the plant are best got rid of by brushing. I have known applications recommended to be applied to the soil in the pots, but the danger is that in endeavouring to destroy the aphis injury may be done to the plants also. I have tried to drown it by standing the plants in water for a time, the pots being quite submerged; but it appears to

be a tenacious subject and not easily killed in this way. My plants appear to be freer of the aphis this year than for years past.

REPOTTING.—Repotting of young stock and such plants of the old that are not required for seed may be gone on with now. Good soil and good drainage are indispensable, and as a third essential, do not over-pot. I am using a soft, silken fibrous yellow loam, some well-decomposed manure from an old Mushroom bed and some silver sand. The fibry turf is well pulled to pieces, but all is used in potting. Let the pots be well drained. I have some crocks beaten up finely, and a topmost layer of these is laid over the drainage, and a little of the fibre on that. The soil is used fairly moist; the plants are potted firmly, and then placed in a frame and shaded from the sun until they are established. Unless the weather is very hot and dry, no water will be required for a week.

R. D.

Saxifraga peltata.—This Saxifrage is very distinct in appearance from most of the other members of the genus, and while the majority of the Saxifrages need a dry, or, at all events, a well-drained soil, this is quite a waterside plant. The leaves spring from a stout, creeping rootstock, and are sometimes as much as a foot in diameter, being borne aloft on stalks a couple of feet high. It is a deciduous species, and the flowers make their appearance just before the leaves. They are of a bright pink colour, and being produced in good-sized clusters, which are borne on stems a foot or more high, they present a very singular appearance when rising from the bare soil. The leaves, however, quickly follow the blossoms, so that before these last have died away the foliage has already become conspicuous.—H. P.

Eomecon chionantha.—This is quite a new plant, belonging to the Poppy family, and if the last severe winter may be taken as a test, it is likely to prove perfectly hardy in the open air. It behaves in the erratic manner common to *Mutisia decurrens* and other similar plants, and rarely ever comes up where the old stool was planted. It produces underground running stems, which come up in great quantities 1 foot or even 2 feet away. When kept in a cold or slightly heated frame it retains its leaves during winter, but out of doors these are killed down by the frost, the crowns not suffering in the slightest; the leaves, which are all radical and heart-shaped, with a cordate base, are of a yellowish green colour peculiar to several of the Poppy family. The flowers, which are abundantly produced, are pure pearly white, 2 inches or more in diameter, with a large bunch of golden yellow stamens in the centre. It flowers with us towards the latter end of June and July, and is well worth a trial, as it is really one of the most beautiful acquisitions of late years. A native of China.—K.

Dividing tuberous Begonias.—Much may be done to increase the stock of tuberous Begonias for bedding or pot culture by dividing the tubers, if this is done carefully and at the right time. This is a good season for the work, as the plants are now being transferred to other boxes. Where the best results are expected in the flower beds during the coming season, the plants must have attention at the present time. Allow them to start into growth in a cool temperature, and remove them to cold frames as soon as the growth is well started. Our tubers have had more space given them in the boxes, and amongst them were some which were divided last year about the same time. The cut part of the tubers had healed thoroughly, not the slightest signs of decay being apparent, and new roots were forming on the cut parts. Tubers possessing, say, six or more new growths may be cut into three parts, taking care to retain some part of the outside and with roots to each. Around each part that has been cut place some silver sand, which induces a quicker formation of new roots. The soil should consist mainly of loam, some leaf soil, and finely ground bones. For a few days after cutting the tubers no water should be given, the soil being moist enough, until the roots commence to run into

the new soil. Place the boxes in a house where a moist, warm temperature, not less than 55° by night for about two weeks, can be obtained. After new growth has fairly commenced remove the plants to cooler quarters, and treat in the same manner as the others not divided.—S.

Gardener's Garters (*Phalaris arundinacea variegata*) forced.—I have never seen this variegated Grass grown under glass, but have thought that it would be useful grown in pots for affording a variety of foliage in early spring, and also for furnishing material for cutting. Grown in artificial warmth, the variegation would probably be even clearer than in the open, and entire shoots look wonderfully well in floral arrangements of an informal nature. There are plenty of things nursed under glass that have not half the effectiveness of this old Grass, and I should think that in a cut state it would find favour in the London markets.—J. C. B.

Sarracenias in flower.—The Side-saddle plants are very seldom met with in gardens, yet when in good condition (such, for instance, as at Kew) their quaint pitchers reveal in shape and colouring a wealth of beauty, while their flowers are also most conspicuous. They are of a very peculiar shape, and though in this respect there is a great general resemblance in the case of the whole of them, they differ widely, not only in colour, but also in size, and still more especially in fragrance. The sweetest scented are those of *S. rubra*, which emit a Violet-like perfume. This scent is more especially noticeable when the sun shines, at which time a few of the deep blood-red-coloured blossoms will suffice to perfume a considerable space. *S. flava*, on the other hand, with pretty primrose-colour blooms, emits a disagreeable odour, while the crimson blossoms of *S. Drummondii* are almost, if not quite, scentless. By some cultivators it is recommended to remove the blossoms in order to promote the full development of the foliage, but when this is done a very conspicuous feature of these singular plants is lost.—T.

The old double Daffodil.—Last year I saw some blooms of a Daffodil that appeared to be distinct. The flowers were in colour identical with those of *Telamonius*, but the trumpet was entire and crowded up full with petals. I found that they came from Ireland, where they grew wild near the garden of a ruined monastery. Knowing how many good things among Daffodils have turned up at various times in Ireland, I thought I might have made a discovery of something new; I therefore commissioned my friend to procure me some bulbs, and he later on, going to the very place, brought me a quantity of the bulbs. They were planted and have bloomed well, but nearly all of them are identical with the old double of English gardens. Some, however, retained the character of the flowers I first saw, the trumpet remaining entire and filled with small petals. I am assured that no mistake was made in collecting the bulbs, as the Daffodils only grew in one particular spot, a rather swampy meadow. It thus appears that soil or climate there has so influenced the great double as in a measure to change the character of the flower, and I would like to know if any of your readers have witnessed anything similar in this country.—J. C. B.

Alpine Avens (*Geum montanum*).—The first of these to flower with us this year is the Mountain Avens (*Geum montanum*), its peculiar trailing habit making it very attractive and suitable for small as well as large rockeries. The Geums used to be divided, and we believe even yet the section *Sieversia* is kept up on the Continent. The latter have straight styles, while in the true Geums the styles are jointed after the fashion of a threshing flail. The facility with which these cross, even the one section with the other, is very remarkable, the result being interesting, although we have never yet seen an improvement in any of the species. The Mountain Avens has a dwarf, tufted habit, and clings closely to the stones, bearing singly on erect stalks unusually large bright yellow flowers. There is another form in gardens called *grandiflorum*—a garden plant, the origin of which is very obscure, although of its merits there can be no doubt. It is in all

respects similar to *G. montanum*, only that it bears two, three, or more flowers on a stem instead of one, as in the type. When well treated, it grows very luxuriantly, and produces an abundance of its large yellow blossoms. *G. parviflorum*, a New Zealand species, of which we have only seen one example, is a charming little species admirably suited, from its dwarf, close-growing habit, for ledges, &c., on the rockery. When in full flower it rarely exceeds 2 inches in height; leaves small, closely adpressed, and producing medium-sized white flowers in profusion. It seeds itself in the open air, and will, no doubt, be as popular as it deserves. The American species, of which *triflorum* (better known perhaps as *Sieversia triflora*) is the most common, and perhaps the most useful as a border flower. The flowers are generally borne in clusters of three (hence its name), reddish purple on their outer side, and white tinged purple within. It is an extremely free-growing plant, and may be propagated to almost any extent by division. *G. pyrenaicum*, *elatum*, *coccineum*, of which there are many improved varieties charming for grouping, and others, may be added to even the choicest collections.—K.

GOLD-LACED POLYANTHUSES.

VERY rarely have Gold-laced Polyanthuses been exhibited in better form in London than they were at the *Auricula* show on the 24th ult. The total number did not exceed thirty plants, but the average quality was much better than usual, and some of the flowers showed greater size also. This was notably the case with the variety *George IV.*, finer and better blooms of which have not been brought to London, Mr. Douglas having it in excellent form, as also had Mr. Barlow, of Manchester. There is in the flower, however, two marked defects, though slight ones. The ground wants rather more body, as it varies a little, and seems to be somewhat intermediary between black and red, though most nearly black, whilst the lacing has a tendency to become pale. In all other respects it is a fine variety, giving size and robustness, although these two features are seldom found in conjunction with quality. The very best black ground is, without doubt, *Cheshire Favourite*, although *Exile* runs it close. But were the best flower of any collection to be selected, it would doubtless in most cases prove to be the former. All who want to learn what are the properties of a high-class Gold-laced Polyanthus should obtain *Cheshire Favourite*, because the teachings of the flower itself are so much more effective and striking than are the criticisms of florists. Therein the learner will find the elements of quality as considered essential to a good flower, and a sort of ideal to which in the production of seedlings he may strive to aim at. Having such a valuable guide to hand, he may be saved from many mistakes and disappointments. The density of the black ground with its decided outline is admirably marked by the very fine lacing which not only margins each lobe of the petals, but cuts quite clear through to the centre and is of the same hue of yellow as is the centre; that too must be clear, and not clouded with any dull orange or buff shading, whilst the eye should be rounded and enclosing a pretty thrum of anthers well up in the throat. It will be very hard indeed to raise a variety which shall excel *Cheshire Favourite* or *Exile*; indeed, not one of the very best of recent introductions can approach to either in quality or refinement. Much as black ground varieties dominated over red grounds, yet the named sorts staged on the 24th ult. were few indeed, the most noteworthy being *Cheshire Favourite*, *Exile*, *Lancashire Hero*, *Prince Regent*, and *John Bright*, the latter a somewhat coarse variety and only third rate in quality. *George IV.* comes as a somewhat intermediate form, the ground being rather chocolate than red, whilst of red kinds, the very best was *Lancer*, a very perfect flower and the best of its section; *William IV.* has fine pips, but the lacing is somewhat pale; *Sir Sydney Smith*, very like the preceding variety; and *Red Rover*, the latter shown in one plant only, and on that the flowers old and new showed three distinct shades of colour, a

marked defect, more characteristic of red grounds than of black ones. This limited list of the sorts staged, exclusive of a few moderate seedlings, shows how much room there is for the enterprising raiser to produce other first-class kinds, if he can get them. The standard of excellence, as shown already, is a high one and hard to equal. Even if only equal excellence can be secured it would be something, but if pips of the size of those of *George IV.* allied to the quality found in *Lancer* or *Cheshire Favourite* were obtained, very much would be gained, and a new stimulus given to the culture of Gold-laced Polyanthuses. A. D.

FLOWER GARDEN NOTES.

PLANTING FLOWER BEDS.—By the time these notes appear in print there will, as regards weather, be no risk of frost injuring even the most tender plants, though it will be well to defer for another week or so the planting out of such kinds, and, meantime, they should be gradually inured by light coverings at night, and slight shade from bright sunshine by day, to bear full exposure. As regards planting, so much of the after success depends on the immediate well-doing of the plants, that this operation cannot be too carefully performed. The soil of the bed should be neither wet nor dry, and if not naturally of an open texture, it should be made so previous to planting by repeated stirrings with a fork or spade. The plants, particularly such as are in pots, should be well soaked previous to being turned out of their pots, and in planting, see that the soil is made firm round the balls, for if left loose the water runs away from the part where it is most wanted. Plants taken from frames or borders and that do not move with a good amount of soil should be mulched immediately they are planted either with Cocoa fibre (which is the best), tan, or an inch of dry soil, and they will recover more quickly if a little shade is given, such as that afforded by a few evergreen branches being placed amongst the plants. This we never fail to do with plants that resent drought or that quickly collapse if exposed to bright sunshine before they have become established in their new quarters. Belonging to this class are *Calceolarias*, *Verbenas*, *Violas*, and *Petunias*. The *Petunias* have such fine, brittle roots, that of late years we have taken to potting them and planting them out. By this treatment they start into good growth immediately.

WATERING.—In the absence of rain this is, of course, needed as soon as the plants are put out, but, provided care has been exercised to have the conditions of soil both of beds and plants in a moist state, only water sufficient to settle the soil well round the plants should be given. More than this will do harm until the plants get a firm hold of the soil and are, therefore, able to utilise the moisture.

SPRING FLOWERS.—This has been the most protracted season I remember. It is but a very short time since we saw the last of the *Snowdrops*, and we still have *Daffodils*, *Primroses*, and *Wood Anemones* in quantity. Such extended floral beauty almost reconciles one to a long winter, and most certainly it will have the effect of awakening a keener interest in hardy spring flowers. To their extended cultivation there is one great difficulty to be encountered by those situate as we are here—it is that of summer bedding. The spring flowers are barely at their best, and yet the demands of summer necessitate their removal forthwith. I can devise no remedy other than that which, to some extent, has been carried out here this season, namely, the planting of spring flowers in quantity amongst herbaceous perennials, particularly the late flowering kinds; the early flowering may still be planted in the summer bedded-out garden, and will come off in time for this work to be done at the right season. *Hyacinths*, early *Tulips*, *Crocuses*, *Alyssums*, *Arabis*, *Silenes*, and *Myosotis* may all be relied on for early flowering and suitable for the bedded-out garden, but most other kinds are more suitable for planting either amongst herbaceous perennials or in beds by themselves, to be succeeded by late flowering annuals, or with plants from the later sowings of *Phlox Drummondii*, *Zinnias*, and *East Lothian Stocks*.

HOLLYHOCKS, SINGLE AND CACTUS DAHLIAS.—We have an excellent position for displaying these to the greatest advantage, an avenue, in fact, through the centre of which runs a broad walk. The avenue is formed with Lawson's Cypress, and in front of these shrubs is now being planted a double line of Hollyhocks and Dahlias. The latter will be trained flat-wise to the hedge, and the Hollyhocks will, as it were, support the Dahlias, there being five Dahlias to one Hollyhock. Both Hollyhocks and Dahlias are as greatly varied in colour as the arrangements will allow, and special care is being taken to have the opposite line an exact counterpart of the other. As regards colour, the rule followed in this instance is that known as contrast, namely, white, scarlet, yellow, violet, bluish, pink, and so on, each plant being as far removed in colour from that of its neighbour as it is possible to be. High, or what is known as strong, colouring is by this rule a certainty, but there are two neutralising effects, namely, abundance of green foliage (Dahlias) and a dark green background (the Lawson Cypress), and these, in reality, are responsible for the rule of contrast of colours being adopted. The front part of the borders is filled with flowering plants in great variety, no particular plan being followed, except that their mixture and dispersion be on an equality throughout, and some pains is taken to prevent excess of gaudiness by using sparingly deep yellow and scarlet-flowering plants. I ought to have added that Hollyhocks and Dahlias, to obtain good results, must have extra rich ground. It is hardly possible to give too much manure, and that from the cow-shed is best, and the ground should be trenched every year.

VIOLETS.—The finest flowers are produced from yearling plants, *i.e.*, from runners taken off the old plants any time from the beginning of May to early in June. The runners are late this season, and it will be midsummer before some sorts can be had, but as soon as they are fit I shall take them off, and those that are well rooted will be at once transplanted to their flowering positions, and weaker plants be pricked out in light soil in frames. All the double kinds we serve in that way, and ten days' or a fortnight's frame treatment is usually sufficient to ensure strong plants, either for planting on borders or for growing in frames. We prefer to plant those that are intended for flowering in frames in their places at once, of course leaving the lights continuously off until the advent of autumnal frost. It is important that all new plantations be well supplied with water until the plants have taken a firm hold of the soil, and even then a mulching either of manure or cocoa fibre is desirable, and greatly helps to keep the plants in health throughout the summer. We plant in all aspects, and by that means secure a succession of flowers for a very long season. The favourite varieties here are The Czar, Queen Victoria, Marie Louise, and Neapolitan.

GENERAL WORK.—To continue bedding out as rapidly as the plants can be got ready, and keep the beds well supplied with water until there has been a good soaking rain, when artificial watering may be discontinued unless there should be a time of exceptional drought. Place supports to Dahlias and tall perennials, and tie in to the trellis Roses, Clematis and other climbers. Tie up the flower stems of Carnations and Pinks. Peg down Violas, and keep the flowers picked off until the plants have covered their allotted space.

W. WILDSMITH.

A pure white *Narcissus incomparabilis*, single.—As to "Veronica's" query in THE GARDEN, May 12 (p. 431). "Can anyone suggest a reason for the flowers of *N. Telamonius plenus* being greener than usual this year?" I noted that all the forms of this opened green or greenish yellow, but died off pure yellow, with the exception of Van Sion, which is the dwarf Dutch form of double *Telamonius*, and always greenish. I received a collection of bulbs from a well-known London firm last season, and among the single *incomparabilis* was one with both cup and perianth segments pure white. The habit and size resemble those of *Stella*. Unfortunately, the hot sun of the past few days has parched it up, or I should forward a

bloom to you. Perhaps some reader of THE GARDEN would say if such pure white forms are common, or what form it probably is.—W. J. M., *Clonmel*.

THE WHITE DAFFODILS.

THE origin of the large white Daffodils now grown in our gardens has never been satisfactorily accounted for, but I now see no reason to doubt their being cultivated, or seminal forms of the little *N. moschatius*, which has quite recently been re-introduced from the Pyrenees. It is only two or three years since the small white *moschatius* of the Val d'Arras was brought again into cultivation, and yet it has developed itself in a remarkable way. I saw 5000 collected roots mostly in bloom at Cork some weeks ago, and, judging from the varieties observable among these and amongst others grown by myself, I should have no hesitation in saying that they undoubtedly represent the primary stock whence our numerous garden forms of white Daffodils were derived. At Kew the other day I examined some well-grown clumps of the wild *N. moschatius*, and its vagaries struck me as being most instructive. Scarcely two flowers are quite alike. From these clumps I picked out flowers which resembled Colleen Bawn, others like Leda, while others show the long drooping or dog-eared habit of *N. albicans*, *N. cernuus pulcher*, and even of that most distinct of all the white seedlings, *Wm. Goldring*. In a word, no wild Daffodil introduced to our gardens, if we except *N. variformis*, is so protean in its variability as is this small Pyrenean white, and every year will show us more of its variability. Like most other Daffodils collected wild, this small Spanish white form seeds freely, and from its seeds, if carefully sown and cultivated, all things are possible. *N. Colleen Bawn* is the whitest and one of the most distinct of all the larger white garden forms, and has existed in Irish gardens for many years. It is distinguished by its dwarf, broad, and glaucous-leaved habit, by the high-shouldered appearance of its flowers, and by three of its six perianth segments being nearly twice as broad as the other three divisions of the flower. Although first brought to light in Ireland, we have evidence of the large tall form of *N. cernuus*, now known as Bishop Mann, having been more recently rediscovered in English gardens.

Mr. George Maw and Mr. Peter Barr have both searched the Pyrenees in the hope of finding the large white forms now so popular in our gardens growing in their wild state. Personally I do not believe that our cultivated white kinds exist wild except, as before stated, in the shape of the small varieties found in the Val d'Arras and elsewhere. If our large-flowered white varieties, such as *N. cernuus*, *N. albicans*, *N. Colleen Bawn*, &c., ever are found wild, I shall be very much surprised, and until their existence in a wild state is proved, I shall assume them to be simply seminal or cultivated phases of the only variety so far discovered wild, *viz.*, the *N. moschatius* of the Pyrenees.

It may not be generally known that this small wild white Daffodil was cultivated by the gardeners of two or three centuries ago, and it is both figured and described in the old books of that epoch, while John Evelyn, in his "Kalendarium Hortense," particularly advises its seeds being sown as soon as they ripen, because, as he says, such seeds yield abundant variety. When grown in light, warm sandy soil among stones or gravel, it is astonishing how soon this little *N. moschatius* develops itself under cultivation. The first year the flowers almost touch the ground, but some three-year-old clumps are now yielding flowers on stalks as high as those

of Colleen Bawn. When the plant becomes more generally plentiful in gardens, we shall find plenty of work in selecting and naming the numerous variations that have already begun to show their character, and which, to say the least, are quite as distinct and constant as are the larger garden white kinds already dignified by popular names. F. W. BURBIDGE.

HARDY SPRING FLOWERS.

THE floral promise at the present time is great and pleasing, for all kinds of hardy plants are not only much earlier than last spring, but have so far wintered remarkably well. The soil is fairly dry and far from being cold. The foliage of all plants has been inappreciably affected; hence the excellent prospect.

AURICULAS out of doors, curiously enough, do not lose their outer leafage so completely as pot plants do. They have stood well through the winter; indeed, cold troubles them but little, or even heat, once the plants are established. The chief enemy of young Auriculas last summer was found in grubs, which were very plentiful and destroyed hundreds of plants. However, the season was a very exceptional one. To meet that difficulty, the best plan is either to sow seed in shallow boxes as soon as it is ripe, and by wintering the plants in a frame and dibbling them out early in the following spring they will then get ahead of the grubs. Or else sow seed in boxes in the spring, allow the plants to remain in them till the autumn, for they grow slowly, as a rule, and then dibble out into the open ground at the end of September. Already the old-established plants are showing early flowers, and promise a good show later.

ANEMONES have not borne out the promise of the early winter, when flowers seemed certain during open weather. Some dense and foul fogs have affected the foliage of the older clumps, but younger plants have escaped injury. Still, the average temperature has checked blooming, although the weather has been open. The foliage alone where unharmed is, nevertheless, very pleasing, and serves to make borders cheerful during the winter time. Harm through fogs is local, as these visitations are not so injurious beyond the smoke area of towns. In this district of West Middlesex the fogs of January left the ground, and glass-houses especially, encrusted with soot, showing how foul these vapours are within a certain area.

POLYANTHUSES AND PRIMROSES.—No harsh winter weather seems to injure these plants one half so much as heat and drought do, and fogs evidently do not injure them. Their worst winter enemy is found in bitter cutting easterly winds, which wither up the leafage and destroy the early bloom. However, this year so far all is pleasant for them, for the foliage is sturdy and green, and flowers push up abundantly, more especially on the early Primroses, and showed an abundance of flowers early in March. How very beautiful the rich reds, crimson, purples, &c., of the flowers look under the spring sunshine. The Polyanthus following in succession will continue the spring flower bloom up to the middle of May. Generally, a rather earlier bloom than usual seems inevitable, but the winds may yet make both us and the flowers tremble and shiver, and perhaps wither too, for they are harder to encounter than are sharp, steady frosts.

FORGET-ME-NOTS.—Both the blue and white forms of *Myosotis dissitiflora*, including the fine Perfection variety, have come through the winter more brightly than they have for several seasons. Not a plant, whether from seed or division of old ones, has suffered; whilst it is not at all uncommon for the latter to die from damp. Not only are the plants so well preserved, but they are already pushing up their little flower-heads, and should soon give a rich mass of colour. With a fairly open spring *Myosotis dissitiflora* is almost unequalled for its azure-hued beauty, and, so far, is unapproachable for the production of a perfect mass of flowers. Its tendency to flower so early detracts from its seeding merits, as the early bloom seldom seeds freely. Happily, the freedom to root from side shoots which

marks it renders it easy of increase, and where seed is scarce the Forget-me-not can always be treated as a hardy perennial. For forcing, which must be of the mildest character, it is best to lift the plants into pots only after the flower-buds have developed, as in frames or houses they are apt to damp off rapidly.

TUFTED PANSIES, though remarkably well preserved, are not very early, still they are now making quick growth, and the plants will bloom abundantly in a few weeks. The drought of last summer prevented an early development of new growth, hence the apparent lateness of bloom. To these plants a very severe winter, or one of excessive rainfall, is almost as harmful as is great summer heat. Fortunately, a difficult summer has been followed by a favourable winter, and the plants, if a little late, are still robust and full of promise. In spring bedding tufted Pansies should this year play a very important part.

DAISIES felt the influence of the drought last summer to an unusual degree, and stocks were appreciably thinned. Still they are wonderfully recuperative, especially the robust growing giant white and crimson forms. The pretty variegated variety seems to have passed out of cultivation in this district, where its place as a winter bedding plant is taken by the golden-tipped Stonecrop, which is so hardy and endures through all sorts of weather. Patches of this planted out at the end of September make wonderfully effective clumps in the spring, and, indeed, by the end of April run into a perfect mass of creamy foliage, whilst the various forms of Arabis are always welcome. The variegated ones are special favourites, but the Arabis seems less robust than are the Aubrietias, which even if killed back by sharp frosts and snowfalls will break up again and soon become clumps of pretty purple or violet flowers. Usually impatient of lifting and dividing, a large breadth so treated has during the winter done remarkably well, and a glorious piece of violet-purple hue, a perfect carpet of colour, will presently gladden our eyes. A. D.

SWEET PEAS.

OUT of thirty-one named varieties of Sweet Peas planted for trial last year, I found but nineteen really distinct kinds. Cardinal was practically identical with Invincible Scarlet; so was Princess Louise, with The Queen; Queen of the Isles, with Invincible Red Striped; Violet Queen and Grand Blue, with Light Blue and Purple; Purple Striped, with Black and White; Captain Clark and Lotty Eckford, with Blue Edged.

Princess Beatrice is one of the most beautiful, with large, clear rose-pink flowers. Miss Ethel and Isa Eckford are nearly identical with it, but somewhat inferior. Adonis is similar, but darker, a deep carmine-pink. The Queen has a standard of deep rose, tinged with purple, and darker wings—a finely-formed flower, a trifle dull in colour. Vesuvius is quite distinct, with standard of rosy-crimson, lighter at the edges, spotted and veined toward the centre with darker colour, and wings of rosy-purple, spotted like the standard.

Of scarlets, Invincible Carmine is the best, being an improvement on Invincible Scarlet, with broad standards, the rich colour deepened in the wings and heavily shading the keel. Duchess of Edinburgh is similar, but with standard of lighter colour and a white keel. Standard Striped has a white ground shaded and striped with scarlet; while Invincible Red Striped has a scarlet ground, striped and blotched with white.

No pink and white variety is as good as Painted Lady, though Crown Princess of Prussia is beautiful, but of lighter colour. Captain Clark has a white standard shaded with rose and veined with dark lines, and white wings tinged with rose and edged with purple. Fairy Queen is nearly pure white, with a few delicate crimson veins in the centre of the standard. Butterfly is white, faintly edged and shaded with blue.

Among the blues, Bronze Prince is an improvement on Indigo King, having better formed standards, the purplish crimson distinctly tinged with

bronze. Violet Queen shows a reddish violet tinge in the wings, and Imperial Blue shows more blue than others of this class. Princess of Wales and Purple Striped are the best of the dark-striped varieties, the one blue and white and the other purplish crimson and white.

The most useful of all for cut flowers is the old Pure White. Unfortunately, it is a rather poor grower, and therefore the announcement last year that an improved variety of Pure White had been shown at an English exhibition was gratifying to all who take a special interest in these beautiful and fragrant flowers. Other new varieties at English exhibitions, spoken of as distinct and promising, are Primrose, Mauve Queen, Splendour, and Apple Blossom, whose names give some indication of their colour.—A. H. FEWKES, in *Garden and Forest*.

KITCHEN GARDEN.

COMPARATIVE MERITS OF TOMATOES.

LAST year I tried a considerable number of new and old varieties of Tomatoes, about 200 plants

those raised or grown for a number of years in this country. What they evidently require is more heat to bring them to perfection.

The Mikado, a broad-leaved and very distinct variety, when first received from America and grown here, was generally considered rough and ugly, but this unflattering description was not pleasing to our American friends, and I am glad to say that the stock received direct from them in each case proved very superior. If the first large and much fasciated flower is allowed to set and develop into a fruit, this will prove to be exceptionally ugly, though not much more so than Trophy and the older Sims' Mammoth. Remove this flower as soon as possible, and the rest will be followed by handsome round fruits quite equal to those of Perfection. As far as quality is concerned, it is decidedly superior to any other variety we grew in the open air, and those who have plants ready to go out ought to plant a good batch of Mikado in preference to other varieties they may have prepared for the purpose. What I believe to be the true Mikado



Tomato Trophy.

being grown in the open air. A more favourable season could not well have been selected for the experiment, the open-air crops of Tomatoes generally being exceptionally fine and heavy. The quality also of several varieties was far above the average, equalling, in some instances, that of the best house-grown fruit. As far as the Tomato is concerned, it would be a good thing for us if we always experienced hot and rather dry summers. I am credibly informed that the crops in the United States were considerably below the average, while an amateur grower writes from Ontario, Canada, to the effect that "this year (1887) has been an unusually unfavourable one to the general crop," though what he terms a failure we should call a good average crop. I have on several previous occasions tried varieties, the seed of which has been sent direct from America; but previous to last year they never surpassed or hardly equalled

is of a deep cornelian-red colour, which, as a rule, does not "take" so well as a rich scarlet does. Among those received from America, one proved to be of a good deep scarlet colour, and this, in our case, will replace the old stock. I may perhaps be allowed to add that last season fine handsome fruits were grown in Canada, many of which weighed about 1 lb. in weight. We had plenty quite as large.

Livingstone's Perfection, also of American origin, much resembles Carter's Perfection, which I grew long before the former reached this country, both being very handsome and good, but, as a rule, are better under glass than in the open. Nor am I much impressed with the merits of Mayflower, this not cropping so heavily as many others grown. Large Yellow, as received from America, is true to name, and altogether different to the stock of it distributed in this country. It is an enormous

cropper and early, the fruit being large, corrugated, and a clear yellow in colour, but though attractive in appearance, it is sadly deficient in quality. Plants raised from seed bought in this country I would throw away, and only a few of the true stock ought to be grown where quality is the principal consideration. Acme is also, I believe, an American introduction, and seedlings received for trial which proved synonymous crop enormously, the size, form, and quality being also first-rate in the open air. Unfortunately, the colour, rich cornelian, or, as some prefer to describe it, ruby-red, militates against it. It is to be relied upon, however, and may safely be planted for home use especially. Optimus is considered one of the best in Canada, this variety producing heavy crops of large, handsome fruit only slightly inferior in point of quality to that of the Mikado, and being of the right colour, may, I think, be safely given a good trial by those who have raised plants of it. Hathaway's Excelsior rarely fails to do well, and last season yielded very good crops against sunny walls. It is an old favourite and of good quality. General Garfield is certainly rough and ugly, but it is a heavy cropper, and there are many inferior to it in point of quality. In some seasons Trophy or Stamfordian (an engraving of which is here given), as it was renamed in this country not long after it was received from America, also proves very profitable in the open air. The fruits are very solid and heavy, but more fit for cooking than for eating in the form of a salad. Vick's Criterion and the improved form of it, Chiswick Red, with which I believe the variety King Humbert is synonymous, yield very heavy crops of fruit about the size and form of a hen's egg, but rather too solid and poor in flavour to please me. [We have always found Chiswick Red, although a heavy cropping variety, quite the opposite, being hollow and devoid of firm flesh.—ED.]

Among English-raised varieties, a good position must be given to Hackwood Park Prolific, this being heavy cropping, smooth, round, and rather solid-fruited, but with us does not ripen so evenly as could be wished. Reading Perfection differs from this and others in that it is very robust, and if not given a too rich root-run is very prolific and fairly good in quality. Earliest of All is certainly very early and fruitful, but it is a doubtful advance on the good old Dwarf Orangefield, always supposing the true stock of the latter is obtained. I consider the latter the best-flavoured corrugated or ribbed variety in cultivation, the superior quality, however, being more pronounced in the case of fruit grown under glass than in the open air. Those who have raised plants of Dedham Favourite may safely venture to give them a good position, this much resembling, and quite equalling, Acme in every respect. The old Large Red is another sure cropper, but the fruits are not very heavy nor is the quality first class. Williams' Golden Queen, and which is synonymous with Smith's Yellow, succeeds admirably in the open, and the fruits are very handsome and good in quality. Golden Nugget proved to be an enormous cropper, the fruit being small, Plum-shaped, and borne in extra large clusters. It is one of the most ornamental varieties, though unfortunately the quality is only second-rate.

The foregoing by no means exhausts the list of so-called distinct varieties grown in the open air by me, but they proved to be the pick of them. Their merits are discussed at this rather late date with the view of guiding amateurs more particularly in their decisions as to which of the several varieties they may have raised to

plant most extensively. A collection is very interesting to most lovers of Tomatoes, and they are a very numerous class; but it is always wisest to depend largely for the supplies of fruit on two or three varieties. Those who market their surplus fruit ought especially to favour the Perfection type, or the rich dark red and smooth, round-fruited varieties.

W. IGGULDEN.

POTATOES.

WE have reached the 12th of May and not a Potato top is to be seen through the ground. This shows the coldness of the soil and lateness of the season, for it is evident that midsummer will be with us ere earthing-up is completed. Indeed, there will be many breadths of Potatoes planted during the ensuing week. In this neighbourhood (West Middlesex) only very early kinds, such as Beauty of Hebron or Early Rose, are through the ground, and it is doubtful whether these have survived the sharp white frosts of the past few nights. There is no reason for complaint, having regard to the season, that Potatoes are so backward, but there is great room for regret that the season is so late, and thus our hopes of a Potato crop are driven rather to the autumn than to the summer. Under these conditions, we see how impossible it is for home growers in the colder parts of the kingdom to hope to compete with the French and Channel Island growers in the matter of early Potatoes; whilst equally we see every reason for thankfulness that the early stores of those warmer climes can be poured into this country so readily and so cheaply for the purpose of feeding the millions of the population. No effort in the direction of securing early Potatoes in bulk, or sufficient to meet the requirements of the public, can we hope for one moment to be successful, because the cost of production would far exceed the returns. Still further, any such effort could only be available for the few, whilst the many now fed by early Potatoes would have to go without but for the foreign imports. That new, unripe Potatoes are far from being wholesome food there can be little doubt, and the worst of old, if well kept, tubers are often better, whilst really good old tubers are trebly better. But old Potatoes have a very long season; in fact, they are old in the general estimation in September and remain so. It is not, therefore, a matter for surprise that the human palate, usually somewhat difficult to please and too often far more anxious to be gratified than to be furnished with good wholesome food, should seek for new Potatoes as soon as they may be had, even though in texture or quality little better than soap. Home growers complain that their early Potatoes come into the field only after the cream of the market has been well skimmed by the earlier imports. That is a fact which must, however, be borne. Possibly were our home growers to study the causes which thus enable the foreign grower to literally flood our markets with Potatoes so cheaply as well as so early, they might find not only food for reflection, but some useful instruction. But, apart from these considerations, interesting enough in themselves, there lies the great fact that our Potato breadths are late, and the problem to be solved is how to induce them to make rapid growth. We have no power to compel earlier germination, being absolutely dependent upon the prevailing temperature, but we may assist growth when that is developed. The soil, because the tubers have been long planted and there have since been heavy beating rains, is now firm—indeed, in many cases quite hard. Loosening it by means of harrows on large breadths, hoeing and otherwise breaking the surface in gardens, will be helpful, and specially so will be forking and opening the soil between the rows after the tops are well through the surface. Defer earthing until the tops are fully 10 inches in height, and mould up only moderately; but this work is materially dependent upon space, and can always be the most efficiently done if ample room has been given between the rows.

A. D.

Cutting Asparagus.—It is the practice of most gardeners to cut the large shoots of Asparagus only

and leave the weaker ones to grow for the purpose of making strong roots and therefore strong shoots next year. A better custom is that adopted by Long Island gardeners, who cut everything clean every day. When the plants are all allowed to grow after the cutting season is over the strong plants assert themselves, overshadow the weaker ones and set the buds for next year's crop. This gives a larger percentage of strong buds every year.—S., in *Garden and Forest*.

KITCHEN GARDEN NOTES.

VEGETABLE MARROWS.

DURING a hot and dry season these are very serviceable, and if not too liberally treated are very free and continuous bearing even in a wet summer. In many instances a corner in a sunny yard or frame ground is the only space that can well be spared for them, three or four plants being allowed to ramble over a great heap of leaves, manure, and garden refuse. Sometimes these heaps are surfaced over with good loamy soil, but more often than not about a bushel of compost to each plant is all they get. The plants are put out late in May or early in June, and lightly protected in some way until a good start has been made. Very little further trouble is taken with them, nor is it needed, as they soon cover the whole of the heap, and, as a rule, grow rather too strongly; consequently heavy soakings of water would probably do more harm than good. We find the Marrows much more profitable when grown more after the methods adopted by the market growers. A strip of ground sheltered from strong winds and about 8 feet wide is double dug, plenty of solid manure being mixed with each spit. Should the surface be naturally heavy or in bad working order, the character of this is changed somewhat by a liberal dressing of rotten manure or leaf-soil. The least that can be done is to mix some of this with the soil where the plants are to be put out, and they will start away much better if given a little fresh loamy compost. We put out two rows of plants, disposing them about 4 feet apart each way. If a hand-light can be spared for the plants this tends to give them a good start. Whether thus favoured or not, they very rarely fail to crop heavily without forming much fruitless growth. It is not yet too late to raise plants, the quickest plan being to put single sound seeds in 4-inch pots filled with loamy soil, and if set in gentle heat and kept near the glass fine sturdy plants may be had in a fortnight. The seed may also be sown where the plants are to grow, and thus raised are not long before they arrive in a bearing condition. Long White and Pen-y-bydd are our favourite varieties, the former being especially good cut when about 6 inches long and cooked whole, while Pen-y-bydd is of excellent quality, cut it when you will.

RIDGE CUCUMBERS.

These frequently succeed in the southern counties under much the same treatment as Vegetable Marrows, but, as a rule, they pay better when given a little bottom-heat at the start. The simplest plan is to mark out a piece of ground 4 feet wide, or rather less, and of any length, throwing out from 6 inches to 9 inches of the top soil only, replacing this on the top of about 2 feet of warm manure. The plants may be put out either under hand-lights now or early in June, and only slightly protected. As they seldom grow very vigorously they may be planted about 18 inches apart each way, and allowed to ramble unchecked in all directions. Plants obtained from seed sown three weeks before they are wanted to put out on ridges do better than any raised much earlier and kept in a starving condition until the weather admits of their being planted. We would sow seed now rather than in April. In cold, wet seasons the plants seldom thrive, and in any case usually prove most profitable when well sheltered and trained up stakes of any kind. The Stockwood and Long Prickly grow to a good size, while the Short Prickly, or Gherkin, are the best for pickling.

OPEN-AIR TOMATOES.

The plants being well hardened off, may, in all warm localities, be put out now, and generally

during the first week in June. As, however, they are far from being hardy, it is advisable to either delay planting in the case of frosts being imminent or to afford some kind of protection every night for a time. Mats, spare frame-lights, and even branches of Evergreens will be found useful for screening them from cold winds, rain and frosts. Much depends upon a good start being made, as should the best part of June be past before any fruit is set the chances are that the bulk of the crop will fail to ripen. Tomatoes do not need a rich root-run, this encouraging grossness rather than fruitfulness, but where it can be spared two or three shovelfuls of good loamy compost may well be given to each plant. Especially is this necessary where they have to be grown between the fruit trees against hot, and usually dry, walls. Failing this, a little good solid manure should be mixed with the ordinary soil, and what further assistance is needed is best given later on in the shape of top-dressings or a good mulch. Any sunny sheltered position is suitable for their culture, but the fruit ripens more surely and rapidly when the plants are trained against sunny walls, fences, or temporary shelters of any kind. If plants are plentiful they may be put out about 12 inches apart and kept restricted to one stem, each plant thus forming a single cordon. Should they be rather scarce, plant them nearer 2 feet apart, and lay in a branch on either side, but do not take out the point of the main stem or much valuable time will be lost. The bulk of our plants are in pairs in 6-inch or rather larger pots, and we find that they take more readily to the ground when they are carefully parted and planted separately. When the balls of soil and roots from either large or small pots are put out intact they are apt to become much too dry before the plants take hold of the surrounding soil; hence the necessity for planting all in a moist state at the roots, as well as for frequent examinations subsequently. If the plants are allowed to get dry in these early stages a serious check will be given, and the loss of the first bunch of bloom a certainty. During favourable seasons Tomatoes will also perfect extra heavy crops when grown singly on a fairly rich, sunny border. They must not be crowded in these positions, and ought to be fully 2 feet apart each way. These will each require a stout stake not less than 3 feet long, and ought to be kept closely denuded of all side shoots.

TOMATOES IN PITS AND FRAMES.

When grown where they can be kept covered with glass, or in a position where the lights can be put on during wet and cold weather, the cultivator may safely anticipate the production of good crops of fruit, and these would be doubly prized in the event of a failure in the open. Span-roofed or other kinds of pits, furnished with a single hot-water pipe, are, as a rule, admirably adapted for Tomato culture, both early and heavy crops being obtained with their aid. Unheated pits and ordinary frames may be similarly utilised, and if previously occupied by early Potatoes or Beans, very little further preparation is necessary. A great mass of manure and soil is uncalled for, a bushel or two of good soil being ample for quite large plants. The plants may be trained thinly over slate-covered beds somewhat similarly to Cucumbers, or, better still, over strips of deal, plaited hurdles or other contrivances for keeping the fruit clear of the soil or the plants near the glass. Double rows of plants may be put across the pits at the ends and at intervals of about 8 feet, and the plants trained up to and across any temporary trellising fixed about 12 inches clear of the glass. If planted a foot apart, no side branches should be left on the plants, at any rate not at the outset, the disbudbed single stems usually forming plenty of large clusters of fruit. In many instances where there is a great body of old heating material in a frame, the best results attend the practice of first establishing a single plant in a 12-inch pot, allowing the roots to subsequently root out into the soil and manure underneath. Treated in this manner grossness is prevented, and one plant to each light, thinly trained, yields fine crops without much extra attention. On warm, sunny days the lights may be drawn clear off the pits and frames

and put on again towards evening, this ensuring a perfect set of fruit. The lights ought always to be on in wet weather, or otherwise the plants may become badly diseased, and the same result may attend a too free use of the syringe or overhead waterings. Any of the smooth round-fruited kinds will set nearly or quite as well as the ribbed varieties in pits or frames, especially if freely ventilated.

CAPSICUMS AND CHILLIES.

If a number of these have been duly established, either singly in 4-inch pots or in threes in 5-inch pots, they ought now to be gradually hardened off, and early in June be planted out thinly on a fairly rich, sunny border. Being kept well moistened at the roots, especially at the outset, they ought soon to grow to a good size and produce an abundance of fruit, no stopping in any way being necessary. There is, however, a greater certainty of ripening the bulk of the fruit in frames, the plants being put out in succession to Potatoes or in quarters specially prepared for them. They ought to be planted at least 15 inches apart each way, and be kept rather close for a time or until well established.

W. I. M.

Blanching Asparagus.—Although my words are correctly quoted by "Rho" in *THE GARDEN*, May 17 (p. 435), he yet entirely misapprehends my meaning. Because I asserted that the points or heads only are eaten, it does not follow that the rest is stringy and tough. On the contrary, I am well aware that the reverse is the case with much of the blanched Asparagus that is grown quickly, and not kept too long before it is cooked. What I stated in *THE GARDEN*, May 5 (p. 388), I am prepared to abide by, and repeat that in many instances very little beside the delicate points are eaten in the dining-rooms of the wealthier classes, not, however, because these only are fit to eat, but they are the best portions, and a great bulk is not needed. The only, or at any rate the principal, advantage gained by moulding up is the preservation and enlargement of the heads till such time as each shoot is long enough to be cut. Those who prefer several inches of unblanched growth gain this at the expense of the points, these commencing to run out as soon as the light and air are reached. That the French excel in the production of Asparagus I readily admit, and I "soothe my vanity" with the thought that if English gardeners could afford to devote as much time and space to its production as we have it on good authority is the case in France, our Continental rivals would not long have the upper hand.—W. I. M.

MARKET GARDEN NOTES.

THIS is a busy month in every part of the market grower's grounds, the backward season, that rendered the accomplishment of a good deal of work impossible during the ordinary season, having brought a press of work into the usually busy month of May. Taking a general survey, I should say the season is quite a month later than ordinary, and we have not had an early spring for some years.

SPRING CABBAGES are only just coming in and they are still small, but realise good prices, and those who have any that have formed hearts are clearing the ground so as to get another crop in as soon as possible; in fact, many already have the rows intercropped with Potatoes, the Cabbages having been pulled up and the soil forked up between the lines of Potatoes. Of course, the land must be in good condition to finish off two crops well, but manure is liberally applied whenever the ground is cleared for cultivation.

GREEN ONIONS—always a saleable crop at this time of year, large breadths of White Spanish being sown early in autumn for using in a green state—are now growing rapidly, and when tied in bunches realise a ready sale.

CABBAGE LETTUCE of the hardiest kinds are sown thinly, so as to allow them to remain where they are sown until pulled up for use, and they generally realise better prices than the larger ones that have been transplanted, but that, owing to the check, come in later. A sheltered position, such as

the south side of a good thick hedge, is the best place for these crops, and if the soil is stony the plants will withstand the frost, while those on close, retentive soil will be killed. Sowings of these useful Lettuces are being made now, but when procurable the White Cos varieties are generally preferred.

ASPARAGUS is now yielding freely, although, in general with other crops, is very late in making its appearance. The planting of fresh beds is now all but completed, the month of April being the most favourable for transplanting.

FRUIT PROSPECTS are generally good. The bloom on Pears, Plums, and Cherries is exceptionally fine, and being so late in expanding, it can hardly be that frosts will mar the hopes of the growers. Should we get a continuance of warm weather now, a good crop of fruit may be confidently relied on. Bush fruits promise well where the birds did not carry off the buds, but owing to the late spring green Gooseberries will be very scarce at Whitsuntide, for here on the south coast they are only just set.

FLOWER ROOTS are every year becoming more and more a part of the market gardener's products. Wallflowers, Daisies, Pansies, and a host of other things that can be taken up and transplanted when coming into bloom, appear to increase in popularity every year, and they can be grown by market gardeners without much loss of space, as they are just at home under the partial shade of fruit trees and bushes.

CUT FLOWERS, tied in bunches, are also gaining in popularity, the homely Wallflower being one of the most popular, while single Violets are very extensively grown for bunching. The Czar is the variety mostly grown. Bulbs, such as Narcissi, both single and double-flowered, are to be seen in nearly all market gardens, and the fact is, fruit and flower culture go well together. J. G. H.

CHRYSANTHEMUMS.

E. MOLYNEUX.

SOIL FOR FINAL POTTING.

THE time is fast approaching when the plants will require to be transferred to their flowering pots. The preparation of the soil for this final potting demands considerable attention where a large number of plants is grown, as it is unwise to delay the potting of the plants after they are quite ready and the pots well filled with roots. The soil should be of a good kind, but the best compost that can be obtained is useless unless the watering and general management afterwards are correct. It is a mistake to suppose that the soil must be prepared and stacked for six or twelve months previous to using it. No absolute rule can be laid down as to what mixture is the best, as soils differ so much in nature in various parts of the country. I will endeavour to make this part of the subject as clear as I can so as to suit various localities, just describing the different ingredients used.

Loam, as it is called, is composed of the top spit of an old pasture cut according to the depth of the fibrous roots of the Grass. In some places it may be cut 3 inches deep, and in others 1½ inches will be enough to obtain all the fibrous parts, as much depends upon the time the pasture has been laid down. It should be cut some time previous to using, just long enough for the Grass to decay, but preserving the fibrous roots intact. Loam, as described, will form the staple of the compost, and in some districts is hardly obtainable of this quality. Many growers of Chrysanthemums have to put up with a very inferior class of soil, and such men are, therefore, of necessity heavily handicapped as compared with those who have a large estate to select from. If the turf is light in character and cut from where the land is of a sandy nature, ground oyster shells

should be added; but if the turf is taken from a district where chalk and limestone abound, oyster shells will not be needed, as the soil already contains too much lime for the welfare of the plants. My experience is that soil highly impregnated with lime is the worst that can be obtained for Chrysanthemums. The foliage during the summer cannot be kept of such a deep green character as where the loam is composed of other chief parts. Charcoal is of great assistance in keeping the soil in the pots porous, and acting as a storehouse for ammonia. If the turf is of a retentive character the soil should be sifted to remove the finer portion, as this prevents a quick passage of the water when applied copiously. Those growers having a rather light soil at disposal are much more favoured than those who have to depend upon soil which is of a clayey nature, and, consequently, much more retentive. The moisture does not escape so readily as it does when the compost is lighter in character; consequently feeding the plants afterwards cannot be so frequently and safely carried out as in the case of light and porous soils.

Manure is the ingredient second in importance and must be applied in some form or other. Well-decomposed cow manure is often recommended. This is wrong, because what beneficial properties can there possibly be in entirely decomposed manure? It is the same with decomposed hotbed manure. I do not approve of cow manure in any shape being used with soils of a heavy nature. I consider it most injurious, being too close in nature and far too binding. The best manure is that prepared as if for a Mushroom bed, shaking out more of the straw than would be required for the growth of Mushrooms, and retaining little but the droppings. It is thus sweetened whilst most of the ammonia is retained. This is the best manure to employ for both heavy and light soils. Finely ground bones are better than half-inch bones, as the latter do not give out their manurial properties sufficiently during the short period in which the plants make their final growth and bloom. Dissolved bones are also beneficial when used in proper quantities. Soot is a powerful agent when cautiously applied, but when used excessively it has a most injurious effect upon the plants. I have seen plants which have lost all their leaves and others presenting a very sickly appearance through the misuse of soot.

Lime in a quick state is useful for the destruction of worms, and every means should be taken to destroy these. The best time to add lime is when the soil is being prepared for potting, a handful occasionally during the operation being all that is required. I find this is the best method in order to destroy small worms in the soil. I would advise caution to be observed when applying lime to soils already charged with it, but for those of a sandy nature no harm will accrue through using the quantity advised. Some discretion should be exercised in the use of sand, as very little will be needed where the soil is of a sandy character; but when of a close retentive nature a liberal allowance should be added, which should be coarse and gritty. Clean, coarse silver sand is the best. Leaf-mould in a half-decayed state is an excellent ingredient to add, more especially in the case of heavy, retentive soils, as it is of great assistance in keeping the whole mass porous.

I will now give as nearly as I can the necessary quantity of the materials I have described. To be precise, I purpose taking the two cases in hand—heavy and light soils—and giving the details required in each composition. Taking first the case of heavy soils, I would advise as

follows: Three parts of fibry loam broken up roughly, taking out the fine soil, one part of horse manure, one part of half-decayed leaves, one part of coarse silver sand, one part of charcoal and wood ashes, the former to be used in a rough state about the size of small Walnuts, and one-fourth part of dissolved bones. Add a 6-inch potful of soot to every 4 bushels of soil.

Where the loam is light in texture, use four parts as fibry as possible, adding two parts of horse manure, one part of leaf-soil, half a part of coarse silver sand, the same quantity of ground oyster shells, half a part each of finely-crushed and dissolved bones, and the same quantity of soot as advised for the heavier soil. Thoroughly incorporate the various parts, using all as roughly as possible.

The action of mixing reduces the parts considerably; therefore, if the turfy loam and other ingredients be chopped small at first, the mass becomes too fine through frequent turning. Where the collection of plants is large and a quantity of soil is required, it is well to mix the compost at once for the whole, choosing a fine day. If done out of doors, protecting the soil from rains is necessary.

SHORT SEASONABLE NOTES.

As a reminder to Chrysanthemum cultivators, I will jot down a few short seasonable notes of some of the details which require attention at the present time. At this busy season of the year Chrysanthemums often get neglected when other work presses heavily. But these plants need considerable attention now if success is to be gained. Most growers decide about now the number of plants they purpose cultivating. Generally at the time the plants are receiving their third shift into 6½-inch pots any not required for growing on are planted out on any spare open piece of ground about 2 feet apart all ways. If these are restricted to about four branches they will produce useful cuttings early in August to furnish dwarf plants for flowering in small pots, one stem to each. At this time some varieties throw up suckers from the base of the plants. In the case of new or scarce sorts, such cuttings, if inserted singly in small pots, kept close in a cold frame and shaded from hot sun, quickly form roots, and if transferred to 6-inch pots finally and the growth is restricted to one stem they will produce a useful bloom upon each. Such plants will give an abundance of cuttings during next season.

Some of the plants which are restricted to one stem with the object of producing large blooms are now making what is known as the first break; the formation of the first flower-bud causes new growths to start from each joint. When it is intended to allow the plants to grow in a somewhat natural manner—that is, to make their own breaks—the strongest of the growths at the point of each should be limited to three in number, removing the remainder. As the shoots grow, secure them loosely to a stake to guard against accident.

Good examples of the variety Eve and its sport Mabel Ward are very seldom seen. Where they can be had in good condition they are very telling on a stand. The best way to ensure good flowers of these varieties is to grow the plants with one stem until the middle of May, then top them and select three of the best shoots. From these three branches rub off all side shoots as fast as they appear, and “take” the first buds produced, which are early crowns. Specimen plants will need attention now in topping the shoots as fast as necessary.

Standards will need attention where they make their first natural break before the desired height is obtained, in the restricting of the growths to a single stem until the latter becomes of the necessary height, removing all other side growths as they appear.

Bush plants when required of large size should

have the growths topped with the object of having the plants dwarf as well as large in diameter.

Insects—as green-fly, thrips, and mildew—need constant watching and instant remedies to eradicate them before any harm is done.

GARDEN FLORA.

PLATE 650.

THE SCARLET SPURGE.

(EUPHORBIA JACQUINÆFLORA. *)

THE subject of the illustration this week is one of the most conspicuous among a numerous family, and is met with under more or less successful cultivation in many of our gardens. When well grown under favourable conditions, it is one of the best winter-flowering plants that we possess. Its blooming period being the duldest season of the year, renders it all the more valuable. It is not, although introduced into this country from Mexico in 1836, nearly so well known or grown as it should be. This arises, no doubt, from its requirements not being so well understood as in the case of many other plants now cultivated. To commence with propagation, which will not unfrequently result in failure at the outset, but, nevertheless, must not discourage, I will endeavour to detail my mode of culture. I like to secure cuttings during the latter part of March onwards to June, as may be most convenient or suitable at the time. Last season I succeeded better than usual in propagating it; this year, so far, not quite so well. This partial failure impresses me with one fact in its increase by cuttings, and that is the necessity of thoroughly exposing the plants to all the light and sunshine that can be afforded them prior to the cuttings being taken off. This should be done when the young growths are about 3 inches or 4 inches in length, securing a heel to each cutting, inserting five or six in a small pot with sufficient room between each to allow of a fair amount of soil to every young plant. A light soil with a liberal addition of silver sand is good for propagation, pressing each cutting firmly in its place and at a good depth. Unlike many plants raised successfully in the propagating pit with an abundance of moisture to sustain their vital functions during the time from inserting the cutting till rooting has fairly commenced, this Spurge does not relish this excess, and if not guarded against will tend to failure. I would recommend propagation, where possible, to be done under bell-glasses or hand-lights placed in a warm house, where the cuttings can be shaded and watered as may be found necessary. The moisture arising from a large amount of plunging material is not congenial to their well-being at this early stage, nor indeed is it requisite at any later period of their culture.

When well rooted each young plant should be potted singly into a small pot, and again shifted into a larger size as growth proceeds. Six-inch pots will be sufficient for the first year from the cutting, and each plant should be well established by the end of August to ensure success in flowering during the following winter. As previously hinted, exposure to all the light possible when well rooted is needful to secure well ripened wood that will produce flowers of the longest duration. I was impressed with this fact during the past autumn and winter. Through having a good stock of young plants I turned two out in a newly made up bed for Gardenias, where they made fresh lateral growth and flowered

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THE SCARLET SPURGE (*EUPHORBIA JACQUINIÆFLORA*)

freely, apparently equal to others in pots, but with this important difference, that when used in a cut state, those sprays taken from the pot plants having well ripened wood were fresh at the end of a week; whereas those from more recently made autumnal growth withered in a few days. This clearly shows the necessity of securing well-ripened wood during the early autumn months, aided by a moderately dry atmosphere and a somewhat high temperature. I have seen a good stock of plants, in every way promising, grown on a shelf at the back of a Pine stove; in fact, they were among the best I have seen. For want of such a position for them they can be grown very well with the stock of Poinsettias (their close allies), but where the opportunity is afforded I would always prefer a slightly higher temperature. That a drier course of treatment is needful to success than that which is accorded to stove plants in general we have only to consider the climate of the country from which this *Euphorbia* was introduced. The dry seasons there no doubt greatly enhance the floral beauties of the plant.

Plants of this Spurge can be grown on successfully for three or four seasons, but a young stock of at least a few plants should be propagated annually. Throughout their season of growth I recommend firm potting, choosing good peat and loam for that purpose, or leaf-mould as a substitute for the former if of good quality. This variety can also be grown successfully planted out in a pit. In this manner I have seen it luxuriating and yielding numbers of its racemes; in fact, those of which I am now thinking were about the best I ever saw, being grown by that able cultivator, Mr. Baker, when at Coombe, near Kingston, Surrey. When plants are grown on this system a more robust growth will generally be attained, with a proportionate yield in flowers. These will be found exceedingly useful in a cut state, thus saving that on the stock of pot-grown plants for other uses. The latter when placed in their winter quarters should be kept as near the glass as possible, and at the driest end of the stove, or at least sufficiently dry at the root to prevent lateral growth to the detriment of the flowers. After the flowering season is over the plants may be more thoroughly rested for a few weeks before being again started for cuttings. When enough of these have been secured the plants should be pruned moderately hard according to the strength in each individual case. Pot plants grown on will need slight reducing of the soil, as with Poinsettias, while for those planted out a top-dressing if the drainage is in good order will be sufficient.

Its uses are not confined to the stove only, for when in good bloom plants can be taken to the conservatory, keeping them when there slightly drier at the root. Thus used they will produce a good effect, their informal growth and elegant arching appearance contrasting well with the too neat and prim character of many subjects, especially such as have been tortured by severe training. In a cut state I find them most useful for vases in the house, keeping, as previously stated, so well when properly treated. They look well in combination with white flowers, better than any other colour, white Roman Hyacinths in particular. Tiny sprays of flower are useful, too, for button-holes, the leaves connected therewith being an excellent background, and as good as can be chosen. *Euphorbia splendens* is another species (of easy culture) well worth growing in any collection of plants. It is more accommodating as regards temperature. I grow it in a house that frequently falls as low as 40° during cold weather and grown therein is now (May 12) in full

flower. Its armour of stout, sharp thorns is somewhat formidable, especially when due care is not exercised in handling the plant. This species has come under my notice more particularly when grown near the sea-coast; there it assumes quite a robust character, so much so that it might be taken for an improved variety; in fact, it has been so called, but I am inclined to attribute this improvement only to the surroundings being more congenial to its well-being. This was introduced from Bourbon about 1826, and is a plant I can recommend with confidence to the amateur cultivator as an excellent addition to his collection, for with a fair amount of care failure would be hardly possible.

J. HUDSON.

STOVE AND GREENHOUSE.

T. BAINES.

YUCCAS.

SEVERAL of the greenhouse Yuccas are well-known plants. They all more or less partake of the habit of growth present in *Y. gloriosa*, the species that is grown out-of-doors, and is hardy in some parts of England. The different species are slow growers, with more than ordinarily persistent leaves that will keep in a healthy state for a number of years. In most of the kinds that need keeping out of the reach of frost in winter, the leaves, as they gain age, droop gracefully, a condition that adds much to the appearance of the plants. Their erect, elegant habit of growth makes them effective when associated with flowering subjects, or others that are of a bushy, close-growing character. In large conservatories they can be used with the best advantage, especially in such as are deficient in light, which is often the case, particularly when attached to dwellings. It is in houses of this description that the Yuccas are particularly useful, owing to the fact of their thriving with a less amount of light than many things require. Not but that Yuccas like light, especially during the summer when making their growth, and are much better for having all that can be given them, but through their ability to bear indifferent treatment, they succeed where most plants would fail. When to be used in exceptionally dark houses it is a good plan to allow the plants to make their growth in a good light structure and to make them do duty in the winter in the dark quarters, as through their being at rest during this period combined with the hard texture of their leaves they do not suffer by being so employed. The variegated kinds are particularly adapted for using in the way described, as the bright colour of their foliage helps to enliven a dark position; of these may be named such sorts as *Y. aloifolia* variegata, *Y. Stokesi*, and the small-growing *Y. quadricolor*.

Yuccas are increased by suckers and by cuttings, but the former are only produced sparingly, and through the plants keeping extending with a single branchless stem they do not afford much that is available for cuttings. It is only as the plants get old and become bare of leaves at the bottom that they furnish much material to propagate from; hence they are proportionately scarce. The suckers, which do not appear until the plants get strong, spring from a little below the collar in the shape of thick, fleshy protuberances that grow very slowly, and are a long time before they produce leaves. If they are cut away from the plants when they have attained 3 inches or 4 inches in length and are then potted and put in moderate warmth they will emit roots and form leaves. It is well to keep them in a growing tempera-

ture for at least two years, otherwise the progress made will be slow. All that is further required is to give larger pots as the roots fill the soil. Good ordinary loam with some sand is the best soil to grow them in. The quickest way to increase the plants is when the specimens get old and have a considerable length of bare, leafless stem. If plants in this condition have their heads removed at from 12 inches to 24 inches from the top, all the remaining stem below, including such portion as may be yet furnished with leaves, can be made into cuttings, as there is a dormant eye at the joint where each leaf has sprung from. If the stem is cut into pieces about 1 inch or 1½ inches long, these will make roots and form a stem. The cuttings may be put an inch or two apart in large seed-pans, drained and half filled with a mixture of sifted loam and sand, the top all sand. Insert the cuttings half their depth in the sand and put them in a warm stove. Do not cover them with propagating glasses, as from their somewhat succulent nature they would be liable to decay if kept close. After the tops have got half a dozen leaves each, move them singly into 5-inch or 6-inch pots, and keep them in heat for a year or two longer, as if not pushed on in a growing temperature for several years the plants are a long time before they make much headway. Whilst in the stove, they should be stood in a light position not far from the glass, and have a little shade in the middle of the day during summer. All that is further required is to give more pot-room as the plants increase in size. When once well established, manure water may be given frequently through the growing season. Manurial stimulants, especially in a liquid state, have a marvellous effect on the growth.

The tops that have been severed from the old stems in the way described will, if treated as cuttings, soon form roots and make large handsome specimens in a little time. During the time the tops are rooting they must be kept closely shaded, and the air not allowed to get dry, otherwise the lower leaves will perish before enough roots are present to support the plants, in which case their appearance will be spoiled. After they are established it will be well to keep them in a little heat through the winter following. The most useful kinds to grow are *Y. aloifolia* and its variegated form, *Y. aloifolia* variegata; *Y. Stokesi*, a medium growing kind with highly coloured leaves that are less drooping in form than those of *Y. variegata*; *Y. quadricolor*, a small, slow-growing sort with a good deal of red in the leaves.

Preserve your hot-water pipes.—The following method of treating hot-water pipes for the summer is recommended by an old boilermaker: Place a gallon of oil in the expansion tank and then draw off the water; as the water flows away, it will leave a coating of the oil on the inside of the pipes through the entire system. Then refill the pipes with water and keep them full.—*American Florist*.

Golden Star Tulip (*Cyclobothra pulchella*).—This Californian bulb, known also under the name of *Calochortus pulchellus*, forms a very pretty object when grown in pots and employed for the embellishment of the greenhouse at this season, as it can be flowered in a very satisfactory manner in this way, for it is far less fastidious in its requirements than most of the Butterfly Tulips (*Calochortus*). If the bulbs are obtained in the autumn or winter and potted in rather sandy loam, lightened if necessary by an admixture of peat, they should be placed in a cold frame and kept slightly moist during the winter. When they commence to grow in the spring the quantity of water must be increased, when the flowers will soon make their appearance and remain in beauty some time. They are of a very singular shape and of a beautiful clear yellow colour, while

they are gracefully borne on slender drooping stalks. The bulbs may be grouped in any way that is desired, but perhaps the most convenient is to put eight or ten bulbs in a 5-inch pot, as in this manner they form an effective little specimen, while they are then very convenient for shifting wherever desired.—T.

WORK IN PLANT HOUSES.

GREENHOUSE.—LILIES.—The different kinds of summer-flowering Lilies that are grown in pots will be growing fast, especially old-established plants of *L. auratum*. Everything that can be done to secure a strong, robust condition of the growth should be attended to. Supposing that the plants have been kept in cold pits or frames, with their heads close to the glass, and a due amount of air given them from the time they commenced to grow, they will have made considerable progress. They may be stood out of doors, as, after this time except where the object is to get them into flower without delay, they will be better outside than if kept under glass. Previous to turning them out, put a neat stick to each stem for support, being careful in thrusting it into the soil that the bulb is not injured. An open, sunny place should be chosen for the plants. The pots should be plunged in a bed of coal ashes; this answers the twofold purpose of preventing worms getting into the soil and of keeping the roots in a condition more in accordance with their requirements than if the pots are exposed to the drying action of sun and wind. In addition, a good deal of labour in watering is also saved. As the soil gets full of roots, weak manure water may be given once a week. This especially applies to plants of *L. giganteum*, as, from the size this Lily attains when well managed, it requires a good deal of support. The early growth of this fine species is liable to injury from cold, frosty winds in spring when it is grown in the open ground; consequently, except in situations that are particularly adapted to it, there is more satisfaction in growing it in pots. If this species is stood out of doors, a sheltered place must be chosen for it, or its large leaves will suffer from being blown about by the wind.

LATE SUMMER-FLOWERING LILIES.—The late-blooming kinds, of which the different varieties of *L. speciosum* may be set down as the most useful, should now be plunged out of doors. In all cases see that the stems are supported by sticks early enough before they have got drawn to one side. If this occurs the leaves will not regain their right position. A good look-out must be kept for aphides, as these parasites, if allowed to remain on the plants for only a short time, will cause the lower leaves to turn yellow and die off before the blooms open.

CYCLAMENS.—Young stock raised from last summer's sown seed should now be pushed along without delay, for on the plants attaining sufficient size and strength depends their ability to flower well. To do justice to these Cyclamens, they should be grown through the summer in a small house or pit by themselves, and be treated more like intermediate subjects than cool greenhouse plants. Yet to do this there is no necessity for fire heat after this time, as by giving somewhat less air than the generality of greenhouse subjects require, and by keeping more moisture in the atmosphere, the conditions requisite to get size and strength into the plants will be obtained. The pots should be stood on moisture-holding material of some kind, and the heads should be kept well up to the roof, as plenty of light is necessary to make the leaves strong and compact. Still the foliage does not bear the sun, which, if allowed to come in full force on it, is so far injurious that the plants make indifferent progress. Shade must be used whenever the sun is on the glass.

PLANTING OUT CYCLAMENS.—Young plants grow faster when planted out in frames or cold pits from this time through the summer than they can be induced to under pot culture. Another advantage in treating them in this way is, that their leaves being in close contact with the damp earth are less liable to suffer from their two worst enemies, red spider and aphides, either of which if allowed

to gain a footing soon do much mischief that cannot afterwards be set right. When to be grown in this way the frame or pit should be filled with suitable soil sufficient to raise the plants near enough to the glass, otherwise they will be wanting in the close, compact condition of growth which is alike essential to their well-being and good appearance. For the same reason, anything approaching overcrowding must be avoided, and sufficient room should be given to admit of their standing clear of each other up to the time in autumn when they are to be taken up and potted. This operation does not, as might be supposed, interfere with the flowering or general condition of the plants, as the roots take so freely to the soil given them in the pots that the removal cannot be detected. The present or any time during the next month is suitable for planting out.

SHRUBBY CALCEOLARIAS.—The yellow shrubby bedding varieties of Calceolaria, such as the old *aurea floribunda* and *Golden Gem*, are not now so much grown in pots for greenhouse and conservatory decoration as they used to be or as they deserve. If account is taken of their colour, which is scarce amongst pot plants, and of the continuous way they keep on flowering all through the summer, there will be little hesitation in pronouncing them much more useful than the herbaceous varieties. One advantage connected with these shrubby kinds is, that with a limited amount of attention the plants will go on increasing in size and in the quantity of flowers they annually produce, whilst, from the fact of their requiring to be cut close in in autumn, they occupy little room in winter. They need to be partially shaken out of the old material early in spring and repotted in good new loam, to which some rotten manure and sand have been added, giving increased pot room as the specimens become larger. This, with attention in watering and keeping them free from aphides, is all that is requisite to maintain the plants for years in a healthy state. The present is a good time for potting up autumn-struck plants, and 7-inch pots will in most cases be large enough for the first year. If they have already had their tops pinched out little further stopping will be necessary, as these Calceolarias are naturally bushy growers.

KALOSANTHES.—These plants will now be pushing up their flower trusses. Keep them in a house or pit where there will be no stint of light. A sufficient number of sticks should be used to support the shoots, without which the heavy flower heads will bend them down. Weak manure water should be given once a week, and see that the plants are free from aphides, to which they are somewhat liable. The insects do not thrive on Kalosanthos so well as on most things they attack, but they are much worse to kill by fumigating, or any method of destruction I have tried with them than on any plants I know; consequently, whatever remedy is adopted must be followed up diligently until the whole are destroyed, as if allowed to remain on the plants the flowers will be crippled, so as to be worthless. Young examples struck from cuttings put in early in the spring will now be rooted so as to require potting off. Turfy loam with a little sifted rotten manure and some sand is a suitable compost to grow them in. If the plants are only wanted for ordinary decorations and required to bloom a year hence, from four to half-a-dozen may be put together in 6-inch pots, and there must be no attempt to stop the shoots, as if this is done the growth which is made afterwards will not get strong enough before autumn to enable it to bloom. Where time is not an object single plants will be better, and these may be put in pots a size less, and have their points cut out, so as to cause them to break and produce several shoots. Later on they will need pots a size larger. A cold frame or pit is now the best place for them, where they will be exposed to the full sun. Stand the pots on coal ashes, or some other moisture-holding material, giving air in the daytime after the roots and top-growth have begun to move freely. Larger plants that are intended to bloom next summer, if not already in the pots they are to be grown on in during the present season, must be

at once put in them, as in the course of four or five weeks they will require to be stood out of doors. Without a long season of exposure to sun and air there is no certainty of their blooming freely. Give pots proportionate in size to the strength of the plants. Kalosanthos are very free rooters, and will bear more room than is often given them, which they will amply repay in the increased size and strength the plants attain and the proportionate increase of their flowers.

HELIOTROPES.—Large old plants are the best for blooming in winter where there happens to be plenty of room to accommodate them. With fair attention they may be kept in good condition for an indefinite time. Plants of this description that have flowered in a little warmth during the spring should now have their branches shortened well back, and be stood in a house or pit, where they can be kept a little close, so as to encourage them to break. Do not give too much water to the soil for a few weeks after the cutting in until the new growth has made some progress, to assist which syringe overhead daily. As soon as the young shoots have grown an inch or two, turn the plants out of the pots and reduce the balls to about half their size, being careful not to destroy too many roots. Replace them in the same pots if these are considered large enough; if not, give others larger in proportion to the size the specimens are wanted to attain. Keep them under glass in a moist growing atmosphere until the roots have begun to move freely, after which they will be better out-of-doors. The flowers should be pinched off as they appear. Smaller examples are very useful for blooming late in autumn. Young plants should now be prepared for the purpose. Cuttings struck last autumn if put in 6-inch or 7-inch pots, and treated as advised for the larger specimens, will come in very useful in the latter part of the year. T. B.

The double Deutzia.—Whether flowering at the present under glass, or as a shrub in the open ground later in the season, *Deutzia crenata* fl.-pl. is remarkably handsome, as not only are the individual blooms very beautiful, but they are also borne in the greatest profusion and last in perfection much longer than most of their class. It is not available for forcing to the same extent as the little *Deutzia gracilis*, which may be had in bloom soon after Christmas, while its larger relative cannot be depended upon to flower until April is well advanced. Anyhow, it forms a grand object for the conservatory just now, and in addition the small spikes of charming blossoms are very useful in a cut state. If planted out as a single specimen it naturally forms a rather upright-growing regularly-shaped bush, from which the knife should be kept altogether, except to thin out any of the exhausted wood which may become overcrowded. There is a form known as the *Pride of Rochester*, but whether it differs in any marked manner from the commoner one I cannot say, as I have not yet flowered the newer introduction.—H. P.

Calceolaria Souvenir.—I was much impressed with this Calceolaria when I recently saw it at the Swanley Nurseries, and again at the last meeting of the Royal Horticultural Society. It is, I believe, of Continental origin, and it has in its constitution a good deal of the shrubby type. It is wonderfully free, throwing up not only a profuse head of bloom, but lateral flower-stems also, and it appears to be very continuous in flowering. The flowers, which are produced in the form of large bold trusses, are of a clear, pale golden yellow colour, not by any means perfect in form, but that is compensated for by the freedom with which they are produced. As a decorative plant during April and May it is of great value, and because of its good habit, erect growth and free-flowering character, it should make a good market plant. I think it is likely to become popular when it is better known. Perhaps the floral committee of the Royal Horticultural Society are too apt to look at a plant of this kind from the strictly florist's point of view, regarding too much the shape of the blossoms, but taking little heed of

its other obvious good qualities. It is readily increased by cuttings and they both strike and grow freely.—R. D.

PROPAGATING.

CYTISUS.—The greenhouse varieties of these showy plants are propagated in various ways. In the first place, the neat little bushes that are brought into Covent Garden Market so largely at this time of the year and earlier are propagated by cuttings put in about this season. The cuttings are produced by plants that have been a little shortened back after flowering, and kept a little closer and warmer than usual. The result of this treatment is that they will quickly become studded with young shoots, and when they are about $1\frac{1}{2}$ inches to 2 inches long, they are then available for cuttings. They strike best in very sandy peat, the pots prepared for their reception having been previously thoroughly well drained. The cuttings should be covered with a bell-glass till rooted, but after a pot is completed and a thorough watering given (but with a rose so fine that no cuttings are disturbed), the bell-glass must not be put on until the foliage has dried off somewhat, for the silky leaves are very liable to decay if the water is allowed to remain on them for any great length of time. The after treatment will consist in taking off the glasses every morning and wiping them, removing at the same time any signs of decay should it make an appearance. The structure in which the cuttings were grown previous to separating them from the parent plant will suit them well until rooted. Besides propagation by cuttings, seeds of this *Cytisus* are readily obtainable, and plants can be easily raised therefrom. Of course, they will not flower in such a small state as those propagated from cuttings, but they are preferable when large plants are required. The pendulous-growing *Teneriffe Broom* (*Cytisus filipes*) will strike from cuttings, and it can also be grown from seeds, but it is more effective when grafted standard high either on a clean young *Laburnum* or common *Broom*. An important feature to the propagator between the garden variety *Everestianus* and the ordinary form of *C. racemosus* is that the latter variety, in which the flowers are somewhat deeper in colour and the leaves rather more silky than in the commoner form, is much more difficult to strike from cuttings than any of the others. Of the hardy kinds of *Cytisus*, the better forms of the *Laburnum* are grafted or budded on to seedling stocks of the same species; while the common *Brooms* can be raised to any extent by means of seed. Exception must be made in the last instance in the case of the pretty sulphur-flowered variety usually known as *C. præcox*, for seedlings therefrom cannot be depended upon to perpetuate the true kind, as many of them revert to the typical white *Broom* or to the tinged form of it known as *incarnatus*. Such being the case, they must be raised from cuttings, which should be put in either early in the autumn or in the spring, and sheltered by a frame until rooted.

POINSETTIAS.—By most cultivators these are kept rather dry and comparatively cool after flowering, so that the plants have then a season of rest, and when required for propagating purposes they are put into a somewhat warmer structure. They are kept a little moister, the result of such treatment being the production of a large quantity of young shoots, which may be utilised for cuttings, as they strike root readily. Occasionally they are propagated by cutting up the old wood into single eyes, or sometimes leaving a couple of joints, but by far the most satisfactory treatment is to take cuttings of the young growing shoots. The most suitable time to take the cuttings is just as the young shoots are from 3 inches to 4 inches long, when they may be taken off at the base and inserted singly into small pots filled with light sandy soil. As the *Poinsettia* is of such a succulent character I have heard the advice given to allow the cuttings to remain a little time untouched after separation from the parent plant, in order that some of the superabundant sap may be got rid of. The advantages

claimed for this treatment are that the cuttings are not nearly so liable to decay thus treated as they are if put in at once, but I fail to see the merits claimed for it, as if care is taken in using the water-pot but little loss from decay need result. After the cuttings are put in they should have a good watering through a fine rose, and be afterwards plunged in a gentle bottom-heat in a moderately close propagating case. It is far better to water them in this way and allow the pots to drain than it is to put them in the close case and water them there, as the superfluous moisture will tend to stagnate the atmosphere of the case and produce decay. At no time must the cuttings be kept too close, and more particularly should this be guarded against just as they commence to root, for if left only for a few days after they are struck in the propagating case they soon become drawn and weak, while the whole object of the cultivator should be to encourage a sturdy growth.

JASMINES.—Nearly all the members of this genus are very popular plants, and one of the most common questions on propagating matters is, How shall I strike cuttings of the hardy white *Jasmine*? Where there is a frame at hand that can be kept rather close and shaded I should say put the cuttings in it about the month of August, when they will commence to root before winter, but where there are not such appliances they can be put in a sheltered border during September or October. Like all cuttings that are put in the open ground they should be at least a foot long, and buried for three parts of that depth, otherwise dry harsh winds will injure them. Where an established plant exists, and but two or three young ones are required, a very good plan is to layer a few of the branches that are the most favourably situated for that purpose. The stem must be partially cut through, and the knife brought upwards for a couple of inches in order to form what is known as a tongue, as the partial arrest of sap caused by this mutilation will cause the formation of roots. The other hardy kinds can be propagated in the same way as that recommended for the white *Jasmine*. Of the tender kinds, the one that has attracted the greatest share of attention within the last few years is the beautiful sweet-scented *J. pubescens* or *gracillimum*, and this is one of the easiest of all to propagate; for not only do cuttings of the young shoots strike well, but suckers are also pushed up occasionally, which may often be detached with a few attendant fibres. These quickly form plants, while yet another mode of increase is by means of cuttings of the roots. These may be taken during the spring and early summer months, and if cut up into lengths of an inch or more and dibbled into pots of sandy soil they quickly form plants. The other tender kinds, of which the most commonly grown is *J. Sambac* and its double variety, strike well from cuttings under the same conditions as the majority of stove plants. In common with many other things, an important item is the selection of the right sorts of cuttings, as if they are formed of shoots that show a tendency to flower they will often stand a very long time without growing, sometimes even after they are rooted. Such being the case, it is necessary to use the young growing shoots as cuttings, but they must not be too succulent, neither should they be formed of the very stoutest shoots, as they are apt to decay, the best for the purpose being the short sturdy side branches.

AMPELOPSIS VEITCHI.—This can, if required, be propagated freely from cuttings of the young growing shoots taken when they are sufficiently advanced. After being dibbled into pots of open sandy soil keep them in a close frame until rooted. This system possesses one great advantage, viz., that the cuttings may be potted off as soon as rooted, and will be by the winter thoroughly established plants in small pots. Even then the most satisfactory method is to keep them during the first winter in a frame just to protect the young plants from very heavy rains, which often injure them when small.

CHILI JASMINE (*Mandevilla suaveolens*), whose large pure white *Convolvulus*-like blossoms make

such a show in the greenhouse towards the latter part of the summer, will strike readily at this season from cuttings of the young growing shoots taken off and inserted after the manner of *Fuchsias*. The treatment accorded them will be about the same as that given to these common plants, and as in the case of most subjects propagated from cuttings during the growing season, the plants should be potted off directly they are rooted, and encouraged to make as much growth as possible before winter sets in.

STYRAX JAPONICA.—Having bloomed some few plants of this pretty white-flowered shrub under glass, I took some of the young growing shoots as cuttings and gave them the same treatment as a batch of greenhouse *Rhododendrons* that were inserted at the same time. The result is that the *Styrax* has struck well, and as it is readily propagated in this manner, it should from its merits as a flowering shrub soon become more common. The one thing against its being met with to any great extent for some time is the fact that the young plants grow very slowly during their earlier stages, so that they take a long time to reach the dimensions of a fair-sized bush. The cuttings that are produced under glass strike root more readily than those taken from a plant in the open ground; indeed, this remark will apply to most subjects.

PELARGONIUMS.—No time should now be lost in putting in cuttings of the show, French, and fancy class that are required for flowering early next season, as by striking thus early the plants may be allowed to grow away quickly, and a good sturdy habit is thus ensured. I do not mean to cut down plants that have not yet done flowering to supply the cuttings, but where a quantity is grown it is easy to take off a cutting here and there without injuring the plant. The best cuttings are not the flowering shoots, but the short, sturdy ones that are occasionally produced near the bottom part of the plant, and those around the outside that are consequently well exposed to the light are preferable to the weaker shoots towards the centre. A length of about 4 inches is a very suitable one for the cuttings, and as many leaves having been removed as is necessary for the purposes of insertion, they must be dibbled firmly into their cutting pots. The soil for the purpose may consist of loam, lightened by rather a liberal admixture of leaf-mould and silver sand. Several cuttings may be put into a pot 5 inches in diameter, and, at the same time, overcrowding should be avoided. After watering, the pots of cuttings should be stood on a shelf in the greenhouse or in some such spot, for, unlike most subjects, a light, open atmosphere is much better for the cuttings than a closer one, for, irrespective of the chances of decay, if kept close and moist the cuttings become weak and drawn. T.

NYPHLEA MARLIACEA.

A RESPECTED contemporary in noticing *THE GARDEN* plate of this says:—

The illustration, unfortunately, affords no means whatever of ascertaining what the affinities of the plant really are. It is a yellow Water Lily, and it is nothing more. Not even the disposition of the air-canals in the leaf and flower-stalks respectively is indicated, though a momentary inspection of these tubes with the unassisted eye would be sufficient to show to what section of the genus the plant belongs.

The very name and aim of *THE GARDEN*, one would think, would make it clear that giving botanical or microscopical sections of flowers was not part of its work. The aim of *THE GARDEN* is artistic and horticultural. Not only do we not regret the absence of such anatomical sections, but anyone who draws for us has instructions to draw only what he sees of the flower. Gardening has dignity and importance enough in itself to require journals purely for itself, and not in any way dealing with the wholly distinct science of botany. So much for ourselves. With what our contemporary does we will not concern ourselves, though we think it odd that the writer should ask for drawings show-

ing the disposition of the air-canals to enable him to see the affinities of a garden hybrid or variety!

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Cistus, Gum Cistus, Rock Rose.—Like the Sun Roses (*Helianthemums*), the Rock Roses are among the most beautiful of all open-air shrubs, though, unfortunately, there are comparatively few of the numerous species introduced that can be termed hardy in this country; indeed, it is only in the southern and coast counties that the few hardy kinds can be grown satisfactorily without protection. But these few are so charming when in bloom, that all gardens where they can be grown should contain them. The hardiest of all is *C. laurifolius*, and this can be grown as far north as Scotland. It is an evergreen bush of straggling growth with long green leaves, and bears in late summer an abundance of white, yellow-centred flowers, in shape like single Roses. It should always be planted in raised, dry places sheltered from cold winds. Where it thrives it reaches fully 6 feet or 8 feet in height. Next in point of hardiness are the following: *C. purpureus*, with large reddish purple flowers; *C. ladaniferus*, flowers large, white (the variety *maculatus*, with crimson



The Cretan Gum Cistus (*C. creticus*).

centres), height about 4 feet; *C. Clusi*, height about 2 feet, flowers very numerous, $1\frac{1}{2}$ inches across, pure white; *C. monspeliensis*, flowers white, height about 4 feet; *C. florentinus*, a variety of the last with white and yellow-centred flowers; *C. salviaefolius*, flowers white, foliage downy, height about 2 feet; *C. crispus*, flowers reddish purple, foliage distinct from that of others, being curled and wrinkled; *C. hirsutus*, flowers white, with yellow centres; and *C. creticus*, flowers purple, yellow at the base. These are a selection of the hardiest and most beautiful, and in warm localities in the south may be grown well on dry sunny banks directly facing south. When once well established, the plants will withstand drought perfectly, as they thrust their roots deep into the bank for moisture. When small it is advisable to surround the plants with large stones, which serve to keep the roots moist be-

fore they pierce the bank. If planted in a compact mass, the plants may be readily protected in winter by litter and mats during severe frosts, and certainly such a charming family of shrubs will repay any care and attention bestowed upon it. There has been, and still is, some confusion in the nomenclature of *Cistus*



The Labdanum Gum Cistus (*C. ladaniferus maculatus*).

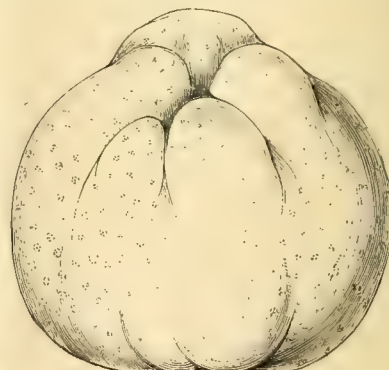
and *Helianthemum*, some species of the latter genus being known in gardens under the name *Cistus*, and these will be alluded to when we come to speak of the Sun Roses.

Coronilla Emerus (Scorpion Senna).—An elegant loose-growing bush, from 3 feet to 6 feet high with small pinnate leaves, which in mild seasons remain green through the winter. The flowers are small, Pea-shaped, produced in few-flowered clusters on long slender stalks. They are reddish when first expanded, but at length become quite yellow. It blooms freely in early summer, and flowers again in autumn. Being a native of South Europe, it requires a warm and sheltered spot, otherwise it becomes injured in winter. It makes a pretty wall shrub, as it stands clipping well. This is the only *Coronilla* that can be grown satisfactorily in the open air in England generally, but in warm parts, *C. glauca*, a beautiful old shrub with glaucous foliage and yellow flowers, usually seen in greenhouses, may be grown if protected in winter, and so might the diminutive *C. minima* and *C. valentina*, also a pretty dwarf shrub.

Cotoneaster.—None of the *Cotoneasters* are what may be strictly called flowering shrubs, but as some of them make beautiful wall climbers, they come in our list. The best species for wall coverings is *C. microphylla*, common enough in most gardens and needing no description. Other kinds suitable for walls are *C. Simonsi*, with bright orange-scarlet berries; *C. buxifolia*, and *C. thymifolia*. The last two as well as *C. microphylla* are evergreen and perfectly hardy, and are useful also for planting in rock gardens, on steep banks, against open walls, or for making a margin to borders and shrubberies.

Cydonia (Quince).—There is perhaps not a commoner exotic flowering shrub in English gardens than the Japanese Quince (*C. japonica*),

which, though introduced from Japan only about half a century ago, may be seen adorning alike the walls of the cottage and mansion. It is a very beautiful shrub, one perfectly adapted to our climate, and makes a handsome spreading bush as well as one of the finest of wall coverings. The old sort is beautiful enough, with its brilliant crimson flowers, but the newer varieties are preferable in point of colour, the finest being those named *cardinalis*, very deep rich crimson; *nivalis*, snow-white; *alba*, white, slightly tinged with pink; *rosea*, delicate rose-pink; and *princeps*, deep scarlet. These are all distinct in colour, and would make a beautiful lawn group planted in one mass, with their low, rounded outline broken by a taller plant, such as *Pyrus floribunda*. When soil and climate favour the Japanese Quince, it forms a wide-spreading bush 6 feet or 8 feet high, and requires no attention beyond pruning. *C. Maulei*, a newer introduction from Japan, is less vigorous in growth than *C. japonica*, has more slender branches, smaller foliage and flowers, which, however, are produced in abundance on every young twig. The colour of the flowers is a vivid orange-scarlet, a tint entirely different from that of any other Quince. Golden yellow fruits of spicy fragrance and about the size of small Pippins succeed the flowers in autumn and remain on the bushes a long time. A coloured plate of this Quince was given in *THE GARDEN*, April 27, 1878. It is perfectly hardy and makes a capital hedge on account of its spiny branches. *C. chinensis*, the Chinese Quince, is somewhat similar to *C. japonica*, and less desirable, and is, therefore, rarely seen beyond botanical gardens. The common Quince, familiar tree as it is, is really a beautiful ornament in any garden, particularly in the picturesque growth of old age. It is so common that nothing need be said about it beyond that it well deserves a place on a lawn in



Fruit of *Cydonia Maulei*.

company with the Medlar, Mulberry, Apple, and Pear, all of which are usually excluded from the lawn because they bear eatable fruits which should be gathered only from orchards.

Cytisus (Broom).—The few species of hardy *Cytisus* are all valuable ornamental shrubs, indispensable, in fact, in every well-planted garden. Common as the British Broom (*C. Scoparius*) is, it should certainly be planted in gardens in localities where it does not grow wild, and it is most useful for clothing dry sandy banks in company with Heath and Furze where other shrubs would fail. It is easily raised from seed, and the best way to cover a bank with it is to sow seeds of it in spring.

The White Spanish Broom (*C. albus*) is well known in gardens as one of the finest of all early flowering shrubs. It is a strong growing bush, particularly in light soils, and is frequently seen as tall as 10 feet. Towards the

end of May every slender twig is wreathed with small white flowers, and the whole bush becomes a sheet of snowy white bloom. *C. nigricans* is also a very beautiful shrub and extremely free flowering, the blooms being small, of a bright clear yellow, and produced in long terminal racemes. It grows from 3 feet to 6 feet high, is perfectly hardy and blooms for a long time in early summer. The purple Broom is naturally a long trailing shrub with purplish flowers, but it is generally seen grafted mop fashion on *Laburnum* stems. It is really an alpine shrub, and its place in the garden is among rocks and boulders, where its wiry branches can fall over and make dense cushion-like tufts. The foregoing are the most important kinds of *Cytisus* for general cultivation. There are various others, such as *C. austriacus*, *biflorus*, *sessilifolius*, *capitatus*, and *C. Ardoi*, that might be included in a fuller collection. The last named is a pretty little alpine shrub growing a few inches high, and suitable for the rock garden; its tufted growth is covered in

direct rays of the sun. So treated, the leaves will bear a healthy appearance, and the plant will also flower freely, while if kept in pots the leaves often assume a yellowish tinge. The general appearance of the plant is not unlike that of a *Fuchsia*, and it can be propagated in the same manner—that is, by cuttings of the young growing shoots taken during the spring or early summer months, put into pots of sandy soil and kept close and shaded until rooted.—T.

SHRUB NOTES FROM FOTA ISLAND, CORK.

THE past year will long be remembered for its dryness, and, in consequence, hardy shrubs where well ripened and flower-buds abundantly formed, will doubtless give a rich harvest of bloom this year. The following have been, and many are still in flower:—

ACACIA AFFINIS.—Here several of this New Holland shrub are planted in different situations, thus considerably prolonging the season of flowering. The first were in flower in February, and some are now in full bloom, the perfume being very sweet in bright weather when the flowers are moved by a

rendered attractive not only by its beauty, but also by the sweet spice-like scent of its thousands of small flowers. It makes a very ornamental shrub with its small, bright, Box-like leaves, the sprays being very useful for mixing with cut flowers in a vase.

THE FIRE BUSH (*Embothrium coccineum*) is a gem amongst the many beautiful evergreen flowering shrubs which are now in bloom. It has scarlet, Honeysuckle-like flowers, with pale green, lanceolate leaves, and may be propagated by seed, layers, or cuttings, but does not root freely.

THE VICTORIAN LAUREL (*Pittosporum undulatum*).—This, a very desirable shrub of pyramidal habit with undulated leaves, is now covered with its small, bell-shaped, dark flowers, contrasting pleasingly with its pretty light-coloured leaves.

The above are a few among the many evergreen flowering shrubs which have been in flower here. *Fota Island, Cork.* W. O.

THE Judas Tree (*Cercis siliquastrum*).—When the still leafless branches are studded with a profusion of rosy purple-coloured blossoms, a good



Fruit of common Quince (*Cydonia vulgaris*).

summer with yellow flowers like those of the Dyer's-weed (*Genista tinctoria*).

Laurels in bloom.—Though seldom regarded as flowering shrubs the Laurels are very beautiful when laden with bloom, and in none of them is this more noticeable than in the Colchic Laurel, which is more free-flowering than the ordinary form, and the habit of the plant is also different. In the Portugal Laurel the flowers are even more conspicuous than in the others, while an additional feature is furnished by the fruits, which are, as a rule, freely borne. Besides the points of difference above mentioned between the common and Colchic Laurels this last is characterised by its larger leaves, which are thinner in texture and of a paler green, while the plant is more hardy than the ordinary Laurel.—H. P.

Scarlet Mitre-pod (*Mitraria coccinea*).—This little Chilean shrub is almost hardy around London when protected by a wall, but it must be treated as a greenhouse plant to be seen at its best, and even then it is not often met with in a flourishing condition, although it is such a beautiful plant that a little extra care may with advantage be given it. When growing freely it produces long, slender shoots, which during the early part of the summer are closely packed with bright red, drooping blossoms. They are urn-shaped, about $1\frac{1}{2}$ inches in length, and borne on long stalks, while the weight of the blossoms causes some of the heavily-laden shoots to droop much more than they do under ordinary circumstances. This *Mitraria* is most at home under conditions such as the *Lapagerias* delight in, viz., through drainage, rather deep, but open soil, consisting mainly of fibrous peat and sand, and a situation where it is shaded from the

slight breeze. One character of this shrub is that the flower-buds, if dry, are not injured by frost; another is, that when planted out in the open it remains far longer in bloom than when grown in a greenhouse. Our plants, which grow very quickly, are from 12 feet to 24 feet high.

THE CHINESE HAWTHORN (*Photinia serrulata*) is generally a very shy-flowering shrub, but this year some of our bushes have bloomed at every point.

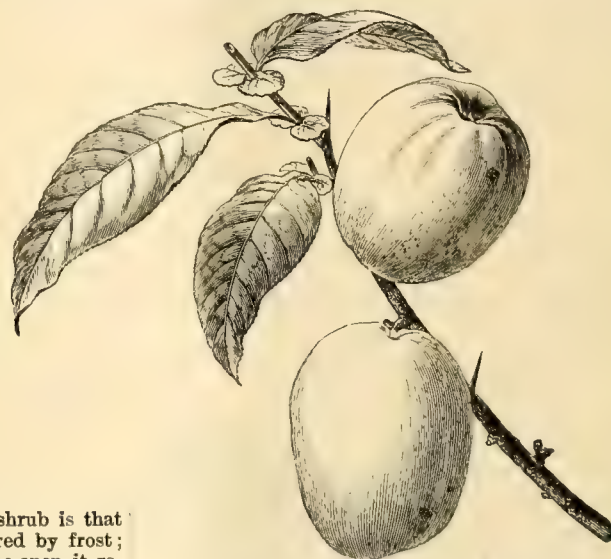
HAKEA PUGIONIFORMIS, a slow-growing shrub with rather a stiff habit, has been unusually pretty this season, having produced such an abundance of its small, curious, light-coloured flowers. This is a very desirable shrub, and should be grown in all favourable situations.

GREVILLEA ROSMARINIFOLIA.—This is a very pretty little shrub, which seems quite hardy, and remains in bloom for several months. It has flowered freely this season, although many of its early blooms were injured by frost in March.

CORREA VIRIDIS.—This is a slender-branched shrub, native of New Holland, and flowers during five or six months in the year. Although the flowers are not very showy, being a greenish white, a place should be found for the plant in every collection of shrubs growing in favourable situations. *Correa alba* is very pretty, but not such a strong grower as the above. Both seem quite hardy, and flower profusely.

CAMELLIAS, as bushes in the open and on walls, have flowered well this year, and are more hardy than is generally supposed, and even when not in bloom are very desirable.

AZARA MICROPHYLLA.—This has flowered most profusely, the small greenish flowers being produced on the under side of the branches. This shrub is



Fruit of Japanese Quince (*Cydonia japonica*).

specimen of the Judas Tree is a very beautiful object, and, besides this, it is different from all other trees or shrubs that are in bloom. Before the flowers fade the leaves begin to make their appearance, and their distinct shape and peculiar hue even then renders it a notable object. Later in the season the clusters of large, flat seed-pods stand out very conspicuously, for the foliage is at no times dense. The Judas Tree is well suited for planting as a single specimen on a lawn, as an old tree of it is generally a most picturesque object, having a peculiarly spreading, flattened head, but occasionally it branches close to the ground, so that there is no clean trunk. In common with many Leguminosæ, the Judas Tree will thrive fairly well in a dry spot.—T.

Which are the hardiest Evergreens?—Although the frost of the winter we have just passed through has not been so severe as in some previous years, the cold winds which we experienced during the months of March and the early part of April have left their mark in many places on subjects that are reputedly hardy. Such weather has again demonstrated the value of shelter for tender trees and shrubs, for only in places that were exposed to the force of the wind has anything suffered. A careful inspection, however, of a shrubby border, which contains a variety of Evergreens will reveal the fact that some of them have felt the effects of the past winter, while others have come through unharmed. The Laurel family appears to be more liable to injury from a low temperature than anything generally planted. The

Colchic Laurel is no doubt the hardest of them, while the Laurustinus and Portugal Laurel cannot be considered thoroughly frost-proof, and the common variety cannot be relied upon to stand uninjured in an exposed position. According to my experience, the two hardest Evergreens are the green Holly and Yew; old plants of the variegated Hollies are, I find, much more hardy than young ones. To return to Evergreens, the green Box is perhaps second to none in regard to its hardiness, and both the hybrid and common forms of Rhododendrons are certainly more reliable than the common Laurel. But the capacity of the subjects I have named to endure cold must be measured by the position they occupy.—J. C. C.

THE CANARY ISLAND DATE PALM.

FOR many years the gardens on the French coast of the Mediterranean contained hardly any specimens of Palm trees except the well-known Date Palm (*Phoenix dactylifera*). From Ollioules to Vintimille fine examples of this Palm displayed here and there all the native nobility of their lofty ringed and wrinkled stems. Those growing in the public square at Hyères are still famous; while at San Remo and Bordighera, near the Italian frontier, the Date Palm is cultivated to supply the bleached and plaited leaves, of which vast quantities are employed in the celebration of Palm Sunday. Some other species which were planted tentatively along this coast, such as the *Phoenix reclinata* from the Cape, and *P. spinosa* from West Africa, did not prove sufficiently hardy to withstand an occasionally severe winter. However, in 1862 (the same year in which the fine garden of M. le Vicomte Vigier was planted at Nice) a new species made its appearance which was hailed as a wonder of the vegetable kingdom. Of this some young plants had been purchased in Belgium, under the various names of *Phoenix reclinata*, *P. tenuis*, and *P. canariensis*, but were subsequently named *P. Vigieri*, after M. le Vicomte Vigier, who was the happy possessor of the finest specimens of this Palm that were grown in the open air. In a few years these grew to a remarkable size. Twelve years after they were planted, we measured the trunk of one of these Date Palms, which was more than a yard in diameter at the base. As the trees became older, the more firmly they established the fact that they possessed ornamental qualities of the first order, combined with a high degree of hardiness. It was not long until they fruited abundantly, and from the seed thus obtained the number of these Date Palms growing in gardens along this district of the Mediterranean coast is now very great. Unfortunately, however, there was no certainty as to the history, the true name, or the native habitat of the species. The Ghent nurserymen who obtained the seed from the Canary Islands could not, or would not, give any precise information on this subject. Webb and Berthelot's "Natural History of the Canary Islands" (which we consulted) made no mention of any species as distinct from those cultivated in the islands of Tenerife, Grand Canary, Fuertaventura, and Lancerote. And yet here was a very distinct species, which had been brought by cultivation to fruit regularly on our Mediterranean coast, and which promised to become one of the most ornamental features of the public promenades there.

It remained for M. Bolle and Dr. Christ, in a recent visit to the Canary Islands, to put an end to all doubt on the subject and to establish the geographical distribution of this splendid Palm, which they discovered in the wild state, far from any cultivated district, in one solitary station in the group of the Canary Islands which lies between the 27th and the 29th degrees of N. latitude. It is not found either in Madeira or the Azores, the nearest islands, nor has any trace of its existence been as yet observed in the adjacent parts of the continent of Africa, where, however, it is possible that future exact botanical exploration may succeed in finding it.

THE CANARY ISLAND DATE PALM (*Phoenix canariensis*) is a very vigorous-growing tree with an enormously thick base, formed by the imbrication

or overlapping of the swollen bases of the leaf-stalks. The fronds or leaves, which grow erect at first, but afterwards become spreading, are of a fine bright green colour, quite different from the glaucous hue of the leaves of *P. dactylifera*. The stalk at a short distance from its sheathing base narrows into a sub-triangular rachis, which is roundish on the back and bears stout prickles, the spinescent rudiments of pairs of sessile leaflets, which are sharp-pointed at the ends and swollen at the base, and when fully developed are often nearly 10 feet long in well-grown specimens. The inflorescence, which is at first erect and afterwards drooping, consists of whitish flowers very similar to those of the common Date Palm. It is not unusual to see young plants not much more than 3 feet high bearing flowers. On the mature tree the main flower-stalk or rachis is over 3 feet long, of a fine yellow colour, very much compressed and deeply furrowed; the individual pedicels, which are either solitary, in pairs or three together, are bare for a considerable length at their swollen base, and terminate in a fruit-bearing spike of crowded sessile drupes, which are nearly round or olive-shaped, about the size of a Hazel-nut, and with a hard skin of a pale yellow colour. The soft part of the fruit is scanty, scarcely fleshy in texture, and not edible. The stone is oblong, rounded at the ends, and not fusiform, pointed; it is marked with a deep longitudinal furrow.

Owing to its abundant fructification, the Canary Island Date Palm is daily coming more and more into favour. In large towns it is now used to furnish conservatories and apartments. No plant is more ornamental than this fine stout Palm for drawing-rooms and halls, especially if good specimens are employed. We remember that not very long since a specimen about 6½ feet high was sold at Nice for £12. A similar one could now be purchased there for the tenth part of that sum. Planted in lines on boulevards, in public squares, and on the quays of seaport towns, as is already the case at Nice, Cannes, Hyères, &c., this Palm will in a few years produce magnificent effects, especially if care is taken to plant with it alternately other fan-leaved Palms, such as *Washingtonia filifera* and *W. robusta*, two equally valuable subjects for the same coast region.—*Revue Horticole*.

Mahonia nepalensis.—This is a noble species, but I am not acquainted with its adaptability for general cultivation throughout the country. Judging from a grand specimen which I recently noted in the Queen's garden in the Isle of Wight, it should prove a splendid subject for planting in the south of England. The plant in question is some 12 feet or 14 feet in height and as much or more in circumference, with bold pinnate leaves, and at the time of my visit was laden with its rich yellow flowers. It is by far the largest specimen of its kind I have ever seen.—W. H. G.

Embothrium coccineum.—This is a member of the Order Proteaceæ, which thrives well in the open air in the Queen's garden at Osborne, and I should like to see a great many of this Order, which have been annihilated in English plant houses and bid fair to be exterminated in Australia. The plant in question is some 10 feet or 12 feet in height, and appears to bloom freely every year, although the first week in May was too early to see it in flower. The most frost recorded here during the winter was about 14°, so that a little cold weather does not hurt it, whilst the plant was sheltered from the prevailing winds (south-west) and the neighbourhood of the sea is also doubtless one of the reasons for so many choice plants living outdoors unharmed.—W. H. G.

The Myrtle.—This is a great favourite as a window plant, but in the Isle of Wight it grows to the size of large bushes, and is treated as an ordinary hardy shrub. Of this plant in the grounds of East Cowes Castle there is a wonderful display, a portion of the castle walls being covered with it. These plants are supposed to have been planted at the time, or soon after the castle was built, which is about a century ago. The plants have thick

gnarled stems, and completely cover the wall for the length of about 60 feet, and reach to the top, which is some 20 feet high. It forms an admirable covering for a wall independent of its snowy white flowers, and should receive more attention for this purpose in situations where the climate is suitable.

Coronilla glauca.—This plant appears to be used commonly in the Isle of Wight for training upon cottage walls, and a very elegant subject it is for this purpose, growing quickly and blooming profusely in the latter end of April and beginning of May. I also noted this growing as a large shrub in the grounds of East Cowes Castle and at Osborne House, and producing quite a blaze of brilliant yellow flowers. Has this plant been tried in similar situations near London? I grew this plant in quantity some years ago, and found it thrive in a very cool temperature, but have never had any experience with it in the open air during the winter months.—W. H. G.

Double-flowered Furze.—The double-flowered variety of our common Furze is such a gorgeous object when in full bloom, that it should certainly find a place among the most select of flowering shrubs, for there is nothing of the same colour to equal it at the present time. The plant also continues for a long time in bloom; indeed, should the weather be fairly mild, it will often flower more or less continuously throughout the winter, and then finish up with a grand display in the spring. Darwin's Barberry will also sometimes behave in the same manner. An additional merit possessed by the Furze is its thorough hardiness, and the fact that it will grow and flower well on dry banks where but little else will thrive. While the single Furze can be raised in any quantity from seeds, it is necessary to increase the double-flowered variety by means of cuttings, which can be put in a sheltered border during the early autumn, or, better still, just protected by a frame until rooted. As they are not liable to damp, the cuttings of this Furze may be put in much thicker than would be suitable in the case of many other cuttings.—H. P.

Double Spiræa prunifolia.—The blooming season of the Spiræas is spread over a considerable period, from the pretty little *S. Thunbergi*, whose slender branches are wreathed with tiny white blossoms in early spring, to *S. callosa alba*, which I have had in flower until November. After *S. Thunbergi* follows the double form of *S. prunifolia*, which is a remarkably handsome shrub, for, if liberally treated and allowed plenty of space for its full development, the long shoots arch over in such a manner, that the whole contour of the plant is most pleasing. When these shoots are wreathed for the greater part of their length with tender green expanding foliage and clusters of double blossoms of the purest white, the whole presents a most attractive floral picture. This Spiræa is a native of Japan and is perfectly hardy, while, like the rest of the genus, it blooms best when liberally treated, for the flowers, which are borne on the weak, stunted shoots that are produced when the plant is in a partially starved state, cannot be compared with those borne by luxuriant plants. This Spiræa is one of those shrubs that are available for the decoration of the greenhouse or conservatory in early spring, for though it cannot be forced in the same way as the Lilac or *Deutzia gracilis*, yet with a little more than simple protection it may be had in flower when all outdoor shrubs are still in a dormant state.—T.

SHORT NOTES.—TREES AND SHRUBS.

The Willow-leaved Sweet Bay (*Laurus nobilis salicifolia*).—By far the finest example of this plant I have ever seen is a grand pyramidal plant near the Italian garden at Osborne House. It is fully 25 feet in height, proportionate, and very dense; the leaves are smaller than those of the typical plant, and, judging by the examples of the species upon the terraces, this variety is of a paler green. It is a very distinct form.—W. H. G.

The Water Holly (*Ilex latifolia*).—This is a plant which does not appear to thrive well in the neighbourhood of London, but it attains to large di-

mentions in the Isle of Wight, and there are some grand examples of it in the grounds of Osborne, its large, bold, broad, dark green leaves rendering it both a pleasing and conspicuous object, and in districts where it thrives it should always be included in the list of trees and shrubs growing in a garden.—W. H. G.

Azalea rhombicum.—This is a species of *Azalea* comparatively unknown, and is the first of all to expand its blossoms; so early indeed does it bloom, that the flowers are sometimes injured by late spring frosts, of which there is no danger this year, as in common with all hardy trees and shrubs the *Azalea* under notice is very late in blooming. The flowers are in colour not unlike those of *Rhodora canadensis*, which is even earlier in flowering than that is, but as an ornamental plant, *Azalea rhombicum* is much superior to the *Rhodora*. The former is a free-growing, much-branched shrub, and when profusely laden with its pleasing purple-coloured blossoms, it is gladly welcomed as one of the earliest harbingers of the floral display to be expected from our shrubberies. It is a native of Japan, being found on the island of Nippon, where it inhabits mountain forests. Though such a desirable early-flowering shrub, it is very seldom seen, for it has to a certain extent been known in this country for some time, as in perusing a catalogue of one of our leading nurserymen of eighteen years ago, I see it was even at that period offered for sale. Though such a lengthened period has elapsed since then, it has made no headway; indeed, it is doubtful where this *Azalea* could be obtained at the present time except in the collection of some specialist.—H. P.

AMERICAN NOTES.

North American Thorns.—The real home of the American Thorn is in the region south of the Red River—that is, in Western Louisiana and Eastern Texas. Here can be found growing a larger number of species of this genus than in any other part of the world; and here many of our species reach their greatest development. Here only can be found the blue-fruited *Cratægus brachyacantha*, bordering the low, wet prairies of Western Louisiana—one of the largest of the genus, and beautiful in habit, foliage, flowers and fruit. Here too the white-barked *C. arborescens*, the largest of the genus, the graceful and delicate *C. apiifolia* and *C. æstivalis* all reach a development unknown in other parts of the country. The last is one of the most ornamental of the American Thorns. Its large flowers appear in February, and these are succeeded three months later by large, very fragrant scarlet fruit, which is gathered and sold in great quantities in some of the markets of the South, where it is used for making a conserve. This species probably produces the most valuable fruit of any of the genus; although it must not be forgotten that one of the Thorns of the South Atlantic States (*C. flava* var. *pubescens*) yields a fruit highly esteemed in the preparation of jellies, which when well made can hardly be distinguished from the true Guava jelly. In the Eastern States *C. Crus-galli*, all things considered, is the most valuable of our Thorns as an ornamental tree. Its habit, profuse bloom, bright, shining foliage, brilliant autumnal colouring and large, red fruit, untouched by any animal, and hanging upon the trees until February, make this one of the most desirable of all small ornamental trees for American lawns. This, too, is one of the few American trees which seems to thrive in all European climates. A beautiful species of the very largest size, too, is *C. Douglasi* of our north-west coast and Northern California, with foliage resembling that of *C. Crus-galli*, but with black fruit, ripening in August. This tree flourishes at the East, flowering and ripening its fruit freely at Massachusetts.

A half-hardy Begonia.—Last September upon the Cordilleras of North Mexico, some two hundred miles south of the United States boundary, there was found growing in black mould on shaded ledges—even in the thin humus of mossy rocks—at an elevation of 7000 feet to 8000 feet, a plant of striking beauty, which Mr. Sereno Watson identifies as *Begonia gracilis*, HBK., var. *Martiana*,

A. DC. From a small tuberous root it sends up to a height of 1 foot to 2 feet a single crimson-tinted stem, which terminates in a long raceme of scarlet flowers, large for the genus and long enduring. The plant is still further embellished by clusters of scarlet gemmæ in the axils of its leaves. Mr. Watson writes: "It was in cultivation fifty years and more ago, but has probably been long ago lost. It appears to be the most northern species of the genus, and should be the most hardy." Certainly the earth freezes and snows fall in the high region, where it is at home.—*Garden and Forest*.

Some hardy wild flowers.—One cold day in February I went to see how my plants of that tough little Orchid, *Goodyera pubescens*, were standing the weather, and found the leaves protruding from a crust of snow and ice, as fresh as in June. One can hardly understand how such a velvety, delicate-looking plant can be so hardy. Although it grows in thick shade, this Rattlesnake Plantain will thrive in a sunny window of a warm winter room. Such a one I knew, and when the fire went out one bitter night it was smiling freshly in the morning, although every other plant in the collection had perished. Why has such a pretty thing as *Erigeron bellidifolium* been neglected by cultivators? I accidentally discovered that it improves under cultivation. A bunch of it was left by chance in a field, where it was hoed and fertilised in the same way as the farm crop. It grew luxuriantly and bloomed profusely. I think it quite as beautiful as any of the *Asters*, which it somewhat resembles. It has the advantage, too, of blossoming in early spring, while most of the *Asters* are late bloomers. Another wild plant which is not afraid of cultivation is *Houstonia purpurea*. While not as attractive as its little sister, *H. serpyllifolia*, or, perhaps, as the more northern *Bluets* (*H. cærulea*), it is a striking plant, erect, branching, and often more than a foot high, blossoming freely, and found naturally in high and dry soil. The Mountain Harebell, too (*Campanula divaricata*), makes a neat addition to the list of hardy perennials. I think I may add *Shortia* to the list, although it has not been thoroughly tested in cultivation. I have little doubt, however, that it will succeed, and it can now be had in abundance, after hiding away so successfully for a hundred years, for it has been found growing by the acre on the very spot, perhaps, where Michaux makes record of it in his journal. I can hardly hope much from the pretty little *Galax aphylla*, known here as *Colt's-foot*, and carpeting the woods in every direction. It seems to resent all artificial nurture and apparently dies of home-sickness when transplanted from its wild surroundings.—S., in *Garden and Forest*.

* * It is quite easily grown in our English gardens in peat borders.—ED.

A new Morning Glory (*Ipomœa Pringlei*, Gray), collected in 1886 on cool, grassy hillsides near Chihuahua, was admired by Dr. Asa Gray even in dried specimens, and by him recommended for cultivation. The species is perennial from a thick root, with an annual stem, erect, diffusely branched, 2 feet or 3 feet high and broad, with inconspicuous leaves and flowers of the largest for the genus, 3 inches broad, purplish blue, with a metallic lustre, and in their throat lighter blue or nearly white. The plant is common over the hills and high plains between Chihuahua and the Sierra Madre. As seen by the traveller in those lone regions, profusely covered with bloom throughout the morning, it is a bright and pleasing object.

Aquilegia longissima.—Of the long-spurred *Columbines* which are peculiar to the central mountain ranges of this continent, *Aquilegia longissima* is the most remarkable. The *Aquilegia cærulea* with blue and white flowers, and the yellow-flowered *A. chrysantha* of the Rocky Mountains and other interior ranges are now well known in gardens, both in their native forms and in the hybrids which are readily obtained from them. *A. longissima* is a still more southern species, found in the mountains bordering the Rio Grande in Western Texas and those of the north-eastern provinces of Mexico. It is, indeed, probably the most southern species of the genus, inasmuch as the Guatemala habitat ascribed to *A. Skinneri* is very doubtful. A.

Skinneri was cultivated in European gardens to some extent about forty years ago and was believed to have originated from seeds collected in Guatemala by Mr. G. U. Skinner. It has, however, been recently discovered at home in the mountains of Chihuahua, both by Dr. Edward Palmer and by Mr. C. G. Pringle, and the probabilities are that the seeds were sent from there, instead of from Guatemala, by Mr. John Potts, who had charge of the Mint at Chihuahua in 1842. It is known that he and his brother made collections in that region and sent plants to England at about that time. *A. longissima* is distinguished from the allied species not only by the greater length of the spur, but by its more contracted orifice and by the narrower petals. The flower opens upward, spreading widely, and is pale yellow or straw colour, or sometimes nearly white or tinged with red. The plant has been raised from seed in the Cambridge Botanic Garden. It proves, as was to be expected, to be more tender than our common species, but there should be no difficulty in cultivating it throughout the Southern States. In view of the recognised adaptation of flowers and insects to each other for mutual benefit, it is an interesting question what long-tongued moths have developed side by side with this long-spurred flower, and how far the plant is really dependent upon such insects for fertilisation.—S. W., in *Garden and Forest*.

FERNS.

W. H. GOWER.

SCHIZÆAS.

THIS is an exceedingly beautiful genus of Ferns, which I have found very difficult of cultivation. This, perhaps, has arisen more from the fact that I have never had other than imparted plants to experiment upon. Mr. Osmer, who has recently returned from Demerara with a large consignment of Orchids, has been telling me of the large numbers of beautiful Ferns he met with during his explorations, spores of the majority of which he has brought home and handed over to be sown, and whoever has them I trust may be successful, for amongst them he describes a fine *Schizæa*, which by his description would appear to resemble *S. flabella*. I, therefore, here introduce some of the principal kinds of this genus, which are all both singular and beautiful. As a genus, *Schizæa* is distinguished by its simple, forked, or flabellate fronds, which have free veins, and upon the ends of which, distinct from the fronds, are borne the sporangia on crest-like terminal spikes. *Schizæas* are somewhat local, yet the genus is widely distributed, the known species being found in the Indian and Mascarene Islands, the West Indian, and islands of the Pacific Ocean, in Tropical America, in New Zealand and Australia, which evidently points to their preference for moist situations. Some of the species, such as *S. bifida*, *pusilla*, *australis*, and *tenella*, are small growing and exceedingly interesting species, but of sufficient size to be ornamental, and well deserving of every attention by Fern lovers.

S. ELEGANS.—This is a plant with a somewhat Palm-like aspect; the fronds are from 1 foot to 15 inches or more in height, and from 6 inches to 9 inches in breadth, and invariably divided in the centre quite down to the stem in the fertile fronds, each half being again divided in a less degree. The sterile fronds are broader in the divisions than the fertile ones, but are of a rich shining green. This species as constituted is very variable in its width, and should it become established in our gardens it will require varietal names, as I have seen forms of this plant which vary in width from the eighth of an inch to upwards of 1 inch, and from 4 inches to 15 inches in height, and all fertile. It is a native of the West Indies and Brazil, and appears to be very plentiful in the island of Trini-

dad, from whence I have frequently received numbers of plants, none of which, however, lived over two years in this country.

S. FLABELLA, which I believe to be the species collected in Demerara by Mr. Osmers, is a plant equal in stature to the last, and the whole of the frond is entire, saving a shallow cleft in the centre, the upper edge being somewhat deeply toothed. It is a superb and distinct plant. *S. pacificans* is a somewhat similar plant, but has its fronds divided into two large lobes.

S. DICHOTOMA is, perhaps, the most widely distributed of any known species. I first became acquainted with it through plants brought home by my friend Berschall from Venezuela in 1856. It is a variable plant, the fronds being fan-like in outline, and when fertile very narrow; the sterile fronds are many times dichotomously forked, the ultimate divisions being very narrow and bright green. The forms of this plant collected in the Fiji Islands are larger than those from any other part that I have seen.

These *Schizæas* should be potted in a mixture of loam, peat, and sharp sand, whilst the drainage must be open and free, as they enjoy an abundance of water to their roots. They also require to have their fronds constantly kept moist, and this is effected more by condensation than by the practice of dewing with the syringe, as by the latter method the fronds are apt to become disfigured by the impurities in the water. I sincerely hope we may get young *Schizæas* from spores in this country, as by this means we shall have a better opportunity of establishing them, the majority of the plants sent home being, in my opinion, far too old to give the cultivator a fair chance.

ORCHIDS.

W. H. GOWER.

THE WOODLANDS ORCHIDS.

THE vast quantities of these plants now flowering in Mr. Measures' garden at Streatham far surpass in grandeur any public exhibition either at home or abroad which it has been my good fortune to behold. As one passes from house to house great masses of flower meet the eye; thus in the *Cymbidium* house there are at the present time considerably over 1000 blooms of *C. Lowianum* expanded, one specimen alone having thirteen spikes, which together bear 290 flowers, the latter, backed by the vigorous and vivid green leaves, producing a magnificent effect. In another house is a large batch of *Cattleya Lawrenceana* bearing upwards of 200 flowers, their rich colour rendering them very effective. Although there are a large number of plants, there is a great uniformity in their flowers, and to obtain varieties of this species we shall in all probability have to depend upon the different localities in which they may have been collected. These plants are doing well and are treated somewhat similar to the Mexican *Lælias*—i.e., plenty of sun and light, with moisture. *Odontoglossum citrosum* is largely and well grown here, at the present time there being about 120 pendent spikes in full bloom, the greatest number of spikes upon one plant being eight, and the greatest number of flowers upon a spike, I think, is thirty-four. The flowers vary from pure white to those with a deep rose-coloured lip, and they emit a delicious perfume. This species is seen to the greatest advantage when allowed to assume its natural habit, the pendent spikes producing a very graceful effect. It used to be looked upon as a shy-blooming species, but here it flowers very freely. It is said to have a wide range in Mexico, and to clothe the branches of the Oak trees which are scattered over the country. This species is found at a lower eleva-

tion than the majority of *Odontoglossums*, and the secret of success in its culture is not in keeping it cool, but in keeping it dry through the winter, it being an exception to the members of the genus in this respect. The plants at The Woodlands, when growth is matured, are removed into a lower temperature, and are kept dry until the young growths push up and show their flower-spikes. Should any of the plants, however, show signs of distress by shrivelling, a little water is given, which soon plumps up the wrinkles in the bulbs. This species, however, if treated in the way of *O. crispum*, will always remain a shy-flowering and unsatisfactory plant. There are plenty of the gay *Masdevallia ignea* and *M. Harryana* in variety, and also of the gorgeous *M. Veitchi* and *M. V. grandiflora*. One example of the latter variety in a 6-inch pan was bearing twenty of its brilliant flowers, each of which was from 6 inches to 7 inches across. A form of *M. Harryana luteo-oculata* is very fine, the flowers being large, round, and of a uniform intensely deep rich crimson, with a yellow throat. The next surprise is a large group of various *Cattleyas* of the *Mossiae*, *Trianae*, *Skinneri*, and *Mendeli* type, the grandest of the latter yet open being the variety *Duke of Marlborough*, which is one of the best forms of *Mendeli* I have yet seen, although I am told that a form bearing the name of the Duchess of Marlborough, and which is now showing flower here, is much finer. The variety *Duke of Marlborough* has a bold flower, with pure white sepals and petals, and a very large and much frilled lip, the front portion, quite back to the yellow throat, being rich crimson-magenta. Another complete exhibition in itself is *Odontoglossum vexillarium*, of which there are about 600 flowers expanded and more than that number in the bud, amongst them being some very large and highly coloured forms; the flowers stand well up above the foliage, and the plants are in vigorous health, being grown slightly warmer than other species of the genus. There was also a fine display of *Lælia purpurata*, some specimens bearing twenty-four superb flowers; amongst these were some splendid unnamed forms. A variety named *purpurata bella* is very fine, although the flowers are not so large as those of the type; the sepals and petals are deep rose colour, front portion very deep rose, or rosy purple.

Cypripediums, for which this collection is famous, also contribute largely to the display. Amongst the most notable was a grand specimen of the true *C. villosum aureum*, in which the flowers are wholly of a rich bright yellow; *C. selligerum*, bearing several flowers upon a scape; *C. Sedeni porphyreum*, which has not been without flowers for nearly twelve months, still continue the display. Here also are fine forms of *C. Lawrenceanum*, *C. superciliosum*, the ever welcome *C. niveum*, *C. Sedeni candidulum*, a fine form of *C. Dayanum* called *superbum*, *C. Petri*, which I have heard used as a synonym for *Dayanum*, but when seen side by side no one would venture to assert them to be the same thing. *C. Williamsianum* was represented by a fine form, so also were *C. Warneri* and *C. vernixium*, which together with *C. concolor*, *C. Boxalli*, *C. meirax*, various forms of *C. barbatum* and *Uropedium Lindenii*, formed the most attractive portion of the *Cypripediæ*. I now come to a few of the specialties which are not to be seen in quantity, commencing with *Cattleya Schroederiana*, which is a supposed natural hybrid. I am not aware from what part it was imported, but it has somewhat the appearance of being a cross between *C. bicolor* and *C. Aclandiae*; the flowers are large and spreading,

sepals and petals broad, dark bronzy rose; lip large, middle lobe flat and deep rose colour, the side lobes small and erect, leaving the column quite exposed. It is at once a curious and handsome plant. Two examples are flowering here, one bearing two flowers, the other a single one. It appears to enjoy strong heat. *Cœlogyne Massangeana* still maintains its reputation as a remarkably free bloomer, some spikes carrying twenty-three flowers. Another species which I take to be *C. tomentosa* is also very handsome, and appears to be free blooming, but as I have never seen a verified specimen of *C. tomentosa* in flower I cannot be certain; the spike is pendent like that of *C. Massangeana*, and clothed with short dark brown woolly hairs, and it bears thirteen flowers on each spike; the sepals and petals are creamy yellow, with a bronzy tinge; lip brown, streaked and flaked with creamy bronze, the tip recurved where it is furnished with a few woolly brown hairs. *Oncidium stelligerum* is a plant now seldom seen, and not by any means popular, but as now flowering here it is extremely beautiful. There are two examples here, which if not distinct species certainly deserve varietal names; the spikes are upwards of 6 feet in length and much branched, one bearing 153 flowers and the other about 190; they may be said to resemble those of *O. leucochilum* in the sepals and petals. The lip is hastate and narrow in front, but one variety has the front lobe of the lip broad, lilac, bordered with white, and appears to me to be totally different. The curious, but not showy, *Odontoglossum Lindenii* is also blooming, its flowers being rather small and yellow. The form of *Odontoglossum Andersonii*, which was certificated under the name of *splendens*, is carrying a very fine spike, the flowers being large, pure white, profusely blotched with bright chocolate. Of *Odontoglossum Harryanum* we may look forward to a surprise before long. This species seems to do well here. There are several excellent varieties now in flower, and many pushing up young spikes, including one plant with three spikes to one bulb, one springing from the base on either side, and a third one from the top of the bulb. Several good *Vandas* were flowering, such as *V. tricolor* in variety and *V. suavis*, and an excellent form of the Goat's-head *Vanda* (*V. cristata*), so called from the horned point of the lip, which if held up represents a fac-simile of the head of that animal. The above, together with such things as various *Dendrobies*, *Odontoglossum crispum*, *Pescatorei*, and *cordatum*, *Oncidium ampliatum*, the Fox-brush *Aerides* (*A. Fieldingi*), a fine form of *Cœlogyne speciosa*, *Epidendrum rhizophorum* and *arachnoglossum*, *Lycaste aromatica*, and many other plants, form such a charming and glorious display, that it really requires to be seen to be fully realised.

Lælia flammea.—This is a Veitchian hybrid, raised between *L. cinnabarina* and *L. Pilcheri* (itself a cross between *L. crispata* and *L. Perrini*). In habit of growth it most resembles its first-named parent, and also in its style of flowering. The flowers are borne upon erect spikes, and are bright orange-yellow, the side lobes of the lip (which, however, does not appear to open well) being streaked with reddish purple. An example of this rare plant was recently flowering with Mr. Measures at Streatham.

Cattleya Morganiae.—This is a variety of *Mendeli*, and I saw it recently flowering in The Woodlands collection at Streatham. It has, I believe, been regarded as synonymous with the variety *Bluntii*, which also exists in the same collection, and from which it is very distinct, but is not yet in bloom. The flowers are large, and the

sepals and petals are pure white; the lip is large, prettily frilled in front, pure white, with a small blotch of purple in front, whilst the throat is yellow; the variety *Blunti* is entirely destitute of the purple colour in front.

Oncidium sessile.—At one time this was a rare species, but is now more plentiful; several fine examples of it exist in the Wilton House collection at Southampton. It is flowering just now, but Mr. Osborne tells me he finds it very apt to break into growth instead of blooming; this, however, I attribute to its being kept in too high a temperature. The specimens in question stand in the *Cattleya* house; the plant is a native of Caraccas, and I used to find it thrive in a house kept slightly warmer than that which was devoted to *Odontoglossums* and *Masdevallias*. It is a compact growing and handsome-flowered species, well deserving general cultivation; its spikes are erect and many-flowered, the individual blooms being nearly 2 inches across, of a soft clear yellow, with a few light brown spots in the centre. These last a long time in perfection either when cut or upon the plant.—W. H. G.

Trichopilia lepida.—This is a grand and rare species of this small genus, originally introduced, I believe, by the Messrs. Veitch from Costa Rica, and it is found to thrive well in this country in an intermediate house. The pseudo-bulbs are oblong, obtuse, somewhat flattened at the sides, some 2 inches high, and bear a solitary, strap-shaped, dark green leaf. The flowers spring from the base of the bulbs, and are produced in profusion; sepals and petals of a vinous red, bordered with white; lip large, rolled over the column, and thus almost trumpet-shaped, of a richer and darker hue than the outer portion of the flower, the margin white, interspersed with spots and blotches of a deep vinous hue. *Trichopilias* do not thrive with a large supply of moisture, and therefore require thorough drainage and careful watering.—W. H. G.

Oncidium concolor.—This showy and beautiful species is now to be seen in most collections. The plant is a native of the Brazilian mountains, and in my early days was rare and ill-managed; now, however, it has become plentiful and very popular. It should be grown upon a block of wood or in a hanging basket, in which manner its drooping spikes of bloom are displayed to the greatest advantage. During the summer season it should be grown in the cool house and abundantly supplied with moisture, but in winter it should be removed to the intermediate house and kept as dry as possible, without causing it to shrivel, commencing to water again sparingly when the flower-spikes begin to appear. The flowers are large and rich clear yellow in colour. A good coloured plate of it is given in *THE GARDEN*, January 19, 1878 (p. 58).—G.

SHORT NOTES.—ORCHIDS.

Phalænopsis tetraspis.—This is a species from the Indian mainland which one seldom sees in our collections. I recently noted it, however, for sale in Stevens's rooms, Covent Garden, and from its appearance should imagine it deserves more extended cultivation. In habit of growth and size and shape of its flowers it may be likened to *P. Luddemanniana*, but its blooms are entirely pure waxy-white.—H. G.

Cypripedium Hyeaunum.—The only plant of this in the kingdom, as far as I am aware, now belongs to Mr. Measures, at Cambridge Lodge. It was originally introduced by the Messrs. Low, of Clapton, amongst C. Lawrenceanum, and may be popularly described as a green form of that species, all the stripes in the white dorsal sepal being of a bright, almost emerald-green. Another plant of this species is known to exist in Belgium, and I think that comprises the stock in Europe.—W. H. G.

Seedling Cypripediums.—I recently saw in Mr. Buchan's garden at Southampton a very good seedling form of *C. Roezli*, which had been obtained from the same pod of seed which produced *C. Sedeni candidulum*, evidently proving that all the seeds were not crossed. With such results, it cannot be a source of surprise that seedlings vary considerably from each other; therefore it is not enough to know that a certain cross produced a certain thing, but I shall want

to know in future how much they have been crossed, and should like to see the flowers before speaking confidently as to what they may turn out.—W.

NANODES MEDUSÆ.

The genus *Nanodes* was established by Lindley upon a very small growing Brazilian plant, *N. discolor*, and the meaning of the word "pigmy" refers to the size of that species, which seldom exceeds about 2 inches in height and $1\frac{1}{2}$ inches in breadth, bearing closely-set, distichous, sheathing, dark green leaves, which quite hide the stem; whilst it carries upon the summit solitary small and inconspicuous greenish purple flowers. About the year 1865, however, the Messrs. Backhouse, of York, introduced from the high regions of the Andes of South-western America the extraordinary species here mentioned. A magnificent example of it, bearing numerous growths and many flower-buds, was sold by Messrs. Protheroe and Morris recently out of the Brentham Park collection. It is a plant but little known; its shoots grow downwards to about the length of a foot, necessitating its being fastened to a block of wood or planted in a hanging basket, with a small portion of fibrous peat and Moss. It should be grown in the cool house and tolerably well shaded. The leaves, which are flat and distichous, and some 3 inches or 4 inches long and glaucous green, clasp the stem at the base; the flowers are thick and fleshy in texture, flat, and about $2\frac{1}{2}$ inches across; sepals and petals green, tinged with reddish brown; lip orbicular, bearing a deep fringe round the edge, which is, together with the whole of the lip, of a deep heavy purple, the disc being green. Altogether, it is a most remarkable flower, well worthy of cultivation by everyone having the accommodation of an *Odontoglossum* house. W. H. G.

A new white Aerides.—A plant which is supposed to be unique in this country was recently sold by auction by Messrs. Protheroe and Morris in their City auction rooms, and realised the sum of sixty guineas. It was a small plant bearing about six leaves and a spike of bloom, and bore the name of A. Williamsi. I am told that it appeared amongst an importation received by the Messrs. Low, of Clapton. In appearance it is the exact counterpart of the Fox-brush *Aerides* (*A. Fieldingi*), of which it is undoubtedly a variety, with the whole of the flowers pure white. *Aerides Williamsi* is figured in Mr. R. Warner's "Select Orchidaceous Plants," t. 21, and differs slightly from the present plant, inasmuch as its flowers are faintly tinged with rose at the base of the lip. The original plant was formerly in the possession of Mr. C. Warner, but, I believe, died many years ago. It was received by the Messrs. Veitch amongst a consignment received from Mr. Thomas Lobb, a collector, who obtained the reputation of sending home good plants only, and to say that a new plant was of his collecting was a sufficient guarantee to the horticultural world of its value. I believe this gem has now found a place in the superb collection of Baron Schroeder, at The Dell, Egham.—W. H. G.

Three lovely Odontoglossums.—There are now in the Wilton House collection, Southampton, three beautiful species of this genus in flower, and they are far too seldom seen. These are *O. nævium majus*, *O. ramosissimum majus*, and *O. cirrhosum*. The first-named is a very fine variety, and is a native of New Grenada and Venezuela, where it is said to grow at an elevation of from 6500 feet to 8000 feet, and although known for nearly fifty years, it is now, and always has been, rare in cultivation. The scape is from 1 foot to 15 inches long, somewhat drooping and many-flowered, the sepals and petals being narrow, the latter the broader, and all tapering to a fine point. They are much undulated and snow-white, profusely, but somewhat regularly spotted with bright reddish purple; lip similar to the other segments, but smaller; crest bright yellow.

O. ramosissimum majus is also a very fine variety, and appears to find a congenial home here, but although I have previously seen good forms, this is by far the best. The spike is erect and much branched, and bears a profusion of flowers, which are quite as striking as are those of *O. nævium*, being nearly 3 inches across; sepals and petals paper-white, beautifully crisp and undulated, the lower half of these segments being spotted and streaked with mauve-purple, the upper half pure white; the lip deltoid and acuminate, tapering to a reflexed point, front portion white, basal half deep purple. The many-toothed crest is white, and the column deep purple. It is a truly beautiful plant, and one which deserves to find more favour from Orchid growers than it hitherto has done. It appears to be a native of the cool regions, growing up to 12,000 feet and 13,000 feet elevation. *O. cirrhosum* is a plant now rapidly gaining favour. Its flowers somewhat resemble those of *nævium* so far as the sepals and petals are concerned, but the lip is very distinct, the side lobes being larger, recurved, and orange-yellow, streaked with purple. It is said to be an isolated plant found on the Andes of Ecuador nearly fifty years ago. Three more lovely plants than these can scarcely be found, and the two latter succeed under quite cool treatment. The first-named species, however, thrives best with a few degrees more warmth.—W.

HARDY ORCHIDS.

JUDGING from the number of these exhibited at late meetings of the Royal Horticultural and other societies, it would seem that they are at last attracting a little of the notice that, as hardy, easily grown, and free-flowering plants, they well deserve. What could have been more ornamental or more distinct as a hardy garden plant than the fine clump of *Cypripedium parviflorum* exhibited by Mr. Ware at a recent meeting of the Royal Horticultural Society, or the equally fine, but far rarer, *C. macranthum* exhibited at the same time and by the same person? Now, neither of these Orchids, but particularly the former, are at all difficult to manage; indeed, *C. parviflorum*—and I am speaking from actual experience—is as easily grown as a garden plant and in the open ground as is a Solomon's Seal or a Lily of the Valley. Give it a partially shaded situation and bury the roots 3 inches deep in decaying and decayed vegetable matter, to which is added a little sand, and it will succeed admirably and go on increasing both in size and beauty from year to year. I have cultivated it very successfully in the manner described, single crowns having in three or four years increased to a dozen flowering stems.

The showy *Lady's Slipper* (*C. spectabile*) is another distinct, interesting, and easily managed plant. It succeeds best in rather damp ground and where the soil is largely composed either of peat or leaf-mould, with a small admixture of sharp river sand. In the downy *Lady's Slipper* (*C. pubescens*) we have a counterpart of our native plant, *C. Calceolus*, both as regards size and colour of flowers. It is easily enough managed as a garden plant, but wants pieces of decaying wood mixed up amongst the leaf-mould and sand in which it is planted. Our native *C. Calceolus* is in truth a pretty plant, and withal, if you can procure good healthy roots to start with, easily enough managed. It prefers limy loam and a shady situation. As a pot plant it likewise succeeds well, and a plant in my office window is now blooming nearly as freely as it used to do when planted in the Orchid bed of my Welsh garden.

The leafy *Orchis* (*O. foliosa*) from Madeira is a big-growing and large-foliaged plant, and with long spikes of dullish purple-coloured flowers, which are, when in perfect condition, very ornamental. A damp situation suits it best, and rough peaty loam. It is of easy culture, and increases rapidly. Many other species of *Orchis* are well worthy the attention of hardy plant cultivators, such as *O. globosa*, with its globose-shaped heads of bright rosy flowers; *O. fusca*, a rare native species, with broad green leaves and a dense spike of pinky brown flowers; *O. maculata superba*, a distinct and

pretty form of the Marsh Orchis (*O. latifolia*); *O. sambucina* and *O. pallens*, both yellow-flowered species; and *O. undulatifolia*, one of the best, it being easily managed and remarkably free-flowering. The flowers are in compact spikes, and of a bright and pleasing pink, and remain in good condition for a very long time. By far the best of the many forms of *O. undulatifolia* is that in which the leaves are spotted, for in this the flowers are not only larger, but of a brighter and more conspicuous appearance. A mixture of chalk and loam of the best quality suits its wants well, and plenty of sunshine. Amongst the Goodyeras are some pretty plants, but they are rather hard to deal with, and slugs are fond of them; so fond, that, watch as you will, leaves and flower-stems soon disappear.

It has often been a wonder to me why a £10 premium has not been offered by some of our horticultural societies or owners of our recognised garden journals for the best essay on how to exterminate the slug. Extermination is out of the question with such a prolific pest as the slug, but certainly we may materially lessen their numbers. I remember it was stated, I believe, in *THE GARDEN* that one should collect them and throw them into his neighbour's garden.

Orchis Morio, in many shades, is now beautifully in flower on many of the Kentish downs.

A. D. WEBSTER.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

MAY 22.

THERE was a very small meeting in the Drill Hall, Victoria, on Tuesday last, but many interesting exhibits, although there was no large display of any one flower.

First-class certificates were given as under:—

DISA RACEMOSA.—This beautiful South African Disa will doubtless come into general cultivation, as it has many useful points, amongst others being its easy culture. At a first glance it resembles one of the small-flowered Gladioli, as the flowers are borne in a similar way and at the end of a spike that rises about 2 feet. They are of small size, but this is atoned for by the bright purple colouring, which is intensified when several specimens are grown together in a basket, as seen on this occasion. The growth is apparently robust, close, and the narrow leaves of a fine rich green colour. It is also known as *D. secunda*. From the Royal Gardens, Kew.

AERIDES FIELDINGI ALBA.—A small raceme of this was shown by Mr. Ballantine, gardener to Baron Schröder, The Dell, Egham. It has apparently all the good qualities of the type, but the flowers are absolutely pure white. They are closely packed in a short spike.

CYPRIPEDIUM BELLATULUM.—Here we have a most notable acquisition to the Lady Slippers, as it is of the *C. Godefroyæ* type, whose flowers are admired by all for their rich spottings and neatness. In the new arrival, the shape of the bloom is very much like that of *Godefroyæ*, but the deep crimson spottings are larger, less profuse, and laid on a ground of greenish white. The flowers nestle amongst the tessellated foliage and have a charming beauty. We want *Cypripediums* like this, as they are bright and cheerful. From Messrs. Low, of Clapton.

EPIDENDRUM JAMES O'BRIEN.—This is the first seedling *Epidendrum* ever raised, and, therefore, an interesting plant to enthusiastic orchidists. It is a hybrid between *E. evectum* and *E. rhizophorum*, and, as far as colour is concerned, is intermediate between the two parents, the variety being of a bright carmine shade. The flower has the form, however, of *evectum*, having the same projecting frilled lip seen in this species, but it resembles that of *rhizophorum* in size. The growth is straggling and the leaves few. From Messrs. Veitch, of Chelsea.

ANGULOIA INTERMEDIA.—This also came from the Messrs. Veitch, and is the result of a most happy cross between *A. Clowesi* and *A. Ruckeri*.

The plant is of vigorous growth, and bears a delicately beautiful flower of the usual cup-shaped form, but which within is almost entirely covered with salmon-pink spots that harmonise wonderfully well with the pale buff exterior, the golden front of the lip adding to the richness of the flower. A bright, beautiful flower like this is really welcome.

ARNEBIA ECHIOIDES.—It is strange that a certificate should have been given to such an old favourite as the Prophet Flower, one of our choicest hardy rock or border plants. We have seldom, however, seen it shown in better condition. The large tuft of it was one mass of the rich golden flowers, relieved by the five deep crimson spots. Interesting notes upon this *Arnebia* appeared in *THE GARDEN* of June 11, 1887. From Messrs. Paul and Son, of Broxbourne.

ALSINE VERNA FL. PLENISSIMO.—Some prettier name might be found for such a sweet gem as this hardy alpine plant. It scarcely grows more than 2 inches high, and is like a fairy Moss bespangled with pure white double flowers that are not quite so large as a threepenny-piece. It appears to be a free grower, and most useful, we should imagine, for a nook on the rockery, as it is quite hardy, and said to do best in the shade. At any rate, it is a flower charming for its modesty. From Messrs. Froebel and Co., The Nurseries, Zurich.

ROSE SAPHO.—This is a new Tea Rose from Messrs. Wm. Paul and Son, of Waltham Cross, and shows, in the character of the flowers, a likeness to those of the beautiful *Gloire de Dijon*, but they are quite distinct, and we scarcely know which is the better of the two. Three standards were exhibited, and it seems that the growth of this new Tea Rose is very robust, while the flowers are borne with great freedom. In the bud they are of a decided pinky tinge, which, as the flowers expand, almost disappears, but is seen slightly on the recurved petals, and intermingles with the lovely yellow colour of the full, dense centre. It is of admirable form, the petals firm, strong, and making up a flower of excellent proportions and outline that has also lost none of that fresh perfume proper to a typical Tea Rose. It seems that we are making great additions to this section.

PROSTANTHERA LASIANTHOS.—This Labiate is not a new plant, but it can be almost regarded as such, as we see very little of it notwithstanding its charming grace and beauty. It is of shrubby character, and will do well in warm spots out of doors in especially favoured places, but generally should receive greenhouse treatment. The small hairy flowers, white, speckled with purple in the centre, are borne in drooping panicles, as in the *Habrothamnus*, and a plant in full bloom must be exceedingly elegant. It is a pity that we do not see more of such lovely things as some of our old-fashioned flowers. The English name of this *Prostanthera* is the Victoria Dogwood. From Mr. Ross, gardener to Sir G. Macleay, Pendell Court, Bletchingley.

HABERLEA RHODOPENSIS.—An interesting exhibit from the Royal Gardens, Kew. It is of tufted habit, the leaves deep green, and the small Streptocarpus-like flowers, borne three or four on a short stem, lilac-purple outside, but slightly tinged with lilac colour on the lip. Such a bright, neat-habited plant as this deserves more general cultivation.

PEONY PRINCE ALBERT.—A gaudy single Tree Peony of immense size and bright crimson in colour. A few such as these would make a great display. From Mr. W. Gordon, Twickenham.

BEGONIA BARONESS ROTHSCHILD.—A most striking single variety by reason of the sharply defined colouring. The upper part of the broad, well-formed petals is of the brightest crimson, which is intensified by the white of the lower portion. We do not often see such a brilliant contrast. From Messrs. J. Laing and Sons, Forest Hill.

BEGONIA PRINCESS MAUD.—A double variety, bearing a full ivory-white bloom, with the faintest suspicion of sulphur in the centre. It is a desirable addition to a class of plants now much in request. From Messrs. J. Laing and Sons.

CALADIUM COMTE DE GERMINY.—This has large, dull red-coloured leaves, veined with rich red and flaked with a greyish white colour. It will be valued by those who admire fine-foliaged plants. Shown by Messrs. Laing and Sons.

ABUTILON VITIFOLIUM.—This needs no description, as it ought to be well known; but it is interesting to mention that the exhibitors, Messrs. Kelway and Son, Langport, Somerset, have had the plant in the open unprotected for three or four years without it receiving any harm. A spike was shown, and the flowers, as clear and beautiful as those of the Japanese *Anemone*, which they resemble in appearance, were delightful for their purity and freshness. It must, however, be considered as only half-hardy, except in specially favoured localities. A coloured plate of this was given in *THE GARDEN*, March 10, 1883.

Perhaps the most interesting contribution was that from the Royal Gardens, Kew, as there were uncommon plants exhibited, such as the lovely *Exacum macranthum*, which bears very freely its rich purple-violet flowers, relieved only by the golden anthers; it is an exceptionally brilliant Ceylon plant. The New Zealand *Acradenia Franklini* we admire for its mass of white star-like flowers, crowded amongst the deep green leaves; and another beautiful thing was the Teneriffe *Lotus peliorhynchus*, an excellent basket plant, with glaucous green leafage, studded with rich scarlet *Clanthus*-like flowers. *Diacrium* (*Epidendrum*) *bicornutum* is an Orchid with ivory-white flowers of neat form, but far less beautiful than those of the striking *Ansellia africana nilotica*, which has a long spike of richly spotted flowers; the sepals and petals are narrow, and blotched with brown on a green ground, the lip being bright orange. *Aster Stracheyi*, a Himalayan plant, is neat and creeping, the flowers being about the size of a shilling and purple-blue in colour. *Phaius Manni* was particularly noticeable for the robustness of its growth and the showiness of the flowers. The stout stem bears about four flowers, which are large, and have the sepals and petals of a rich brown colour, and the expanded portion of the lip tinged with pink, which deepens to dull red within the tube. *Bossia liniphylla*, the slender stems wreathed with small pea-like orange and brown flowers, and a fine tuft of the Golden Drop (*Onosma taurica*) completed an exceedingly interesting display.

ORCHIDS were not largely shown, but amongst them were several noteworthy exhibits. Mr. Glover, gardener to Mr. E. Ellis, Manor House, Wallington, had a well-coloured form of *Cattleya Lawrenceana* and the delicately beautiful *C. Schroedera*, which has very pale rose sepals and petals, deepening in the front of the lip, which has a rich orange suffusion at the base. Also shown were good plants of *Thunia Marshalliana*, an Orchid of chaste beauty; *Angraecum Sanderianum*, the showy *Oncidium Marshallianum*, and *Mormodes buccinata flavida*, which has curious rich orange flowers. Finely coloured varieties of *Cattleya Mossiae* came from Mr. W. Gordon, Twickenham, and *C. M. Studleyana* from Mr. Cowley, gardener to Mr. F. G. Tautz, Studley House, Hammer-smith; the flowers are about the same size as those of a typical *Mossiae* and white, except the bold, frilled lip, which on the front has a tinge of lilac, and is striped in the throat with yellow and lilac. Also from the same exhibitor came *C. Wagneri*, a beautiful white wavy flower; the lip frilled and of the brightest orange at the apex. Mr. W. Kidd, gardener to Mr. R. B. White, Arddarroch, Dumbar-tonshire, contributed *C. M. superba*, a richly coloured variety, and the white *C. Mendeli*, a neat beautiful flower, quite white, except the very faint touch of lilac on the centre of the lip. It is of surpassing beauty. Messrs. Veitch, of Chelsea, showed, besides the Orchids above-mentioned, *Dendrobium porphyrogastrum*, which has flowers of a pale rose tint, with the lip purplish at the base. Mr. W. H. Scott, Dumfries, had forms of *Odontoglossum Andersonianum*.

A collection of forty varieties of herbaceous Calceolarias was contributed by Messrs. H. Cannell, of Swanley, and a silver medal awarded. The plants were of sturdy dwarf habit, and the flowers showed

an interesting range of colours, some quiet, others of the most brilliant shades. The self colours were very rich. A dwarfier and better habit has now been infused into the herbaceous Calceolarias. Mr. R. H. Alexander, Giffard House, Roehampton, also showed herbaceous Calceolarias in excellent condition. Pæonies are in season now, and a most interesting collection was put up by Messrs. Kelway, who were given a silver medal. The gaudy tree varieties were conspicuous for their brilliancy and ungainly size. Simplex, a Moutan form, single white, blotched with maroon at the base; Lumen, a large double flower suffused with lilac; M. Lowe, brilliant carmine; Caroline, flesh colour; Osiris, deep purple; Venosa, large, rough, and white, with rosy purple base; and the double tenuifolia, were conspicuous for beauty. The Pansies, from Mr. John Forbes, Hawick, Scotland, had suffered in transit, but amongst them were some charming varieties; small plants were sent, so that a good idea could be obtained of the several sorts; William Dean, broad, purple and yellow; Brilliant, a rich yellow self, and Max Kolb, fine blue, we admired for their excellent quality, but throughout the flowers had a firmness and breadth of petal that denote a robust plant. A bronze medal was given, and a silver medal went to Mr. W. Gordon for a display of Pæonies and Japanese Maples, which go well together. Messrs. J. Laing and Sons, of Forest Hill, also received a silver medal for their group of Caladiums, double and single Begonias, and a white Gloxinia named *virginalis*.

The Roses sent by Messrs. W. Paul, of Waltham Cross, were welcome for the variety they gave. There were excellent specimens of the delicate tinted Lady Alice, a mass of the glorious *Maréchal Niel*, the flowers large, full, and finely coloured; Her Majesty, and the Red Pet variety, which has deep crimson flowers, produced very freely.

Mr. G. F. Wilson, Weybridge, had a few most interesting things. A spike of *Lilium Thomsonianum*, or roseum, bore twenty of the quietly coloured flowers, and there were also shown *Primula Reedi*, P. glabra, the lovely P. obtusifolia *Gammiana*, *Cypripedium acaule*, *Roses Isabella Gray* and the Cloth of Gold, and *Pinguicula caudata*, a bright, pleasing rose-coloured flower, well adapted for cultivation in pots.

Messrs. Paul, of Broxbourne, put up a group of hardy flowers, amongst which were the creamy white-flowered *Camassia Leichtlini*, *Anemone alba*, in the way of the Pasque Flower, *Cortusa Matthioli grandiflora*, *Polemonium himalayense*, with Fern-like leafage and a large delicate blue flower about the size of a florin, and the brilliant scarlet *Geum minimum*. There were also the Siberian Edelweiss (*Leontopodium sibiricum*), which has smaller heads than the common Edelweiss of the Alps, and that gem of alpine, the Fairy Borage, *Eritrichium nanum*, a miniature Forget-me-not, the flower small, but of a lovely clear blue. The Pyrenean *Gentianella ciliata* and *Phlox gentiana* Douglasi deserve mention. The latter has flowers very much like those of *Triteilea uniflora* in expression, but about half the size, and white tinged with lilac in colour. It is from the Eastern United States. Carnations came from Mr. J. Hall, Castle Street, Cambridge, and Mr. G. Duffield, gardener to Mr. H. K. Mayor, The Ives, Winchmore Hill.

Fruit committee.—Fruits of the Bramley Seedling Apple, very fresh and well coloured for so late in the season, came from Mr. H. Merryweather, Southwell, and excellent Asparagus from Mr. D. Campbell, The Gardens, Roehampton, who also had well-grown specimens of the Tender and True Cucumber. Good samples of the Hackwood Park Prolific Tomato—a large, smooth, deep red variety—were exhibited by Mr. Charles Hoare, Hackwood Park, Basingstoke. Mr. A. Ward, Stoke Edith Gardens, Hereford, showed seedling Broccoli.

The Gardeners' Orphan Fund.—The proposal to hold a promenade and floral fête in the Wholesale Flower Market, Covent Garden, has now taken practical shape, and may be expected to come off in the first week in June. At a recent meeting

of the committee of the above fund a sub-committee was appointed, consisting of Messrs. G. Deal (chairman), A. F. Barron, W. Roupell, W. Richards, J. Wright, R. Dean, and B. Wynne, to make arrangements for a meeting of market growers to consider the proposal and enlist their co-operation. This took place at the Hummums Hotel, Covent Garden, on Monday, May 14, Mr. W. R. Bourne, the Duke of Bedford's agent, being in the chair. There was a good attendance of market growers and members of the committee of the Orphan Fund. Mr. Geo. Deal having made a statement setting forth the objects of the fund and what was sought to be attained in holding the promenade, stated that the president of the fund, Sir Julian Goldsmid, M.P., was endeavouring to secure the presence of the Prince and Princess of Wales on the occasion. A resolution expressing sympathy with the fund, and a desire to assist in every way in making the promenade a success, was carried unanimously. A sub-committee, consisting of Messrs. Bourne and Ashbee, as representing the Duke of Bedford, with Messrs. Hayes, Walker, Sweet, Poupert, Monro, and T. A. Dickson, with power to add to their number, was appointed to co-operate with the sub-committee of the fund, Mr. W. Richards to be hon. sec.

MANCHESTER.

THE Whitsuntide exhibition at Manchester is always a great affair, and that on Monday last was both a large and excellent display, the exhibits varied and well grown, and the arrangements exceedingly tasteful.

ORCHIDS were a conspicuous feature, and in the class for a group arranged with Ferns and foliage plants, Mr. A. Heine, Fallowfield, was first, and amongst others particularly fine were the specimens of *Dendrobium Paxtoni* and *D. Devonianum*. Mr. R. Johns, gardener to Mr. T. Slatter, Stand Hall, was second. In other classes for Orchids Mr. Heine was also the most successful. Mr. D. Boardman, gardener to Mrs. Hodgkinson, Bowdon, was first with ten specimens evincing careful culture. Mr. H. James, Norwood, and Mr. J. Cypher, of Cheltenham, were amongst the most successful in the nurserymen's division for Orchids.

STOVE AND GREENHOUSE PLANTS showed a falling off from those seen at previous shows at Manchester. Mr. J. Cypher was the only exhibitor in the class for twelve stove and greenhouse specimens, and he was also first for six *Ericas* and eight fine-foliage plants, Mr. H. James coming second. In the amateurs' class for fine-foliage plants, Mr. G. Williams, gardener to Mr. S. Baerlein, Didsbury, occupied the first place, and also in the class for six *Dracenas*, in which Colonel Wingfield, Shrewsbury, was second.

The groups made a fine display. In the nurserymen's class for a group arranged in a space not exceeding 250 square feet, Messrs. R. P. Ker and Son, Liverpool, were first, and Mr. J. Mason, Ashton-on-Mersey, second; both were excellent arrangements. In the corresponding class for amateurs Mr. S. Baerlein came to the front, and Mr. S. Lord was second. There were other groups put up, not for competition, Mr. B. S. Williams, of Upper Holloway, having a group composed of Orchids and other choice plants. The collections of Messrs. R. P. Ker and Son, Mr. J. Charlesworth, Heaton, Bradford, and Mr. W. Owen, Northwich, also contributed greatly to the exhibition.

Hardy herbaceous plants were well shown. Messrs. Dickson and Sons, of Chester, showed well in the nurserymen's division, and Messrs. Paul and Son, of Cheshunt, came first for forty alpine. Mr. Plant, gardener to Mr. R. P. Gill, Woodhayes Hall, Ashton-on-Mersey, was first in the class for a collection of thirty hardy herbaceous and bulbous plants.

PANSIES were excellent; also Roses. And in the several classes Mr. J. Marshall, Buckley, Mr. J. Dickens, Higher Broughton, Mrs. Mellor, Chorlton-cum-Hardy, and Mr. G. Robinson, Sale, were the principal prize-winners. The *Maréchal Niel* Roses sent by Mr. Lambert, gardener to Colonel Wingfield, were notable for their fulness and large size.

FRUIT was not plentiful, but fairly good for the

season. Mr. J. McIndoe, gardener to Sir W. Pease, Bt., M.P., Hutton Hall, Guisboro', was one of the most successful.

Amongst miscellaneous groups, &c., the following deserve mention. Rhododendrons from Messrs. J. Waterer and Co., Bagshot; Conifers from Messrs. C. H. Frettingham and Son, Beeston; *Primula Sieboldi* from Messrs. Ryder and Son; Ferns from Messrs. W. J. Birkenhead, Sale; and groups from Messrs. F. and H. Dickson, Chester, and Messrs. William Cutbush and Sons, Highgate.

Sulphuric acid.—In THE GARDEN, May 5 (p. 423), "S. D." asks for particulars about vitriolic acid for killing weeds on walks. I have used it for the last four years, and am quite satisfied with it as a weed-killer, being much cheaper than hand-weeding, easy of application, and quite safe to use with ordinary care. I shall best answer "S. D.'s" query by describing my way of using the acid. I got two old paraffin oil casks, holding about 41 gallons each, fitted them with pivots to work on the carriage of a swing water-barrow, and measured into each 38 gallons of water, and with a carpenter's chisel marked the inside of each cask with the 38-gallon mark to ensure facility and correctness in working. I then fitted up an old wheel-barrow on which to convey the carboys containing the acid where wanted as the work proceeded, and got two large zinc water-cans with copper or brass roses, but the acid burned holes in them before they were in use half an hour, making them useless. Two common water-cans, which have done admirably, were then obtained. A measure or two to measure the acid with completed our outfit. Three handy men were told off for the work, and made to understand the dangerous nature of the agent they were to deal with. As a precaution they put on old clothes, but boots are the only things likely to be injured by the spattering of the mixture. One man fetches the water, while two distribute the acid mixture. The two casks are used alternately for mixing in. During the four years we have not had 2s. 6d. worth of damage done to men's hands, clothing, or utensils, except the zinc cans noted above. We put 2 gallons of acid to 38 gallons of water. The roses should not have too wide a spread, or be too coarse. The mixture should not be poured out too fast so as to run on the walk, but be allowed time to soak down to the roots of the weeds, and the water should be clean. One great advantage of the acid is that the solidity of the surface of the walk is never disturbed, as by hand-weeding.—J. B.

OBITUARY.

MR. RAUCH, whose death was mentioned last week, was an old assistant of Loudon, in Bayswater. Mr. Marnock writes: "I knew Rauch intimately. I observed your notice of his death in THE GARDEN. He was a most valuable help to poor Loudon." He was a greatly respected man in Austria, being in charge of the Emperor's garden at Laxenburg, where we had the pleasure of meeting him some years ago. It is a stately and picturesque garden with natural objects, quite distinct from the ghastly Schonbrunn, and other gardens of the clipped order in Vienna.

"The English Flower Garden."—Persons who have failed to secure copies of this are informed that the second edition will be ready in September.

Reader.—Give the house in which the trees are growing a thorough smoking at night with tobacco paper, and then again in the morning, afterwards well syringing the foliage.

Names of plants.—*G. R.*—Apparently *Sobralia macrantha*, but the flower was much shrivelled.—*H. W. Horner*.—*Magnolia conspicua*.—*W. T. Bailock*.—*Aerides Fieldingi*.—*Anon.*—A form of *Cattleya Lawrenceana*.—*Stroud*.—*Pulmonaria saccharata*.—*W. T. H.*—*Pernettya mucronata*.—*W. T. Winton*.—1, the Plume Poppy (*Bocconia cordata*); 2, Pilewort (*Ficaria ranunculoides*).—*G. Wall*.—1, *Saxifraga Cymbalaria*; 2, *Euphorbia amygdaloides*; 3, *Pyrethrum Tchihatchewi*; 4, *Ribes aureum*.—*Miss Horis*.—*Ribes aureum*.—*C. W. H.*—Snowdrop tree (*Amelanchier canadensis*).—*D. P.*—One is *Ornithogalum nutans*; *Fritillaria* not recognised.—*J. Sale*.—Your plant is *Anomatheca cruenta*.—*T. R.*—*Myosotis azorica*, but specimen much withered.—*Constant Reader*.—1, *Adiantum scutum*; 2, not recognised, send better specimen; 3, *Salaginella cæsia*; 4, *Adiantum concinnum*; 5, *Pteris tremula*.

WOODS & FORESTS.

PRUNING CONIFEROUS TREES.

PLANTATIONS of Pine and other Conifers are now starting into growth, and so far there has not been any serious damage done to tender species by late spring frosts. The Larch has been in full flower for some time back, and on the whole I have never seen it look better, and should the trees receive no sudden check a good crop of cones may be expected. Young plantations of Larch and other species of Fir ought to be examined at this season, and any trees that have been damaged by hares, deer, or black game, and that are assuming the shape of bushes had better be pruned and trimmed in such a way as to direct the energies of the plant to the formation of wood in the main stem. In pruning these trees, care should be taken to cut off as few branches as is consistent with the proper execution of the work, and in many cases cutting back a branch or even disbudding is all that is necessary. Every tree that has been damaged by vermin or otherwise has a character and shape of its own, but as soon as the practised pruner casts his eye on it he sees at the first glance what is wanted. A great many trees that have lost their leaders accidentally may be effectually treated by disbudding, which consists in pinching off the superfluous buds at the top when the trees are starting into growth in spring and leaving the most central for the future leader. I generally perform this work with my finger and thumb. The advantage of this system is that the trees are not allowed to produce branches and leaders that have to be cut off. Ornamental Conifers should have particular attention at present, and any rival leaders at the top should be removed at once. Should any of the *Picea* tribe have been injured by late spring frosts, they are sure to produce several leaders at the top. When these appear they should be pinched off at once. Some species of trees that have lost their leaders by accident do not readily produce a new one, and under such conditions I have tied up a side branch and trained it as a leader with perfect success. When such is the case, it is an advantage to cut off the tips of the branches in the immediate vicinity of the new leader, by which means extra strength and substance are thrown into the upright shoot.

It sometimes occurs that trees produce double leaders after they have attained a size that they cannot be reached with the pruning knife. Under such conditions no better tool can be used for their removal than the pruning chisel fixed upon a shaft of convenient length, as it makes a clean sloping cut, which retains no moisture and soon heals. Young trees in the nursery should be examined, and where two or more leaders are starting at the top the superfluous ones should be pinched off at once. As a general rule coniferous trees are not stem-pruned, except under exceptional circumstances. Trees, however, growing in isolated positions and along the margins of plantations should have all dead branches, hard snags, and stumps cut off to prevent the formation of a loose knot in the timber when cut up for use. The thinning of plantations should be conducted in such a way that the trees in the interior effectually prune themselves. At the same time it is sometimes desirable to assist Nature in the operation by knocking off the dead branches with a pole, by which means the stems are relieved of the dead rubbish, and a better and freer circulation of air is secured throughout the plantation. This applies

principally to plantations in an active state of growth.

Ornamental coniferous trees are sometimes stem-pruned, but this is a matter altogether of taste, some owners preferring to see a portion of the stem, while others like to see their trees closely feathered from the ground upwards. There can be no doubt that some of the largest Coniferae to be seen in this country have more the appearance of gigantic shrubs than trees, but this state of things can be effectually corrected by the removal of a few of the under branches where desirable without any perceptible injury to the tree. Amateurs, however, who wish their trees stem-pruned should remember that a few tiers of living branches cannot be removed from a tree at once without injuring its health, and if carried too far would kill the tree altogether. As a practical illustration of this I may state that on planning a new road on a stretch of Heather ground where a number of seedling Scotch Firs had sprung up to a height of 8 feet and obscured the view, I had the trees stem-pruned, leaving some three or four tiers of branches at the top, and the result was that all these trees died. Of course, this was a matter of no importance, as the trees had to be removed, but it shows clearly that living branches cannot be removed to any extent without serious injury. The following ornamental trees may be stem-pruned with perfect safety by removing a few of the under branches to show the stem when desirable: Cedars of sorts, *Cephalotaxus*, *Cupressus* of sorts, *Junipers* of sorts, *Podocarpus*, *Prumnopitys*, *Sequoia* (Redwood Tree), *Thuopsis* of sorts, *Torreya*, and *Wellingtonia gigantea*. These trees sometimes produce unwieldy side branches as well as rival leaders, all of which may be corrected by a few timely cuts with a sharp knife.

J. B. WEBSTER.

Pollarding and disfiguring trees.—Happily for the present generation, the rage for disfiguring trees and shrubs by cutting them into unnatural forms, has passed away; and, though for a short time, it was re-imported from Holland after the Revolution, Lord Bacon dealt a death-blow to the system when he wrote, "As to the making of knots and figures, they be but toys; you may see as good sights many times in tarts. I do not like images cut out in Juniper or other garden stuffs; they are for children." But, unfortunately, even now we have sometimes to lament the disfigurement of our rural scenery by injudicious lopping and beheading; for, to the farmer's eye, the prolific, though pollarded and mutilated, Oak and Ash, and the cropped, but yielding, Willow are more valuable than the best specimens of free-growing, hedgerow timber. Undoubtedly, the finest landscape effects are to be obtained from trees which have neither been clipped into deformity nor elbowed into insignificance.

Staking newly-planted trees.—The effectual staking of trees, particularly when young and newly planted, conduces to a great extent to the after-success of the trees, as all experienced foresters have ample proof. Neglect of this operation is often the cause of the trees succumbing to even moderate gales, and even if they are not uprooted, they seldom grow vertically, on account of having been forced to one side before the roots had obtained a firm hold of the soil. There are various methods of staking trees, but that which I have long practised has proved very effective. I find that strong Ash, Oak, or deal poles are the best; they should be straight, and long enough to go well up amongst the branches of the tree, as it is the head which requires supporting. A very common method of tying, and one which may be recommended for its simplicity, is using old sacking about 6 inches in width. This is bound round the tree for protection, and tied tightly to the stake with tarred cord; the

stake is then made fast to the guard by tying in such a manner that the wind does not cause the tree to chafe against the iron or woodwork of the guard, as is too often the case. During the growing season, especially with such rapid-growing trees as the Poplar, the ties should be frequently examined to prevent damage being done by the strings. Where labour is not plentiful, and the trees are likely to be neglected in this respect, a good plan is to use jute, matting, or any durable material in the form of a band, which is put round the tree, crossing the two ends between the tree and the stake, and tying them at the back of the stake. Thus treated, the cord cannot injure the tree, the crossing between it and the stake forming a kind of cushion, which prevents chafing. Where guards are not used, the best plan is to place three stakes, in the form of a triangle, about 2 feet from the stem of the tree; their tops are then brought together and tied, using old sacking to protect the tree, as before. Although this method has the advantage of firmness, I very much prefer the guards for roadways, affording, as they do, greater protection to the stems.—C. D.

The White Pine.—Mr. H. Mayr, of Tokio, Japan, praises *Pinus Strobus* as being the most valuable of Conifers for rapidity of growth, and for an annual increment of wood. In Germany, where there is a pure forest of this Pine, 300 acres in extent, portions of which are 120 years of age, it has been found that at the age of eighty years the White Pine equals in size a Scotch Pine of 120 years' growth; and further, that at the age of seventy years a forest of White Pine gives an annual increase of three cords of wood per acre, while one of the Scotch Pine gives only a trifle over two cords.

. What do our readers say to this?—Ed.

The Pyrenean Pine (*Pinus pyrenaica*).—The foliage of this tree is very distinct, quite unlike that of any other Conifer. The leaves are in pairs, of a beautiful grass-green colour, and from 6 inches to 7 inches in length. It can easily be distinguished from other Pines on account of the deep yellow-coloured bark on its young shoots; the cones are about 2½ inches long, rather egg-shaped, on short foot-stalks, sometimes in twos, but mostly solitary. It was discovered on the Pyrenean Mountains, where it forms extensive forests by Captain Cook, by whom seeds of it were sent home in 1843. This tree is highly ornamental, especially when young; its fine, upright-growing, light green leaves, and the orange-coloured bark on the terminal shoots being its most striking and beautiful features during that stage; but when older it assumes a coarser habit of growth; its branches become stout, wide-spreading, and straggling, and altogether its general appearance is far from attractive. It is not likely to be ever valuable as a timber tree in this country, the wood being of inferior quality. This Pine has never been extensively planted, on account of its scarcity throughout the trade and the difficulty in procuring seed true to name.—B.

The Spurge for coverts (*Daphne Laureola*).—The Spurge or Wood Laurel forms a dense evergreen bush, from 3 feet to 4 feet high, with large, thick, glossy, dark green leaves, disposed in tufts at the ends of the branches; the yellowish green flowers are produced in drooping clusters of five. They appear in mild seasons soon after Christmas, and continue until March, when they are succeeded by oval berries, green at first, but black when ripe, at which time they form a favourite food with the robin and other small singing birds. The Spurge Laurel is not only a native of Britain, but of most other parts of Europe, in woods, and consequently thrives best in the shade; it will grow under the drip of trees, where few other shrubs would, and although its flowers are not showy, it is a valuable plant for shrubberies and coverts from its being evergreen and having thick, glossy leaves, disposed in tufts at the ends of the branches, and which become almost black if fully exposed to the sun. There is a variegated variety of the Wood Laurel which has its leaves more or less margined with pale yellowish white.—O.

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S. SHEPPERSON,

FLORIST,

PROSPECT HOUSE, BELPER, DERBYSHIRE.

The prices are quoted at per dozen or hundred, but persons with small gardens may select smaller quantities without any additional price, but not less than 2s. worth carriage free.

CHRYSANTHEMUMS.—Great Special Culture. The best and most distinct varieties only of the large-flowered, incurved, reflexed, early and late bloomers, Pompones, Japanese, &c., including many grand new varieties by the best English, Continental, and American raisers; 12 distinct varieties, named, well-rooted plants for 2s.; 24 for 3s. 6d., free.

SINGLE DAHLIAS.—Strong Seedlings from newest varieties, including new whites to bloom well this summer, 1s. 3d. per dozen, extra strong, 1s. 6d.

FUCHSIAS.—Great Special Culture of these. 200 varieties, many fine new of 1887. Double and single, light and dark, 2s. per dozen, true to name and well rooted.

CHRYSANTHEMUMS (Annuals)—Carter's six grand new varieties: Earl Beaconsfield, New Double White, The Queen, New Double Golden, The Sultan, and W. E. Gladstone. Nothing can excel the brilliant beauty of these, and smothered with bloom all summer. Two of each for 1s.

SUNFLOWER.—Carter's Grand New Double, golden yellow, 12 for 1s.

TOMATOES.—The three best sorts for amateurs and exhibitors: Carter's Perfection, the Mikado, and Kay's Early Prolific, strong plants, four of each for 1s. 6d.

VERBENAS.—Seedlings from Roemar's new hybrids, far ahead of all others for exhibition and free-flowering, 12 varieties, mixed, for 1s.

And all the following first-class Bedding Annuals at 2s. 6d. per 100, 50 for 1s. 6d., 500 for 10s.

LARGE-FLOWERING IMPORTED
DOUBLE SPOOKS, Chrysanthemum and Victoria Asters, French striped, and African Lemon and Orange Marigolds, finest Scotch varieties, Godetia Lady, satin-rose, and Duchess of Albany, two grand new varieties Cornflower, the new blue splendid Nasturtium, tall and dwarf, newest varieties mixed Dianthus diadematus, beautiful white or mixed Everlastings.

S. SHEPPERSON,

FLORIST,

PROSPECT HOUSE, BELPER, DERBYSHIRE.

PENTSTEMONS.**CLEARANCE SALE.**

A charming assortment of the newest and most beautiful varieties. Splendid for the garden. Choice named sorts, fine young plants, per dozen, 2s. 6d.; six for 1s. 6d. Extra choice, per dozen, 3s. 6d.; six for 2s. carriage free.—DANIELS BROS., Town Close Nurseries, Norwich.

DAHLIAS.—CLEARANCE SALE.—From our magnificent collection, including all the most beautiful and popular varieties. Show and Fancy, Pompones and single-flowered, per doz., 4s.; 6 for 2s. 3d.; per 100, 30s. New and extra choice sorts, per doz., 6s.; 6 for 3s. 6d.; per 100, 45s. Cactus-flowered varieties, new and select, including the most beautiful and distinct sorts, per doz., 6s.; 6 for 3s. 6d.; 3 for 2s. All in strong young plants, correctly named. Post free.—DANIELS BROS., Town Close Nurseries, Norwich.

CHRYSANTHEMUMS.—CLEARANCE SALE.—A splendid collection, including all the most beautiful and popular varieties. Incurved, Japanese, or Pompones. Strong, well-rooted cuttings, correctly named, per doz., 1s. 6d.; per 100, 10s. 6d. Extra choice sorts, per doz., 2s. 6d.; per 100, 15s. Post free.—DANIELS BROS., Town Close Nurseries, Norwich.

NEW DOUBLE ZONAL PELARGONIUMS.—Splendid massive double flowers of the most brilliant and lovely colours, magnificent for pots. Fine young autumn-struck plants, correctly named, per doz., 2s. 6d., 6 for 1s. 6d. Extra choice, per doz., 3s. 6d., 6 for 2s. Carriage free.—DANIELS BROS., Town Close Nurseries, Norwich.

IVY-LEAVED PELARGONIUMS.—Magnificent new double-flowered varieties of the most charming and brilliant colours. Splendid for pots or the garden. Fine young plants, well set with flower-buds, correctly named, per doz., 3s. 6d.; six for 2s. Extra choice sorts, per doz., 4s. 6d.; 6 for 2s. 6d.; 3 for 1s. 6d., carriage free.

DANIELS BROS. Town Close Nurseries, **NORWICH.****ROSES**

IN POTS; all the best New and Old English and Foreign sorts, from 18s. to 36s. per dozen.

DESCRIPTIVE LIST FREE ON APPLICATION.

These World-famed ROSES cannot fail to give the greatest satisfaction.

RICHARD SMITH & CO.,

Nurserymen and Seed Merchants,

WORCESTER.**DUTCH BULBS. DUTCH BULBS.****J. J. GRULLEMANS & SON'S**

TRADE CATALOGUE for 1888 is now ready, and may be had free on application.

WEST END NURSERIES,

NOORDWYK, near HAARLEM, HOLLAND.

CATALOGUES WILL BE SENT ONLY TO TRADESMEN.

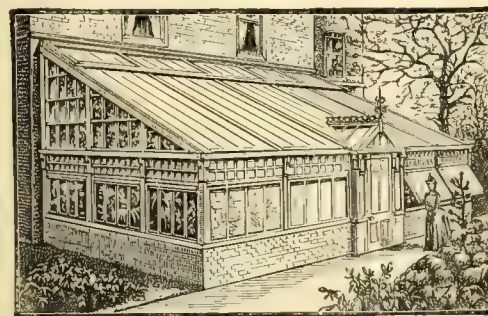
EXTRAORDINARY OFFER.—New Cactus

Dahlia Henry Patrick. I grow it largely for cut flowers; pure white; none can equal it; gained First-class Certificate R.H.S.; secure it; do not lose a season. Twelve good plants, 3s.; 100 for 21s., post free. Sixpence each if less than 12 sent.

—W. Cross, Florist, Newark, Notts.

OLD-FASHIONED HEDGES.—English

Yews, bushy, and with a profusion of fibrous roots, 1½ to 2 feet, 6s. per doz., 35s. per 100; 2 to 2½ feet, 8s. per doz., 50s. per 100; 2½ to 3 feet, 9s. per doz., 60s. per 100; 3 to 3½ feet, 12s. per doz., 84s. per 100. Prices of larger sizes and other Evergreens suitable for Hedges (e.g., Tree Box, Holly, Laurel, Privet, Cypress, Juniper, Thuja, &c.) on application.—RICHARD SMITH & Co., Nurserymen and Seed Merchants, Worcester.

RICHARDSON'S**HORTICULTURAL BUILDINGS**

Fixed in any part of the Kingdom with Hot-water Apparatus complete. Catalogue free.

W. RICHARDSON & CO.

Numerous Prize Medals and Certificates of Merit.

Horticultural Builders & Hot-water Engineers,
DARLINGTON.

THE GARDEN.—SCALE OF CHARGES

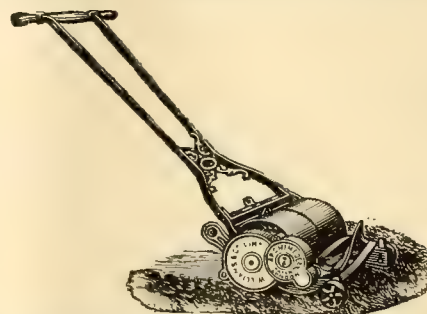
FOR ADVERTISEMENTS: Charge for single insertions, five lines, about thirty-four words or less, in body type, 3s.; each additional line of about nine words, 6d. Across two columns, per inch, 12s.; across three columns, per inch, 18s.; whole page, £8. Special positions, £9 a page. No advertisement inserted at a less price than 3s.

Charge for Serial Advertisements:—Horticultural: 6 insertions, 5s. per inch per insertion; 13 ditto, at 4s. 6d. ditto; 20 or more ditto, at 4s. ditto. General: 1 insertion, at 7s. per inch; 6 ditto, at 6s. per inch per insertion; 13 ditto, 5s. 6d. ditto; 26 ditto, at 5s. ditto.

GARDENERS AND OTHERS WANTING SITUATIONS.—25 words or less, 1s. 6d.; each additional line, 6d. These advertisements must be prepaid.

Advertisements for ensuing number should reach the office early in the week to ensure insertion. No advertisement can be "altered" or "stopped" after Thursday morning's post. Advertisers not having a regular account at THE GARDEN Office are requested to accompany their orders by a remittance.

Cheques and P.O. Orders payable to THOMAS SPANSWICK. All letters to be addressed to the Publisher, 37, Southampton Street, Strand, London, W.C., and not to individuals.

ARCHIMEDEAN**LAWN MOWERS.****OPINIONS OF THE PRESS.**

"Far superior to any of ours."—*Vide The Field.*
"Remarkably easy to work."—*Vide Gardener's Magazine.*
"The quickest, most simple, and most efficient mower ever used."—*Vide Gardener's Chronicle.*
"We feel bound to recommend it to our readers as one of the best mowers we have as yet made acquaintance with."—*Vide Floral World.*

Prices from Twenty-five Shillings.

Delivered carriage free to all railway stations in Great Britain.

JOHN G. ROLLINS & CO. (Limited),
OLD SWAN WHARF, THAMES STREET, LONDON.

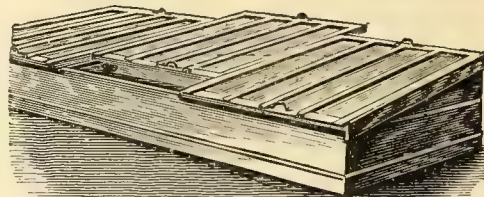
WRIGHT & HOLMES

Figure 6.—Cucumber Frames.

Lights two inches thick, glazed with 21-oz. English glass in our patent bars with copper screws. The frames are of superior make, sides and ends being bolted to the iron legs, painted four coats, well finished. Carriage paid to any railway station in England or Wales, at the following low prices for cash:—

8 feet by 6 feet..	£3 4 0	20 feet by 6 feet..	£7 5 0
12 feet by 6 feet..	4 11 6	24 feet by 6 feet..	8 12 6
16 feet by 6 feet..	6 0 0	28 feet by 6 feet..	10 0 0

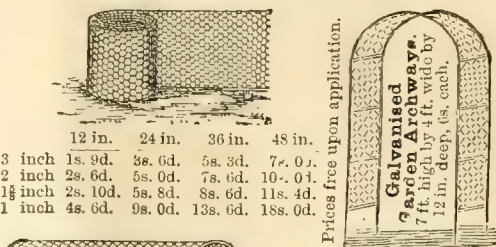
Packing cases charged 4s. each; if returned carriage paid, full amount allowed. Illustrated price list on application to

WRIGHT & HOLMES

Horticultural Builders and Engineers,
MOSELEY RD., BIRMINGHAM.

Galvanised Netting and Pea Guards

AT GREATLY REDUCED PRICES.



Every description of WIRE-WORK kept in stock or made to order. Men sent out to measure and give estimates FREE OF COST. Established 1855.

JOHN CLARK, 46 & 47, High St., New Oxford St., W.C.

GARDEN STAKES, LABELS, VIRGIN CORK, MATS, RAFFIA, &c. None cheaper.—WATSON & SCULL, 90, Lower Thames Street, London, E.C.

SITUATIONS WANTED.

RICHARD SMITH & CO. beg to announce that they are constantly receiving applications from gardeners seeking situations, and they will be happy to supply any lady or gentleman with particulars, &c.—St. John's Nurseries, Worcester.

WANTED, A GARDENER!!!—Having had long experience and an extensive connection, we are in a position to RECOMMEND MEN thoroughly capable of filling with credit any situation in the Gardening World. On receipt of full particulars we will recommend a suitable Man. Correspondence invited.—R. B. LAIRD AND SONS, Successors to Downie & Laird, Seed Merchants, Edinburgh.

A S Under Gardener in a good establishment where three or four are kept; inside and out; age 20; seven years' experience; good character.—"W. H.," 4, Lincoln Road, Dorking.

FOREMAN, Indoor or general; age 27; thirteen years' experience in all branches in good places; house and table decorations; three years in present situation as foreman.—M. WEBSTER, The Gardens, Newstead Abbey, Notts.

FOREMAN (age 27) in good establishment; ten years' experience in good places in Vines, Peaches, Melons, Cucumbers and stove and greenhouse plants.—"G.," The Gardens, Babraham Hall, Cambridge.

FOREMAN.—Mr. HATHAWAY, Gardener to Right Hon. Earl Lathom, can confidently recommend a young man to anyone requiring a thoroughly trustworthy man as above; age 25; four and three quarter years present situation.—Address, Lathom House, Ormskirk.

GARDENER (Single-handed or Under); four years' good character.—W. PEARCE, Lords Street, Hoddesdon, Herts.

GARDENER (Second); age 25; good references.—J. GRAY, Wellington House Lodge, Leyland, Preston.

GARDENER (Head), age 35; married; eighteen years' thorough practical experience; seven years gardener to the late Canon Sutton; leaving through his death; highest testimonials and references.—W. R. BLOXHAM, Brant Broughton, Newark.

GARDENER.—Situation wanted as good Single-handed, where help is given; understands the general routine of gardening; nine years' experience in good situations.—Apply, "A. H.," 102, Aberford, Leeds, Yorks.

GARDENER (Head Working); age 36; married; two children (youngest age 9); twenty-two years' practical experience in early and late forcing of Grapes, Peaches, Cucumbers, Melons, and flowers; also flower and kitchen gardens; four years in last situation; character of the highest order; abstainer.—"C. M.," 3, Albert Terrace, Castle Hill, Ealing, W.

GARDENER (Second) in the Houses; age 21; eighteen months' good character; total abstainer.—G. HYDE, The Gardens, Godden Green, Sevenoaks.

GARDENER, where another is kept, or good Single-handed; age 30; married, three children; good knowledge of stove and greenhouse plants, Vines, flower and kitchen garden; four years in present situation; good character.—"N. S.," 15, Russell Terrace, Ravenswood Road, Balham, S.W.

GARDENER (Head Working); life experience in good establishments; thoroughly understands all branches; excellent character; age 30; married, no family.—H. TULLETT, 5, Streatham Terrace, Eardley Road, Streatham, S.W.

GARDENER (Head Working); age 35, married; disengaged the end of June; six and a half years' head with present employer; leaving at own request; has had a life of first-class experience in noblemen's establishments; excellent character and references; good in land and stock if required.—WILLIS, Whitechurch, Reading.

GARDENER (Head Working).—JOHN FENNEL, Monkshatch, Guildford, Surrey; age 28, married; thirteen years' experience in all branches; highly recommended by present employer as above, having been with him nearly five years.

GARDENER (Head), where one or two are kept; thirteen years' experience in all branches; can be highly recommended.—"M. D.," Warren House Gardens, Stanmore, Middlesex.

G. HEWITT, The Gardens, Theydon Grove, can recommend a young man, who has been under him six years, as Gardener, Under or Single-handed; age 21.

GARDENER (Head).—Mr. W. WILDSMITH, Gardener to Viscount Eversley, Heckfield, Winchester, is desirous of procuring an appointment for a young man, age 20, who served him as Foreman over three years, giving complete satisfaction in every department of work; he is full of enthusiasm in respect of his calling, and is a good disciplinarian; no small place accepted.

JOURNEYMAN.—The advertiser wishes to recommend an intelligent young man as above, under a good foreman; age 24; four years' character.—GARDENER, Oakfield, South Dulwich.

JOURNEYMAN in the Houses in a good establishment; age 22; four years in present situation, and can have excellent recommendations.—H. SILCOCK, Dove-ridge Hall, Derby.

JOURNEYMAN, inside or inside and out; age 20; five years in last situation as Under Gardener; excellent character.—WM. HORNER, 5, High Grange, Howden-le-Wear, Darlington.

SECOND, where three or four are kept, or Under Journeyman.—E. HOAR, Gardener to Miss Foster, can with confidence recommend JAMES STEVENS, who has lived under him for the past two years, as an energetic, steady young man; age 20.—E. HOAR, The Gardens, West Bank, Alton, Hants.

RANSOMES'



LAWN MOWERS.

THE BEST IN THE WORLD.

IN ALL SIZES TO SUIT EVERY REQUIREMENT.
 "NEW AUTOMATON," the best Gear Machine.
 "CHAIN AUTOMATON," the best Chain Machine.
 "NEW PARIS," the best small Machine.
 NEW EDGE CUTTER, the only one of real service.
 NEW BANK CUTTER, the best for cutting Slopes.
 "NEW AUTOMATON" GARDEN ROLLERS.
 List Free. Month's Trial. Carriage Paid.
 ORDERS EXECUTED PROMPTLY BY ALL IRONMONGERS.
RANSOMES, SIMS & JEFFERIES, LD.
 IPSWICH.

THE BEST REMEDY FOR INDIGESTION.



CAMOMILE PILLS.

Are confidently recommended as a simple but certain remedy for

** INDIGESTION **

See Testimonial, selected from hundreds:—

CROYDON, 1885.

"Having been a sufferer from Indigestion for many years, I am happy to say that I have at last not only been relieved but perfectly cured by using Norton's Pills, and confidently recommend them to all suffering from the same."
 "J. WILKINSON."

For other Testimonials, see Monthly Magazines.

SOLD EVERYWHERE, price 1s. 1½d., 2s. 9d. and 11s.

HOLLOWAY'S

PILLS.—Indigestion.—How much thought has been bestowed and what voluminous treatises have been written upon this universal and distressing disease, which is with certainty and safety dispelled without fear of relapse by a course of this purifying, soothing, and tonic medicine! It acts directly on the stomach, liver, and bowels—then directly, though no less effectively, on the brain, nerves, vessels, and glands, introducing such order throughout the entire system that harmony dwells between each organ and its functions.

MARKETS.

WHOLESALE PRICES.

COVENT GARDEN.

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, per doz.	1 0-2 0	Horse Radish, per bundle	1 2-1 6
Beans, Kidney, per lb.	1 6-0 0	Beetroot, per doz.	1 0-2 0
Asparagus, per bun.	1 0-4 0	Tomatoes, per lb.	1 0-2 0
Cauliflowers, each	0 3-0 4	Spinach, per bushel	1 6-2 0
Lettuces, per doz.	0 9-1 3	Turnips, per bunch	0 4-0 6
Endive, per doz.	1 0-2 0	Carrots	0 4-0 0
Cucumbers, each	0 4-0 7	Leeks	0 3-0 4
Celery, per bundle	1 6-2 0	Cabbage, per doz.	1 6-0 0
Mustard and Cress		Cauliflowers, per doz.	
and mixed salads	0 4-0 9	bunches	2 0-4 0
Mushrooms, per bush.	0 6-1 0	English Onions, sieve	3 6-0 0
Seakale, per basket	0 9-1 0	Spanish ditto	2 0-0 0
		Capsicums, per 100	1 6-2 0

FRUIT.

Bananas, per doz.	1 6-0 0	Pine-apples, St. Michael	3 0-5 0
Grapes (common), per lb.	Pomegranates, doz.	0 0-0 6
Grapes (hothouse), per lb.	3 0-5 0	Coco-nuts, each	0 0-0 6
Apples (cooking), per sieve	2 6-4 6	Cob Nuts and Filberts, per 100 lb.	45 0-0 0
Nova Scotian and Canadian, per bar.	10 0-18 0	Walnuts, per 100	1 6-2 6
Apples and Pears or choice class for dessert, per dozen	3 0-6 0	Spanish Nuts, Almonds, and Chestnuts, per quart	0 8-1 0
Lemons, per doz.	0 9-1 0	Large Walnuts, per 100
Quinces, per dozen	2 0-0 0	Oranges (large), per dozen	1 0-0 0
Strawberries, per lb.	2 0-4 0	Oranges (small), per dozen	0 6-0 0

FLOWERS.

Heaths and plants in full blossom, per pot	0 9-1 6	Sprays and button-holes, each	0 4-1 0
Baskets of flowers and large bouquets	3 6-10 6	Shrubs and Evergreens for halls, &c., per pot	1 0-1 6
Violets, 12 bunches	1 0-1 6		

STRATFORD.

Asparagus, per bundle	1 0-1 6	Onions (Lisbon), per case	8 6-9 0
Brussels Sprouts per half sieve	3 0-4 0	Cucumbers, per dozen	3 6-7 0
Broccoli, per bus.	2 6-3 6	Onions (Egyptian), per bag	6 6-7 6
Cabbages, per tally	8 0-10 0	Onions (Spring), per dozen bunches	3 6-4 0
Celery, per roll	0 9-1 0	Onions (Spanish), per case	9 0-11 0
Carrots, doz. bund.	3 0-3 6	Onions (Dutch), per bag	6 0-8 0
Savoy, per tally	10 6-11 0	Onions (German), per bag	12 0-14 0
Radishes, per tally	2 6-5 0	Onions (English), per bag	10 0-12 0
Greens, per doz. bun.	6 0-..	Spinach, per bushel	2 0-2 6
Cauliflowers, per dozen	8 0-4 0	Horse Radish, per bundle	1 2-1 4
Potatoes—Per ton.		Salad, per dozen baskets	1 6-2 0
Beauty of Hebron	100 0-120 0	Watercress, per doz.	0 6-0 8
English Magnums	50 0-70 0	Apples, American, per barrel	18 0-25 0
Scotch Magnums	65 0-85 0	Apples, English, per bushel	3 0-7 0
English Regents	60 0-80 0	Pomegranates, per case	6 0-7 0
Scotch Regents	81 0-90 0	Figs, per cwt.	15 0-..
Fenlands	35 0-50 0	Dates, per cwt.	7 0-..
Potatoes, new, per cwt.	8 0-12 0	Grapes, per lb.	2 0-4 6
—Kidneys, per cwt.	10 0-12 0	Grapes, per barrel	5 6-18 0
Turnips, per dozen bunches	3 0-3 6	Pears, per bushel	3 0-6 0
—per ton	40 0-50 0	Lemons, per case	10 0-..
Carrots (household), per ton	60 0-80 0	Oranges, per case	9 0-12 0
—per dozen bunches	3 0	Walnuts, per peck	2 0-3 0
Parsley, per doz. bunches	2 0-4 0	Spanish Nuts, per dozen quarts	2 6-8 0
Turnip tops, per bag	1 6-2 6	Brazil Nuts, per sk.	54 0-60 0
Herbs, per doz. bunches	3 0-4 0	Coco-nuts, per cwt.	88 0-99 0
Salads, per dozen	2 0-2 6	Dates, per cwt.	9 0-14 0
Lettuce, per score	0 10-1 6	Almonds, per sack	32 0-34 0
Leeks, per doz. bunches	3 0-3 6	Chestnuts, per sack	7 0-10 0
Mint, per doz. bunches	2 0-3 0	Carrots, per dozen bundles	2 6-8 6
Parsnips, per ton	50 0-70 0		
—per score	0 6-0 9		
Rhubarb, per dozen bundles	2 0-3 6		
Beetroot, per score	0 7-..		

BOROUGH AND SPITALFIELDS.

Potatoes—Magnum Bonums, per ton	50 0-100 0	Champlons	50 0-70 0
Regents	60 0-110 0	German Reds, per bag	4 6-..
Hebrons	Dutch Rocks	50 0-60 0

Seed Trade.

The Seed Market to-day presented quite a holiday appearance, and nothing of interest took place, transactions being very few. Small orders still drop in for Clover and Grass seeds, the sowing season this year being unusually protracted. As regards values there is no appreciable change; stocks on hand remain in moderate compass. Advices from America report the recent advance in Cloverseed as fully maintained, and some speculation purchases have been taking place. Rapeseed continues in favour and higher rates are anticipated; Mustard also sells freely. Blue Peas move off on former terms; Hemp and Canary seed dull. Scarlet Runners are still enquired for.

No. 863. SATURDAY, June 2, 1888. Vol. XXXIII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

RAILWAY STATION FLOWER GARDENING.

TRAVELLERS by the main line of the Midland Railway to Manchester and Liverpool on reaching Bakewell station cannot fail to have noticed for several years past the rich floral display and the marked improvement in the appearance of the station and its precincts. If any doubt has existed as to the practicability of attempting the cultivation of choice spring flowers at a bleak and exposed railway station in the Peak of Derbyshire, that doubt may be set at rest by a visit to Mr. G. R. Garner, the stationmaster at Bakewell. On approaching the station from the south, near the bridge, the steep banks of the cutting above the platform, some 20 yards deep and upwards of 60 yards in length, are tastefully laid out in borders of neat and simple design, terrace above terrace, with narrow paths between for convenience of planting and attending to the flowers. Handsome specimens of evergreen and coniferous plants occupy prominent positions on the banks, and when they are thoroughly established, will add greatly to the beauty of the scene. A low limestone wall, 4 feet high, is most beautifully covered here and there with splendid masses of *Arabis alpina*, which were dense sheets of snowy blossom when I saw them a few days since. To show that they are perfectly at home in the quarters chosen for them, I may mention that many of the clumps measure 4 feet in length and breadth, reaching to the asphalt platform at the base of the wall.

The beds and borders are edged with large and handsome pieces of tufa from Lath Kiln Dale, a lovely and romantic glen about three miles distant from Bakewell. Many of the beds and borders are at present occupied with Hyacinths, Tulips, Narcissi, Scillas, Lilies, Ranunculus, &c. Others are sown with annuals, and those containing the bulbs will later on be filled with summer flowering plants, which Mr. Garner is preparing in his little greenhouse near at hand. Inside the glass verandah there are raised beds edged with large blocks of tufa, all filled at present with the before named bulbs; large wooden baskets containing Ferns and flowering plants are suspended from the roof, and at the northern outside end a long irregularly shaped border on either side of the line was one brilliant mass of Hyacinths of various colours in full bloom.

In a short time Tulips will make a gay and pretty show. About five thousand bulbs were planted last autumn. Mr. Garner does not remove his bulbs after flowering, but leaves them in the ground to ripen at their own free will, and they continue to flower profusely every season. That success has crowned these well-directed endeavours may be found in the fact that Mr. Garner has thrice in succession taken the prize offered by the Midland Company for the best kept and arranged flower garden on the Midland Railway. What he has accomplished at Bakewell by industry, an enthusiastic and ardent love of gardening, and watchful care of the plants he cultivates so well, deserves to be recorded. He has shown what can be done to change the bare and dreary slopes of a railway cutting, and transform them into a beautiful garden, gay throughout a long

period of the season with lovely plants and flowers, affording pleasure to visitors from all parts and gratification to himself in knowing that he has been the means of contributing to the happiness and pleasure of hundreds who yearly witness the beauty of his railway garden at Bakewell.

WALTER G. GAIGER.

ROSE GARDEN.

THE MARECHAL NIEL ROSE.

PERMIT me to thank Mr. George Paul, "A. D.," and James Kelway for the valuable information they have furnished (p. 455) as to the likeliest means of promoting the longevity of this glorious Rose. It matters little that the prescriptions all vary. What is needed in this and so many other cases is, a clear record of prescriptions or practice that have succeeded admirably in different places under various conditions of soil, climate, and culture.

It seems that neither the cause nor cure of the short life of this Rose is to be found in the stock, for Mr. Paul's veteran plants are on the Brier. One, at least, of the oldest of "A. D.'s" is also on the Brier, and others double worked, thus Briers worked with Mme. Berard and Lamarque, and the latter budded with the Maréchal Niel. Of these two intermediary stocks, "A. D." on the whole, prefers the first. As considerable importance is justly attached by "A. D." to the fact that this intermediate stock had exerted a potent influence in bringing up the size of the Brier stocks into harmony with the robust nature of the growth they had to sustain, it would be interesting to know what lengths of Mme. Berard and Lamarque intervened between the Brier and the Maréchal Niel. "A. D.'s" practice of working fresh shoots of these intermediaries as they arise, or may appear advantageous, is also admirable, as it virtually provides a fresh plant in case the original Maréchals succumb. But "A. D.'s" strong point is, that the danger of losing plants has been overcome through the double working.

Mr. Kelway's antidote against sudden death is Tea Rose stocks. All he has grown on the Dog Rose have succumbed to warts; all that he has grown on Tea stocks are free. Years ago the writer wrote with equal confidence of Tea Rose stocks, and especially of the immunity secured through working Maréchal Niels on the Gloire de Dijon, perhaps, on the whole, the best Tea for stocks we have. The supposed panacea failed in my own and in many other hands. And yet here we have it once more proclaimed by one of our most distinguished cultivators, and with him on a considerable scale, that the Tea stock proves proof positive against warts.

As to Mr. George Paul's remedy of stem-slashing the stock to emancipate it from the cruel environment of a hide-bound condition, that has often been tried and found utterly wanting. And no wonder; for whatever may be the cause or character of the excrescences I have called warts, they are wholly distinct from a common hide-bound state or undue constriction of wood or bark. However, as the slitting of the bark does little or no harm, there is no reason why Mr. Paul's panacea may not be tried. To have any chance of success, the bark had better be slashed from base to summit of main stems and branches.

Perhaps Mr. George Paul will be good enough to say what, if any, importance he attributes to times of slitting and modes. By the latter is meant whether he carries the slits in straight lines up the stem from base to summit, or, as seems more probable from the words he

uses, the slits are made anyhow and not continuous. From the fact that the warts slit themselves and the stems right through, this stem-slashing was one of the first modes of cure attempted by the writer.

However, as Mr. Paul does not seem to have had these killing warts, his slashing must be accepted as a mode of prevention rather than of cure, and this would render it of far more value. It also suggests the inquiry whether it was begun soon after the plants were worked, and if it is repeated annually or oftener.

I also note the expression used by "A. D.," that his Maréchal Niels on their own roots succumbed to excrescences developed on the surface of the soil. The place of these almost suggested some obstruction or constriction just at the collar of the plant, and if so, suggested bark-slashing as a likely cure.

My first experience of warts pointed to similar conclusions as to their probable cause and cure. They had their origin, and for some years confined their throttling powers to a point contiguous to, or identical with, the union of scion and stock. Hence various attempts to find stocks that would keep pace with the gross stems and shoots of the Maréchal and the free slitting of the bark through and beyond the point of union as well as to the base of the stock to the ground, whether short or long. The union was also dressed with a mixture of clay and cow manure, and the stems of the stock kept moist with wet Moss and other expedients.

I do not say that all this was futile, nor that it did not ward off the end of some of our plants. But the fact remains that the warts have killed plant after plant, and that instead of being localised to the union of scion or stock they have developed themselves all over the Maréchal Niel Roses, gradually, and sometimes very suddenly, undermining their constitution and destroying the plants. And in this way hundreds of the finest specimens throughout the kingdom have been and are being destroyed. Hence the commercial, as well as horticultural, importance of the information of how to save Maréchal Niel furnished by your correspondents, and of any further information they or others can throw on the causes and prevention or cure of their premature destruction through warts. Who among our talented host of rosarians will undertake to give us a Maréchal Niel Rose with the cast-iron constitution of a Gloire de Dijon or a Mme. Berard?

D. T. F.

ROSES AT MANCHESTER.

ROSES have long held a distinguished place in the great Whitsuntide shows at Manchester, which attained their majority on that opened on the 18th ult. No less than £80 was offered for groups of Roses in pots and cut blooms on that occasion; and there was no feature of the great show, not even excepting the magnificent display of Orchids, artistic groups of foliage and flowering plants, and glowing banks of Rhododendrons, that commanded more admiration than the Roses. Two nurserymen, Mr. George Paul, of the Cheshunt Nurseries, Herts, and Mr. W. J. Williams, of Heaton Farm, Stockport, each exhibited groups of thirty and twenty Roses in pots. Two or three amateurs showed pot Roses. The latter, however, have much to learn before they attain the standard of the trade growers. Even in the nurserymen's class more and closer competition is wanted, as the Messrs. Paul easily won first honours.

In the cut bloom classes, too, more competition is much needed, though some of the blooms exhibited were as fine as have ever been seen at any season. There were, however, only three exhibitors for

twelve Teas, and one each for twelve Perpetuals, and eighteen Roses. True, some more stands put in an appearance, but they could hardly be counted as Roses at a show of the high character as that of Manchester.

The high prizes offered in the Rose classes as well as the superb character of some of the blooms shown prove that more and better can be done to fill the cut bloom classes of Roses in May. A box of thirty-six superb blooms of *Maréchal Niel*, sent not for competition by Colonel Onslow, of Shrewsbury, charmed all beholders. The second prize for twelve Teas was taken with twelve *Maréchal Nels*, equal in size and substance, and even more deeply coloured than the above. The third honours for twelve Teas were carried off by Mr. Brown, of the Heaton Nurseries, Liverpool, with six *Maréchal Nels* and six *Catherine Mermet*s. Nevertheless, the twelve best Teas were made up without one *Maréchal Niel*, and twelve finer Roses were never seen at any season of the year. These were all distinct varieties, a condition not insisted on either in blooms or plants at the Whitsuntide show at Manchester. Mr. James Marshall Bully had the honour of carrying off the premier prize with the following: *Catherine Mermet*, Mme. Walsh, Marie Van Houtte, *Souvenir d'un Ami*, Hon. Edith Gifford, Comtesse de Nadaillac, Anna Ollivier, Princess of Wales, *Alba Rosea*, Mme. de Watteville, Grace Darling, *Niphetos*.

The classes of twelve and eighteen Perpetual and other Roses were not remarkable, Mr. Brown showing some fair blooms of *Merveille de Lyon*, *Cheshunt Hybrid*, Mme. Lacharme, Louis Van Houtte, Ulrich Brunner, and Duke of Teck in his twelve Perpetuals. Mr. George Paul showed some good flowers of *Maréchal Niel*, a very fine bloom of *The Bride*, *Niphetos*, *Innocente Pirola*, *Catherine Mermet*, Marie Van Houtte, *Sunset*, *Francois Kruger*, and *Souvenir de Paul Neron* in his eighteen cut Roses. The same exhibitor carried off the first honours for the group of thirty Roses and also for the group of twenty in 9-inch pots. These were well-grown plants, some in the first group being large, as, for example, a huge bush of *Céline Forestier* with about 200 blooms. The same Rose as well as several others were well shown in the same group as standards, and this combination of standards and dwarfs added greatly to the artistic effect of this fine group of Roses.

The following were the sorts shown by Mr. Paul. In the group of thirty, several *Céline Forestier*, *Heinrich Schultheis*, *White Baroness*, Mme. Eugène Verdier, Marie Van Houtte, Ulrich Brunner, Mme. Nachury, Mme. Margottin, Marie Baumann, Paul Neron, Baron de Bonstetten, William Warden, *Francois Levet*, Lord Francis Cavendish, *Merveille de Lyon*, *Francois Kruger*, Juno, *Maréchal Niel*, and Antoine Mouton.

In Mr. Paul's group of the best twenty Roses in pots were *Edouard André*, *Merveille de Lyon*, Dupuy Jamin, *Marquise de Castellane*, *Marguerite de Roman*, Ulrich Brunner, Mme. Perrière, *alba rosea*, Mme. G. Luizet, Charles Lawson, *Céline Forestier*, *Edouard Morren*, *Francois Levet*, *Innocente Pirola*, Marshall P. Wilder, *Heinrich Schultheis*, Camille Bernardin, Mons. Furtado, Mme. Cusin, Isaac Perrière, and Lady Alice, a pale sport from Lady Mary Fitzwilliam, with most of the pink left out.

In Mr. Williams' groups were some nice plants of the following varieties: *Princess Beatrice*, Comtesse de Serenye, Countess of Oxford, *Magna Charta*, *Baroness Rothschild*, Jules Margottin, *Marquise de Castellane*, *Merveille de Lyon*, *Souvenir d'un Ami*, *Niphetos*, Mrs. Baker, *Duchesse de Vallombrosa*, *Edouard Morren*, and Ulrich Brunner.

The groups of the amateurs call for no special notice, either in regard to culture or variety, and the sooner they pull their plants up to the trade standards the better for their credit and pleasure.

D. T. F.

The old *Lamarque Rose* is still prized for its small white flowers, as they are useful for button-holes. It is like *Monère*, but this has a decided pinky tinge.

Rose La France is valued as much for forcing as for the garden. Its lovely pink flowers are indeed sought after the whole year round.

The *Himalayan Rosa sericea* is flowering freely on a sunny wall at Kew. It has stiff, straight stems and leaves like those of our common Brier, the single flowers being milk-white in colour relieved only by the tuft of sulphur-yellow stamens. It makes an excellent robust Rose for a wall.

Rose General Jacqueminot is grown largely by Mr. May, of Edmonton, for the market. It forces well, and the rich crimson, well-shaped flowers find a ready sale. The fragrance is delicious. *La France* and *Niphetos* are two other varieties that are especial favourites.

Rose Niphetos.—For planting at the base of low walls outdoors this Rose is very useful, particularly if a southern aspect can be provided. Although this is a late season, I have been able to cut several beautiful buds and flowers. The foliage, too, always assumes a much darker tone of coppery colour on plants in such a position as that named than from those grown indoors.—B.

Catherine Mermet Rose is surpassed by none in its line of colour. When half expanded its beauty is beyond description, the firm shell-like petals folding round and forming a bloom of solid, handsome expression. Its sweet fragrance increases its value. It is a good kind to grow with the *Maréchal Niel*, as the salmony rose tint of the *Catherine Mermet* is so different to the charming yellow of the other. Mr. Dean, of Bedford, has fine old plants of both these Roses in a cold house, and it is surprising how much more vigorous *Maréchal Niel* is than *Catherine Mermet*.

NOTES OF THE WEEK.

Fire Pink (*Silene virginica*) has flowers as brilliant in colour as those of the scarlet *Lobelia*. A patch of it must be intensely rich.

Geum miniatum, from Mr. T. S. Ware, is a free-flowering and richly coloured kind. The blooms are about the size of a florin, and of a bright orange-scarlet.

Saxifraga Macnabiana, which has a tall pyramidal plume of small white-crimson spotted flowers, comes from Mr. Ware. It is a pretty *Saxifraga* when in bloom.

A white-flowered *Orchis mascula* found growing wild on Tweedside has been sent us by Dr. Stuart. It is an extremely beautiful plant, and the flowers are quite white.

Ivy-leaved Pelargoniums are a feature just now in the Royal Horticultural Society's Gardens at Chiswick. Those interested in this flower will there find an excellent collection.

Polemonium himalaicum, from Mr. T. S. Ware, is a Jacob's Ladder like *P. caeruleum* in character. It is robust in growth, the stems tall, and the flowers of a clear blue colour.

Day Lilies forced.—We hear these are forced very successfully at Sir C. Guinness's place, Farnleigh, near Dublin. Many of our fine hardy flowers should be forced, if only to prolong their bloom.

Varieties of the Mountain Cornflower (*Centaurea montana*) come to us from Mr. T. S. Ware, of Tottenham. The bold handsome flowers display pleasing tints of colour. We admire the rich pink form, and the one with pure white flowers.

Single Pyrethrus from seed.—Mr. Hartland sends us these, and says: "I prefer them for their simple formation, in shape like the white *Chrysanthemum Leucanthemum* of meadows, but in all the lovely shades of pink, white and crimson."

Mountain Cornflower (*Centaurea montana*).—Varieties of this come from Mr. John Grey, The Gardens, Normanton Park, Stamford. One is very rich purple; indeed, it is surprising what a variety of colours can be obtained in a batch of seedlings of this large-flowered *Centaurea*.

The *Tree Tomato* (*Cyphomandra betacea*) is now in flower here, and I hope shortly to be able to report that it is producing fruit. It will also enhance the value of this rare plant when it is stated that I find the flowers to be deliciously fragrant.—R. H. VERTEGANS, *Chad Valley Nurseries, Birmingham*.

Abutilon vitifolium in Shropshire.—It may interest some of the readers of THE GARDEN to know that *Abutilon vitifolium* stands the winter here. It flowered beautifully last year, and is covered with buds this year. *Styrax japonica* mentioned recently in THE GARDEN also flowers here. I should like to

recommend two other beautiful shrubs which seem quite hardy: *Pterostyrax hispidum* and *Olearia macrodonta*. The flowers of the latter are very sweetly scented.—T. M. BULKELEY-OWEN, *Tedsmore Hall, Shropshire*.

Corokia Cotoneaster, a very curious little shrub with small, bright yellow, stary flowers, is now in flower in my shrubbery, and the *Adenocarpus decorticans* is in most profuse and beautiful bloom. *Olearia macrodonta* will also bloom well this year, having had no flowers at all last year.—W. E. GUMBLETON.

The New Zealand Flax.—I have a specimen of *Phormium tenax variegatum* that has been planted over twenty years in a conservatory, and has never bloomed before. The leaves are 9 feet long, and the height of the spike is at present 10½ feet.—WILLIAM HENRYS, *Hengherst Park Gardens, Woodchurch, Kent*.

The white Columbine.—This is a most beautiful hardy plant when established in large herbaceous borders and in clumps on the Grass in rich pasture. For cutting purposes it is admirable. From Mr. Hartland.

* * A most beautiful flower, spotless white, and elegant.

The sulphur-coloured alpine Windflower (*Anemone sulphurea*).—Flowers of this lovely hardy plant come to us from Mr. Vertegans' Chad Valley Nurseries, Birmingham. We wish it were commoner. Mr. Vertegans says: "These are gathered from a plant growing in one of my mixed herbaceous borders. I have found it hardy, easy to cultivate, and a great favourite with visitors."

Olearia Traversi, or the Bastard Sandalwood tree, or Ake-Ake of the natives, is a rare and interesting shrub from Chatham Island. It flowered last year for the first time in Great Britain at Stranraer, in the gardens of the Rev. T. Barty, and is now going to bloom for the first time in my next neighbour's (Mr. W. Bagwell's) garden at Eastgrove. Specimens can be sent you when it opens if you wish.—W. E. G.

Double-flowered Poet's Narcissus.—Mr. Hartland, of Cork, sends us two forms of this called *patellaris* and *verus*. The large-flowered variety *patellaris* is generally imported from France. The small-flowered sort is what one generally finds in the cottage gardens of England and in some rich meadow pasture land in Ireland. The French form has no red markings, while in the other these are quite apparent even under the highest cultivation.

Tufted Pansies, sweet-scented.—Cloth of Gold and Bronze Queen are richly perfumed sorts, also Countess of Kintore, and the beautiful groundwork is a rich blue, while that of the Mearns is a rich plum, and the upper petals of each are white. The variety *Bronze Queen I* grow specially for its perfume.—W. B. H., *Cork*.

* * Very showy and pretty, but we like the simple colours better.—Ed.

Ranunculus Lyalli.—This noble herbaceous species from the New Zealand mountain streams has just flowered in the Glasnevin Botanic Gardens, Dublin, and has been much admired. In its native haunts it is known as the "Water Lily of the Shepherds," and it deserves culture in our gardens as perhaps the most beautiful of all the Buttercups known. It has fresh green, peltate leaves, and its flowers are borne in a paniculate manner, each being pure white, with a cluster of yellow stamens, and 3 inches to 4 inches in diameter.—F. W. B.

Odontoglossum triumphans.—Several forms of this were lately in bloom at Tayside, Perth. The finest variety had a spike over 2 feet in length, bearing thirteen flowers about 3½ inches in diameter, unusually bright and clear in colour, bright yellow, evenly barred, and spotted with cinnamon-brown. Of the much rarer *O. Andersonianum* there was a nice plant with four strong spikes, bearing together sixty flowers, white, delicately spotted with cinnamon-red. Other varieties in flowering condition comprised *O. Alexandrae*, *cirrhum*, *Pescatorei*, and *gloriosum*, the last very sweet scented.—J. S. GRAY.

A green-flowered Primrose.—Several notes on the variations of form in the flowers of our wild Primrose having of late appeared in THE GARDEN, you may perhaps be interested in the blooms I now enclose, which are not only peculiar in form, with a tendency to double, but especially remarkable in colour, being of a pale green, very similar to that of the leaves themselves. I found the plant growing

wild in Norfolk some twelve years since, and the colour of the flowers has remained constant ever since.—THEODORE H. MARSH, *Canston Rectory, Norwich*.

* * An interesting form of our wild Primrose. The flowers are as green as the leaves, inclining to double in some instances.—ED.

The white-flowered Japan Primrose.—There are several plants of the lovely white form of *Primula japonica* in bloom in the hardy alpine house at Kew. It is similar to the type in habit and is quite as robust, but the flowers are a trifle larger and pure white, with the exception of a ring of orange in the centre. Such a beautiful flower should soon find its way into general cultivation.

Aquilegia Stuarti, from Dr. C. Stuart, Hill-side, Chirnside, N.B., is a lovely flower, larger than that of *A. glandulosa*, and described as a cross between this Columbine and *A. Witmanni*. It bears its nodding flowers on tall, graceful stems, and the colour is of the deepest blue, except the upper half of the inner segments, which are white; the tuft of golden stamens enriches the bloom. Such a free-flowering, elegant variety should become known.

The Foam Flower (*Mitella* (*Tiarella*) *cordifolia*).—This is a plant not often met with in gardens, but just now very showy on the rockery. It grows in a compact manner 1 foot high; the flower-spikes are upright, creamy white in colour, and contrast well with the bronzy markings of the green leaves. It is perfectly hardy, and revels in a sunny spot where it can have a good depth of soil, in which the roots delight.—A.

The Garland Flower (*Daphne Cneorum*).—For trailing over the rocks in the rock garden this *Daphne* is just the thing to plant where such an effect is required. It is now flowering freely, filling the air around with its perfume, its bright pink flowers producing an effect not easily obtainable by the use of any other plant at this particular time of the year. To get it to flourish well peat soil should be used.—A.

Carpentaria californica.—By this post I have pleasure in forwarding you some blooms of *Carpentaria californica* taken from a spray bearing other buds, which I did not like to sacrifice, these being the first that have come under my notice in this country. The plants are in a cold frame and looking remarkably vigorous.—R. H. VERTEGANS.

* * A lovely plant. We saw it very finely in bloom the other day on the back wall of a cool house.—ED.

Mimulus Giant Hose-in-Hose.—Herewith I send you some blooms of my new giant *Mimulus*, a selection picked out of a large batch of seedlings some three years since. I have now increased the stock, and think it worthy of a name. The plant grows in pyramids, and the blooms, as you will see, appear with lengthy stems. It makes a most effective bed, and as a pot plant is very admirable. Notice the fine markings and the bold, firm texture of the repeated cup within cup, and the colour unique among hardy plants, viz., a rich buff.—W. B. H., *Cork*.

* * A showy *Hose-in-Hose* *Mimulus*, the flower rich buff. We have seen as fine, however, as regards colour and size.—ED.

Plants in flower.—On a bit of rocky edging in its native sod, the lovely little *Gentiana verna* with its dense blue stars looking frankly upward at the sun. There are some great speckled flowers of the Persian *Iris susiana* fluttering in the breeze, but far more dainty and more exquisite still are the blossoms of *Iris florentina* and *I. albicans* on a bit of sunny rockwork, uprising from a bog garden wherein the Globe Flowers are quite at home. There is the Poppy-like sparkle of colour from some masses of *Gesner's* Tulip, and a satin-like sheen on the *Pæonies*, both single and double, but nothing pleases one much more just now than do the Blue-bells (*Scillas*) of all sorts and hues, as planted in broad clumps and masses under the flickering shade of the trees. The *Narcissi* are gone for the season if we except the double poeticus and the sulphur *N. gracilis*, one of the sweetest and latest of the whole genus. There is a gleam of rose colour from

the Judas trees, and the *Wistaria* hangs out its vine-like clusters of blossom on the old grey wall, while the Bird Cherry and the Hawthorn, alike snow-white with bloom, and sweet as new-mown hay, are in full flower.—VERONICA.

The Mexican Orange Flower (*Choisya ternata*) in Devonshire.—This charming shrub is again in its fullest beauty in Messrs. Robert Veitch and Son's nursery at Exminster. The long spell of frosty east winds seared it a good deal during the spring, but it has quite overcome the bad effects, and has put on the most luxuriant foliage. The bright glossy green leaves show up the white, Orange-like blossoms so effectively as to make it one of the very best flowering shrubs grown. The specimens I have seen are about 4 feet to 5 feet in height, and fully 5 feet through. As they stand side by side in full bloom, they appear as a dense hedge of Orange trees or orange-blossomed Evergreens, while the pleasant aromatic smell much enhances their value as a shrub for lawns or pleasure-grounds. It makes a fine plant for conservatory work, and flowers freely in a medium temperature.—A. H.

Scilla nutans alba and **S. campanulata alba.**—I enclose you a few pretty flowers of the former, which are Lily of the Valley-like in appearance when put up with a bit of Maiden-hair Fern. You will notice the perfume and the peculiar glossed papery look the nodding blooms have got. I wonder, if the bulbs were specially prepared on warm sunny borders and not planted too deeply, whether they would answer instead of Roman Hyacinths for forcing? The latter cost a lot of money annually and they are no use after being once used. Here is a hardy plant that is almost indigenous to English soil and will grow anywhere. I am going to try and force them this winter. The pretty *Sternbergia angustifolia* is another plant that should be ripened on sunny borders, and potted up in August for an October bloom in the cool conservatory, and the flowers of which in full sunshine resemble those of the Persian Tulip. Parkinson called it the narrow-leaved winter Daffodil.—W. B. HARTLAND, *Temple Hill, Cork*.

Tulips at Haarlem.—Messrs. E. H. Krelage and Son, of Haarlem, inform us that their collection of Tulips will be in bloom probably in the beginning of June. The beds, which cover an area of more than 7000 square feet, will be protected, and in the nursery grounds is planted a large collection of the best varieties of the various classes of late Tulips. Amongst those especially worth noting are the one-coloured breeders of Flemish origin, called Buguettes by the French. Until now these varieties have not been sold, but by-and-by collections of some of them can be offered. Here are represented flowers ranging in colour from pale porcelain to the darkest violet, from soft rose to the most brilliant red, from light brown to the darkest black. These Tulips have very large well-formed flowers, which are borne on strong stems. If they were grown in quantity they would give our gardens a new feature at a moment when fine and striking colours are so much wanted. The black and the darkest red shades in this collection are really unique, and seem to be of great horticultural value.

* * A box of the above-mentioned Tulips has come to hand, showing flowers of robust form and variously coloured.—ED.

Victoria Lily in Adelaide.—The first flower of the magnificent *Victoria regia* appeared to-day (April 19). This morning at ten o'clock it was fully 14 inches across and of a beautiful rosy pink, but this afternoon at five o'clock it was a shapeless mass, gradually sinking beneath the water. The reason of its blooming so late this season, Dr. Schomburgh informs me, is owing to an accident to the boiler early in the summer, the necessary repairs taking three weeks to accomplish, during which time the temperature fell as low as 60° at night. At one time the plant looked so injured that all hopes of it blooming were given up. It is grown in a house specially devoted to plants of this class, and is always well worth a visit. The tank measures 25 feet by 20 feet, is oval in shape, raised 4 feet above the level of the ground and heated by hot-water pipes, the tempera-

ture in summer being 120° by day and at night 80°. Last season, this magnificent plant showed two fully-expanded flowers at one time, a thing Dr. Schomburgh never saw in all his travels. The leaves measured 7 feet, being only 1 inch less than the largest he measured in their native country.—W. B. W., *Adelaide, South Australia*.

FERNS.

W. H. GOWER.

JAMESONIA.

THIS genus, as far as I am aware, does not exist in cultivation. It is said by some authors to contain but a single species, whilst others make about five species; at any rate, by my specimens of these plants I can easily distinguish different forms which would be perfectly distinct as garden plants, so that, whether species or varieties, they would be equally valuable for the garden. *Jamesonias* are remarkable Ferns, inasmuch as they appear to go on developing pinnae from the apex, and thus increase the frond for a considerable period of time. The fronds, speaking roughly, resemble somewhat a large single pinna of a *Gleichenia*; they have a slender running stem and erect simply pinnate fronds, the pinnae densely covered with woolly hairs; the pinnae in the largest form which I have (*J. cinnamomea*, the species on which the genus has been founded) are about a quarter of an inch long, with the margins rolled inwards. Why, then, have we never received these plants? They have a wide distribution in the mountain regions of tropical America, a country over which a large number of Orchid collectors have travelled, but I suppose these men can see nothing beautiful except an Orchid, and pass the *Jamesonia* and many other lovely plants by.

One exception, however, must be made in the case of Pearce, who sent specimens home of a kind which he gathered at an elevation of 10,000 feet on the Andes of Ecuador, and which worthily bears his name. Messrs. Carder and Shuttleworth, when travelling in the regions of these plants for Mr. Bull, of Chelsea, sent home many plants besides Orchids, but I do not think that any of these *Jamesonias* were sent home by them. I do hope, however, that some of these beautiful Ferns may find a little space in some of the many boxes of Orchids which reach our shores annually. The Fern lover and grower certainly does require the introduction of a few fresh forms to give a new impetus to the cultivation of these plants, just as the Orchid world was started into fresh life a few years back by the sudden influx of quantities of novelties. Hybrid Ferns, on the other hand, are more difficult to secure, and although we already have a few very pretty things obtained in this way, I think the most beautiful are those which have come about by chance sports. However, there are an immense number of Ferns known to exist, and they are only awaiting introduction. Will anyone commence the operation? I fancy it would pay again now. Some years ago choice kinds realised high prices, and were eagerly sought after. It is a disgrace to the present age that these plants do not take a higher place than they do at present.

SHORT NOTES.—FERNS.

Small terra-cotta baskets for Ferns are the fashion, and, filled tastefully with the more hardy kinds of Ferns, make excellent room ornaments.

The three most useful Ferns are said to be *Adiantum cuneatum*, *Pteris tremula*, and *Pteris cretica*, and certainly these are the kinds we generally find in dwelling houses.

Pteris Mayi is an acquisition, and finds a good sale in the market. It has pale silvery grey crested fronds, and the growth is free. We noticed a large batch in Mr. May's nursery at Edmonton.

Choice Maiden-hair Ferns.—There are several useful *Adiantums*, and amongst the number we may include the following, all of which have special points of merit: *Adiantum Reginae*, of which there are good plants in the nursery of Mr. May at Edmonton, was not very long ago certificated by the Royal Horticultural Society as an addition of importance to this section of Ferns. It is of the character of *A. Victoriae*, but of bolder growth and with longer stipes, while the pinnules are larger, though of the same rich green colour. *A. rhodophyllum* is at once recognised by the decided pinky bronze of the young fronds; it is a dense-habited, useful Fern. *A. scutum* is admired by all for its loveliness, and in Mr. May's nursery there is one form with the fronds of quite a rosy tint, something like what we find in *A. rubellum*, a Maiden-hair in the way of *A. tinctum*, and an elegant, pleasing Fern. *Adiantum Williamsi* is one of the loveliest of all Maiden-hairs; the stipes are slightly powdered, as in the *Gymnogrammas*, especially in a young state. A large, spreading mass of this *Adiantum* is of great beauty. Of course, there are large batches of *A. cuneatum*, which is the best of all Ferns in a general way, as the light, elegant fronds stand well when cut, and the plant makes a free, vigorous growth.

CHRYSANTHEMUMS.

E. MOLYNEUX.

FINAL POTTING.

By the time these lines are in print the earliest plants in a large collection which were struck at the time advised will be ready for their final shift into the flowering pots. Before this takes place the plants should be examined to make sure the pots are thoroughly filled with roots, and not in any way what is termed pot-bound. When this is the case it often happens that the bottom leaves of the plant turn yellow, and where the soil has been allowed to become dry several times the leaves often fall off. Every available means should be taken to maintain the foliage intact right down to the soil, and of a healthy green colour. The plants should not be transferred to their flowering pots before they are ready, as the soil is the more likely to become soured before the plants are in flower by the continual watering they require through the hot days of summer, and also by the liberal use of stimulants applied to the roots when necessary.

To have blooms of the finest quality for exhibition or home use, 9-inch pots are the best for single plants, and two plants may be placed in an 11-inch pot, always choosing the same variety for these pots, as they are more likely to grow to the same height than will two distinct varieties. Where one plant reaches a height, say, of 4 feet, and the other in the same pot grows 6 feet high, arranging such plants is inconvenient, and their appearance is not satisfactory, neither do the dwarf plants flourish so well when hidden in a group by their taller neighbours. Weak-growing kinds also should be used where two plants are grown in one pot, and there is no reason why this should not be done where a stock of such pots is on hand. I can assure beginners that success may be attained by adopting the method described. For large specimen-trained plants 11-inch and 12-inch pots are suitable sizes. Single varieties and pompons may be grown in 8-inch and 10-inch pots, the last size being for ordinary conservatory use where large specimens can be accommodated.

It is necessary to pot the plants firmly, and then they will grow strongly and produce large vigorous leaves and stems. Loose potting is, I think, one of the chief causes of failure. The branches as they grow should become solidified,

and in time partly ripened, or failure results. Well-ripened wood always yields flowers of the finest quality, and they remain in perfection the greatest length of time. This is important, as plants having unripened stems produce flowers which fail to stand well other than a very short period when placed in a heated building where gas is much used. Such blooms show what is known as an "eye." This is the result of the way in which the plants have been cultivated.

To have growth which will develop suitable flowers the soil should be rammed firmly with a blunt stick. In soil of a light character it is hardly possible to pot too firmly, but it is not wise to pot so firmly with heavier soil, as the water will not percolate so freely, and should the drainage become defective trouble may ensue through the soil becoming waterlogged. When the plants are potted firmly the growth is not so rapid early in the season, but it is rendered solid and firm as growth proceeds, and is more likely to mature in a wet autumn, through the growth being slower and of a harder kind during the summer months. Careful and free drainage is essential to success. The pots and crocks used should be perfectly clean and the latter free from grit. It is common in some places to throw the crocks into the pots in a careless manner, but this is a wrong practice, as I find that when even this apparently simple operation is carefully and properly performed success is more likely to follow. For the largest pots 2 inches of drainage is not too much, allowing a little less for smaller pots. The piece placed in the bottom of the pot should be much larger than the hole and quite hollow. Many persons use single oyster shells, which answer admirably, and the smaller crocks should be placed around and over this. Over the drainage put a layer of the roughest parts of the compost to prevent the fine soil running down and thus preventing the free egress of water. The best material for this purpose is pieces of thin newly-cut turf, as this does not decay so soon, and is not so liable to clog the drainage. Where the soil is of a heavy character, use less turf over the crocks and add a few fresh leaves and some charcoal. Over this sprinkle a small quantity of soot, as this prevents to some extent the ingress of worms when the plants are standing out of doors, and the soot also acts as a stimulant. The soil should be firmly rammed down previous to placing the plant thereon, and the soil between the ball and the pot rammed down firmly with the stick. Do not cover the top of the ball of soil too deeply, just adding a little to cover any roots which may have become bare through watering. Leave a depth of about 1½ inches to allow space for water and top-dressing at a future time. If the soil is moist at potting (as it should be), no water will be required for three or four days, after which time a good soaking may be given if the weather is dry; but an occasional wetting of the foliage with the syringe will be found beneficial in the afternoons of fine days. After potting is completed, the plants are generally placed together in a snug corner, as it is yet too early to stand them thinly in their summer quarters, as more cold easterly winds are almost sure to take place, which do a vast amount of harm to the newly-potted plants by breaking off and bruising the edges of the tender succulent leaves. Do not forget the instructions given on p. 222 relating to weak-growing varieties.

As the pots which have been in stock a number of years will be found to vary in size, height, and width from others from different potteries, some consideration in potting the

general collection should be given to this matter by placing the strongest growing kinds in the largest pots, as more roots are made by these than is the case with others of a weaker habit of growth.

As opportunity presents itself, the position which the plants are to occupy during the summer months should be got ready for their reception by fixing the supports to which the plants are to be fastened as growth proceeds. It is important that no delay takes place in this detail, or the plants may become spoiled through overcrowding as growth proceeds.

Classified Japanese Chrysanthemums.—I am very pleased to find that the National Chrysanthemum Society has taken the initiative in so far classifying Japanese Chrysanthemums as to have made a class for reflexed flowers. That some such classification must come soon has for some time been evident, and I am all the more pleased, because I contended for it. Only so recently as the end of last year, I think, I invited a classified list from Mr. Molyneux, and that eminent grower kindly gave such in these pages, although he did not profess to believe such classification needful. That so far the thing has been done at headquarters shows that it was not only needful, but possible. I have not had time to compare Mr. Molyneux's selection of reflexed flowers with those of the National Society, but have no doubt the majority agree. Some day, and perhaps not far off, the same society will make a selection of what may be termed incurved flowers of the *Clemence Audiguer* and *Comte de Germiny* type; still, leaving for yet another section all those loose-growing forms, such as *Baronne de Prailly* and *Fair Maid of Guernsey*. With such a rapidly growing number of Japanese flowers in commerce, and all very beautiful, it must be obvious that classification is essential to the securing of that fairness and evenness in judging, without which successful exhibitions will be impossible. The rapid accumulation of sorts will force the hands of those who may be disposed to let things go on in the old track, and compel such changes as may revolutionise methods of showing Japanese Chrysanthemums. It is satisfactory to find that the National Society has so far been willing to run with the stream, for to attempt to stem it would be but folly.—A. D.

Celery fly and the "jumper."—These two insect pests are amongst the worst to deal with that a cultivator of Chrysanthemums has to contend against. Nothing but incessant watching and prompt measures will rid the plants of these enemies. The first-named is the most troublesome from the end of May to the end of June, when the plants are from 2 feet to 4 feet high. The maggot can easily be seen under the skin of the leaves where it secretes itself and quickly destroys the tissues, giving a serious check to the plant besides spoiling its appearance. Hand-picking is the only efficacious remedy I know, and either squeeze the part of the leaf where the maggot is seen, or pick it out with the point of a knife. If this is not done the plants are quickly spoiled, because the maggots spread to other leaves in a short space of time. I have seen plants stripped quite 2 feet up the stem by this insect. The "jumper" causes a lot of trouble at the time the plants are setting their flower-buds. At this time the points of the shoots are very succulent. The "jumper" may then be constantly found in this position. I believe the insect inserts its sucker into the tender skin of the shoot, about 1 inch below the point, in such a manner that the part affected is quite crippled and refuses to develop any further. This is the cause of blind growths. If the small green insect which is found in the middle of the froth, called cuckoo spit, early in the year is examined, it will be found that it is the "jumper" in a young state. All these when seen should be destroyed, as being the easiest way to rid the plants of a serious pest, which if allowed to increase quickly does much damage.—E. M.

GREYSTOKE CASTLE, CUMBERLAND.

GREYSTOKE is a type of place we rarely have the pleasure of illustrating, for though accustomed to "large places," few in the south, at least, have parks thousands of acres in extent, and like a wild fringe of the prairies. A

since then has passed twice through heiresses. The last heiress was Anne Dacre, who married Philip Howard, Earl of Arundel, in the time of Queen Elizabeth. His father, the Duke of Norfolk, was attainted and beheaded, and he himself was imprisoned in the Tower, where he died. Greystoke has ever since remained

used to keep reindeer in the park, but the Moss on which they feed was not found in sufficient quantities, and at last failed them. A wild herd of West Highland cattle is now kept instead of deer. In the park are still to be seen the remains of Roman encampments with their fosse and vallum, and also the remains of Cromwell's encampment, from which he bombarded and partly destroyed the castle. The castle is first mentioned in history as being fortified in the reign of Edward III.

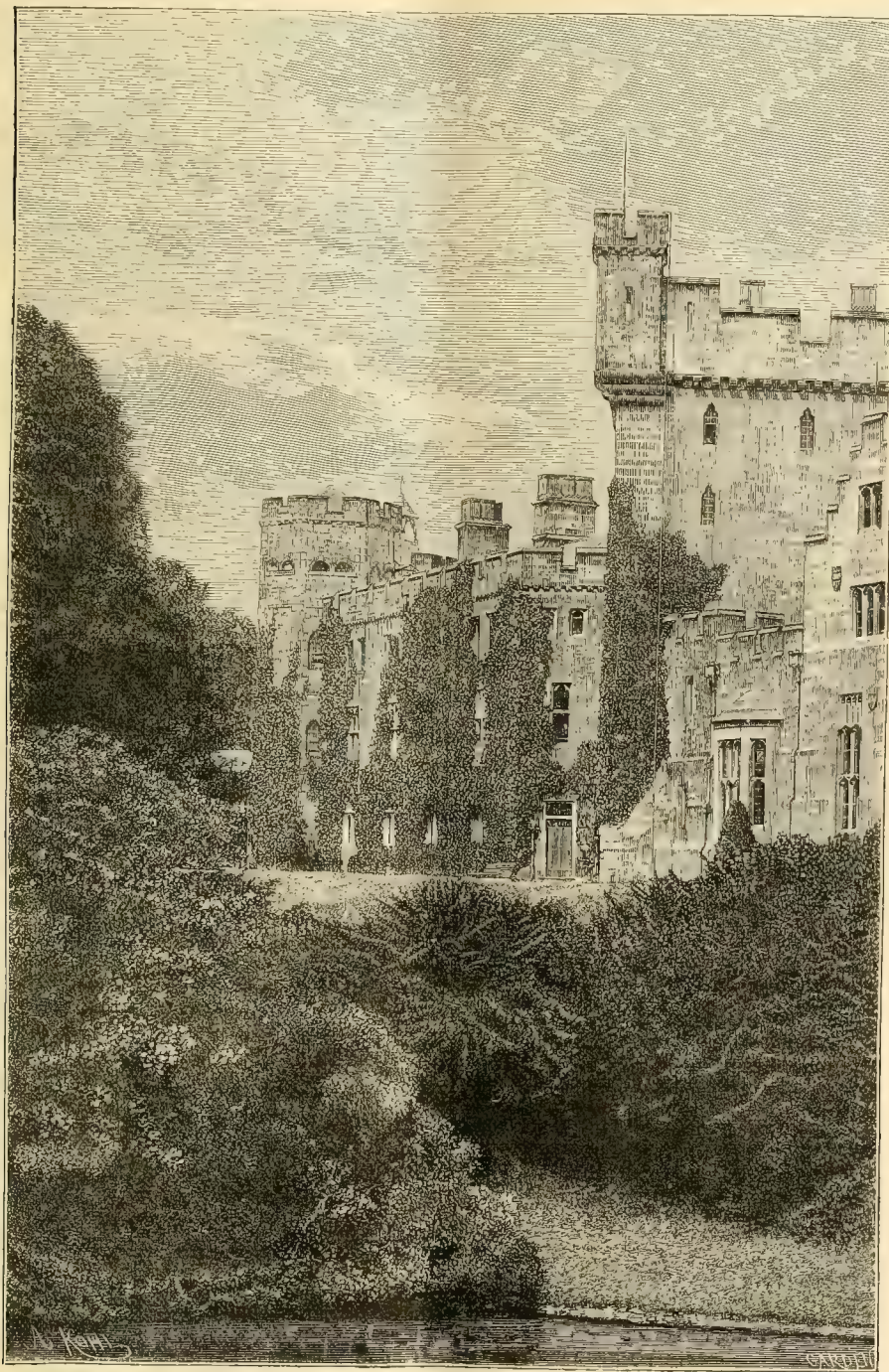
The principal trees are the large Silver Firs and the big Larch trees at Johnby. These last were planted in 1789, and the largest of them is 90 feet high and contains 230 cubic feet, another contains 110 cubic feet, and several more from 90 to 110 cubic feet each. The Larch in the lake district is of high repute and of the best quality, and some of the earliest Larch ever planted in England or Scotland are at Greystoke.

The trees—Larch—in one wood are very dignified and beautiful, and so are the Beech, but generally the park is greatly disfigured by the work of the rabbit; trees dead or dying, Beech of noblest proportions quite stripped of bark for a broad band round the base, and the "seedy" look of pasture and underwood which observers of rabbit ravages know so well. Country gentlemen pay a high price for their tolerance of this pest! Preserving true game is not harmful to fields or gardens; but the rabbit leaves his very hurtful mark on wood, pasture, and arable land, and makes the cultivation of the best flowers impossible in many a country garden. R.

STOVE AND GREENHOUSE.

RHODODENDRON JAVANICUM.

THE fact of this *Rhododendron* being one of the parents of so many beautiful hybrids of the tube-flowered section now in our gardens will always keep the name from being forgotten; but, irrespective of any claims to recognition from the merits of its progeny, it is really in itself a very beautiful species, and one well worthy of a place among the most select of the genus. It is when in a flourishing condition well furnished with deep green, glossy foliage; while the flowers, which are borne in closely-packed terminal clusters, are of a beautiful rich orange tint—that is, when a good variety is obtained, for with regard to the colour of the blossoms individual plants of it vary to some extent. It is not so hardy as the Himalayan species, for, as indicated by the name, it is a native of Java, and consequently requires the temperature of a warm greenhouse, or, better still, an intermediate temperature. While a compost consisting of good rough peat with plenty of sand is essential to its well-doing, the roots are never very vigorous, and consequently care must be taken that it is not overpotted. This *Rhododendron* was introduced in 1847, and was soon used for hybridising. By crossing this with the white *R. jasminiflorum* was obtained *Princess Royal*. It is singular that in this cross between a white and an orange-flowered kind the latter colour should be completely eliminated and the progeny produce pink blossoms. *R. Princess Royal* is,



Greystoke Castle, Cumberland. Engraved for THE GARDEN.

wide and picturesque landscape, with noble mountains in the background, and fresh and cool in the bracing Cumberland air, it was wholly distinct from the park scenery we know so well.

Greystoke was granted to the Baron of Grey-stoke about the time of William Rufus, and

in the Howard family, and Charles, Duke of Norfolk, who died in 1815, left it to the father of the present owner.

The park within the great wall now contains 5200 acres, of which about 1000 acres are woodland and the rest moorland and pasture. Charles, late Duke of Norfolk,

notwithstanding the numbers of new varieties that have been raised of late years, still one of the most useful tube-shaped pink-flowered kinds that we possess, for though the individual blossoms are not equal in size or shape to those of some of the newer kinds, the habit of the plant is free, yet bushy, while it blooms in great profusion. By crossing Princess Royal with one of its parents, the variety Princess Alexandra resulted. The blooms of this are in colour much like those of *R. jasminiflorum*, but perhaps suffused with a deeper shade of blush, while they retain the size of those of Princess Royal. These varieties were raised by Messrs. Veitch, who have devoted years to the improvement of these beautiful plants. Not only have they employed for hybridising those above mentioned, but also *R. Curtisi* from Java, *R. Lobbi*, *R. Brookii*, *R. Teysmanni* from Sumatra, and *R. malayanum* from the same region. The result of their labours has been shown in the many grand varieties that have been put into commerce within the last dozen years, and the many more that have been exhibited and awarded certificates, but of which sufficient stock has not yet been obtained to warrant their being sent out. The finest of those already distributed, many of which can now be obtained at a very moderate price, are *Taylori*, bright pink, with the exterior of the tube almost white; *Duchess of Edinburgh*, bright orange-crimson, a remarkably showy variety, and one that will flower nearly throughout the year; *Duchess of Teck*, pale buff-yellow, tinged with pink at the edges of the petals; *Prince Leopold*, a bright, but peculiarly tinted variety, being a kind of fawn colour shaded with orange and rose; and *Duchess of Connaught*, bright vermilion-red, something in the way of *Duchess of Edinburgh*, but without the shading of orange that there is in that variety. The variety *Duke of Connaught* does not flower so continuously as the other; while, on the other hand, it is a better grower than the kind known as the *Duke of Edinburgh*. The others are *Maiden's Blush*, a white flower slightly suffused with pale rose, while there is also a suspicion of yellow about the bloom; *Queen Victoria*, light buff-yellow suffused with rose; *Favourite*, delicate satiny rose; *Lord Wolseley*, bright orange-yellow, a remarkably bright and telling variety; *President*, large, grandly-formed flowers of a deep buff-yellow tinged with rose; *Scarlet Crown*, orange-scarlet; *Princess Christian*, bright nankeen-yellow; and *R. jasminiflorum carminatum*, a counterpart of *jasminiflorum* except the colour, which is a rich carmine. These varieties are, without doubt, one of the most valuable results of the hybridiser's skill that have been obtained of late years.

Though classed as greenhouse *Rhododendrons*, the numerous varieties of this section do better in a temperature rather above that of an ordinary greenhouse; indeed, the same rule will apply to them as to the typical *R. javanicum*, that they do well in an intermediate temperature. Given ordinary attention, they are but little troubled with insect pests, the principal thing to guard against being thrips, which will sometimes effect a lodgment on the leaves if the atmosphere of the structure they are in is rather too dry and warm. A liberal application of the syringe will, however, keep these pests in check. In potting it is very essential to use good fibrous peat, which will retain its freshness for a considerable time, as the plants do not require frequent repotting. We sometimes see a certain proportion of loam recommended to be mixed with the soil, but I prefer to use good peat and sand alone, or rather with an admixture of nodules of charcoal, which serves to keep

the soil sweet, and around which the delicate hair-like roots tightly cling. Their propagation is effected by means of cuttings, which are formed of the young shoots taken when in a half-ripened condition and put into pots of sandy peat. An admixture of charcoal, but, of course, in a fine state, is of great service towards assisting the formation of roots. If not too long the cutting may consist of the entire shoot, but on no account must there be a heel of older wood left at the base, as if this is done it will greatly retard the action of rooting. The part of the shoot that pushes forth roots the most readily is just at the base, where there are several eyes clustered together, so that if the young shoot is not too long an advantage is gained by leaving it entire. The richly coloured *Duchess of Edinburgh* succeeds better when grafted than on its own roots, for it is by no means so vigorous a grower as some of the others are. A good free-growing kind very suitable for stocks for the weaker varieties is the blush-coloured *Princess Alexandra*, with which a union is soon effected. Whip or side grafting may be employed, and little risk is run if the parts are fitted well together, tied securely in position, and kept in a close case until a union is complete. H. P.

Fixed strains of Cinerarias.—I agree with J. Douglas, in *THE GARDEN* (p. 409), when he says that a fixed strain of *Cinerarias* is desirable, and I see no reason why it cannot be had. Those who grow *Cinerarias* for seed should have no difficulty in keeping the different colours pure. Of course, there would be more care required in saving the seed than is the case with a mixed collection, as isolation of the different colours may possibly be necessary, but I do not think that anyone would object to pay a higher rate for the seed if they could get the colours they require with more certainty than can be done now. At present no one knows what he is growing until the plants come into flower, and to make sure of getting a good variety of colours, one has to grow a greater number of plants than is actually required. In every collection of *Cinerarias* in private gardens which I have seen, red and purple colours predominate, while the white and blue varieties are sparsely represented. I should be very sorry to see the intermediate colours in these flowers ignored altogether. What is wanted is to be able to secure with some degree of certainty a few fixed self-coloured flowers.—J. C. C.

Scented-leaved Pelargoniums.—These were at one time favourite plants, but now seem to be almost forgotten, as one may go into many gardens without finding any of them, or, at all events, only a few stunted specimens. They certainly deserve more attention than is bestowed upon them at the present time, as a handful of flowers, with a few twigs of some of the scented *Pelargoniums* loosely arranged, will be far more pleasing to most people than the formal bouquet now so fashionable. The leaves of most of them, apart from their fragrance, are prettily crisped or cut. A few very good varieties are the Nutmeg-scented, sometimes called *Lady Mary*; crispum, with small, but prettily crisped leaves, having a scent like that of a Lemon; *denticulatum*, *radula*, and *quercifolium*, the black spot in the leaf of which forms a conspicuous feature. Others are *Fair Helen*, one of the best of the Oak-leaved class; *tomentosum*, with large woolly leaves scented like peppermint; *Prince of Orange*, *Lady Scarborough*, and *Pretty Polly*; while the lover of variegated leaves will find *Lady Plymouth* suit him. Besides the above, there are a few others, forms of the old *Unique*, and all of them, apart from their agreeably scented leaves, have very showy flowers. One of the best of this class is *Rollisson's Unique*, which forms a plant of a loose, rambling habit, so that it is generally grown secured to a trellis either made of wire, or a few sticks are put around the edge of the pot and tied together at the top, thus forming a cone. When a specimen like this is well clothed with foliage it is scarcely ever without

blossoms, and if kept in a warmer place than a greenhouse, it will flower throughout the winter. Besides this, it can be employed either as a pillar or rafter plant; but perhaps it is seen to the greatest advantage when grown in hanging baskets. Owing to its vigorous nature, it is well suited for small baskets, but it is also very useful for large conservatories, &c. The flowers are of a rich crimson-purple shade, but there are other varieties with magenta, red, and bright crimson-coloured flowers, while those of *Unique* itself are deep lilac. A word or two with regard to the cultivation of these scented-leaved *Pelargoniums* (especially those that were mentioned at first for the sake of their foliage) may not be out of place. If a few are planted out during the summer they grow rapidly, or, at least, most kinds do; but the leaves flag almost immediately they are cut, which is not the case with those grown in pots, and consequently these are really more useful than much larger specimens in the open ground. This is a very good time of the year to put in the cuttings, and they strike readily enough on a shelf near the glass.—H. P., in *Field*.

Olea fragrans.—I was much interested in "T.'s" note on this interesting and fragrant old plant in *THE GARDEN*, May 12 (p. 427), and ask for information as to how to make it grow freely. It is one of the few plants that I have always failed to grow to my own satisfaction. In one situation it was a specialty. The lady preferred its odour to that of any other plants, such as *Stephanotis*, *Gardenia*, *Heliotrope*, and even *Roses* and *Violets*. There was but one to in any way approach the *Olea* in her estimation, and that was the *Daphne odorata*. I fancy all our plants were on their own roots. What little there was of them blossomed well, but no treatment would make them grow into creditable looking plants. The leaves continued hard, partially twisted, or reflexed, as if set against creditable growth. White scale added to the difficulty of successful cultivation. What added to the difficulty was that the patroness and owner was satisfied as long as the stunted plants yielded her a fair amount of sweetness, and deprecated any radical measures of culture or cleansing that might injure or destroy any of the blossom. I have often tried to strike cuttings, though few promising ones could be obtained, but never succeeded. I wish I had then known of *Privet* stocks, as if the vigour of the *Privet* could be sent through plants of *Olea fragrans*, all would be well. But I wish to ask "T." the plain question, Can it? Not only the memory of my own failures prompts the question, but the more potent fact that I have nowhere seen a healthy plant of *Olea fragrans* in a pot under glass in this country. I have heard of, but not seen, good plants on south and conservatory walls in warm localities. And there seems no doubt that *Oleas*, though long classed with *Olive*s, are hardier and different plants from the majority of the latter. The best species are now relegated to a separate family, under the appropriate name of *Osmanthus*, or *Perfumed Flower*. But the favour I respectfully ask of "T." is more particulars of culture, so as to enable general cultivators to grow and flower *Oleas* well.—Hortus.

Regal Pelargoniums.—That it is extremely difficult to draw any hard-and-fast line between the different sections of the *Pelargonium* is well shown on page 443, where a representative selection of the show, decorative, regal, and fancy class is given, for among the regals occurs the variety *Venus de Milo*, which is very much like *Maid of Kent* and *Volonte Nationale alba*, which are there classed under the head of decorative, as well as *Dr. Masters*, which is usually regarded as a regal. In proof of the great similarity between *Venus de Milo* and *Volonte Nationale alba*, I notice an article on page 458, the writer of which speaks as if there is but little difference between the two, and notes them as being both in flower at Messrs. Cannell's nursery at Swanley. Now, to show the further conflict of opinions, I see that Messrs. Cannell class *Volonte Nationale alba* as a regal, while I cannot find *Venus de Milo* in their list. In the article on page 458, the writer alludes to a white

sport from Mme. Thibaut which has originated at Swanley, and which, if it can be fixed, will scarcely fail to be useful. Such a *Pelargonium* is, however, not a novelty, for it has been already distributed by one of the French nurserymen (M. Lemoine, I believe) under the name of Mme. Gustave Henry. As this variety partakes of the short, sturdy habit of Mme. Thibaut, it is a very desirable kind.—H. P.

Choice Aralias.—Aralias are now used extensively for decorations of all kinds, as shown by the great number grown in such a large market nursery as that of Mr. May, of Edmonton. A. Veitchi, gracillima, and elegantissima are three kinds appreciated for their surpassing elegance and lightness; the last of the three is well named, as the deeply-cut leaflets are of rich colour, and a well-furnished specimen of small size is the very ideal of a table plant. A. Kerchoveana is of very free growth and the foliage is rich green, broad and handsome; it makes a fine spreading plant. A. Regina, which has long leaflets, promises to become a useful addition to the Aralias, and another that may be mentioned is A. leptophylla, which, however, quickly grows out of character.

Seedling Amaryllids.—Having read your correspondent's notes on Amaryllids a few weeks ago, and noting the scarcity of white varieties and what an acquisition a pure white would be, I have flowering in the conservatory a plant the third flower of which I forward and there is still one to open. This is a seedling and the first time of flowering. Not having had an opportunity of inspecting the Amaryllids at Messrs. Veitch's the last three years, perhaps you will say if this is not really an acquisition. If not quite pure, it is a good white and the scent is sweet.—G. W. EDEN.

* * It is certainly a good variety so far as the colour goes, but we have seen some as white and of better form. If we could get a pure white Amaryllis of the substance and size of some of the large florists' varieties it would be a great gain.—ED.

Cissus discolor.—This is an old and well-known stove climbing plant, so that no description of its general appearance is necessary. It is of very easy culture, for cuttings root without difficulty in the spring and early summer months, and when rooted they grow away quickly. It is very beautiful when employed as a roof climber in a warm, moist part of the stove, but more particularly if the roof is such that the long flexible branches can be allowed to grow in their own way. Besides this, it may be grown on a trellis either in the shape of a large specimen or in 5-inch pots just trained around three or four Hazel sticks. By this latter means pretty little plants which are extremely useful for decoration may be quickly obtained.—H. P.

Wormia Burbridgei.—This stove plant, which was introduced from Borneo by the Messrs. Veitch and put into commerce about half a dozen years ago, is a highly ornamental subject either in or out of bloom. The leaves are massive in character, and of a bright green colour, while the flowers, which are borne in racemes on the upper part of the stem, are large (being nearly 4 inches in diameter), and of a clear yellow colour. Generally speaking, cuttings are not easy to obtain, and they take a long time to root. The best cuttings are formed of the weaker shoots that should be put into small pots and plunged in a gentle bottom-heat until rooted. The *Wormia* is a near relative of the *Dilleniaceae*, most of which bear yellow flowers. They require the heat of a stove, and at one time were more commonly grown in this country than at present.—T.

Leschenaultia biloba major.—Mr. Douglas does well in THE GARDEN of May 19 (p. 457) to call attention to this beautiful blue-flowering greenhouse plant, for at this season it well repays any time or trouble that may have been spent upon it. The one great requisite in its cultivation appears to me to be pure air, for here where we are situated within the smoke of London, or, at all events, near enough to be enveloped during the winter in those heavy sulphureous fogs that are the bane of plant growers, the *Leschenaultia* loses many of its leaves

at that season, and its beauty is thereby lost. I was agreeably surprised last summer to see the *Leschenaultia* so well grown by Mr. Balchin at Hassock's Gate, near Brighton, and I may say that the baskets of this beautiful flower which he exhibited both at Kensington and Regent's Park were among the most admired of anything that was there shown. The plants under notice were not large specimens, but neat little bushes profusely laden with flowers, which appeared to be richer in colour than those produced on plants in this neighbourhood. No doubt the pure air of the South-downs contributed largely to the success which attended Mr. Balchin's culture of this beautiful plant. It is certainly one of the most striking greenhouse subjects that flower at this season, being so distinct in colour from all its associates.—T.

WORK IN PLANT HOUSES.

GREENHOUSE.—PRIMULAS.—Where seed was sown about the middle of April to raise plants for early flowering they will now be in a condition for pricking off. It is much better to use good-sized shallow boxes for this than to put the plants whilst so small into little pots, as, however close the attention given may be, the small amount of soil the pots hold rapidly dries up, so as to interfere with the progress that should be made. When in boxes this does not, however, occur. Vegetable matter suits young *Primulas* better than stronger stimulants; sifted leaf mould is preferable to manure, this with good yellow loam and a little sand answering well for them in every way. When the plants have to be potted the roots do not get much broken in the removal if the material they have been in is light and free.

DOUBLE PRIMULAS.—Young stock that was increased by division of the crowns some weeks ago will now require potting on. For these a little sifted rotten manure may be added to the loam and leaf mould. Pot moderately firm, as these plants do not like the material too loose, as when this is the case it holds more water than the roots care for. A genial atmosphere should be maintained by not giving so much air as required by some things. To grow double *Primulas* well and quickly they want more of an intermediate temperature than that which the majority of greenhouse subjects require. Shade will now be necessary for both double and single *Primulas*; but whatever is used it should be movable, so that it can be taken off in dull weather, as well as in the mornings and evenings. A little more seed should now be sown, the plants from which will come into bloom between those first raised and the latest set intended to keep up a succession during the spring.

TUBEROUS BEGONIAS.—Young plants raised from seed sown early in winter will now require moving into the pots in which they are to flower. It is not well to give them too much room the first season; 6-inch or 7-inch pots will be large enough. The soil in which they are now put should consist of good loam, with a little rotten manure, leaf mould and sand. After potting, keep the plants in a genial temperature for a short time until they commence to grow freely, when ordinary greenhouse treatment will suffice. Stand them well up to the glass in a light house, as if they become drawn in the early stages of their growth they will look unsightly before the end of the season; this is especially the case with those that do not throw up successional shoots from the bottom.

OLD ROOTS.—Old tubers that after being wintered in cool quarters were, when they began to grow, put into pots only a little larger than would hold them will now require shifting into others large enough to support them to the end of the season. When the tubers have attained a large size they should have pot room in proportion, otherwise they will get exhausted before they die down in the autumn. Though much may be done to keep up the strength by the use of manure water, the roots require a proportionate quantity of soil. A cold pit or frame where the plants will be near the glass will be better than a lofty house to grow them in until they come into bloom. The closer and more

compact the growth is kept during the early stages the better the plants will look when in bloom, as the less support they want the better appearance they will have.

CARNATIONS, WINTER-FLOWERING.—Young plants that have been raised from cuttings struck last autumn, or from seed sown soon after the beginning of the year, and that are intended to be planted out of doors, should at once be put out. The advantage of growing young stock of these *Carnations* in the open ground through the summer as compared with keeping them in pots, is that the plants attain a much larger size under the former system than even with the closest attention possible they do under pot culture.

OLD PLANTS.—Much the same applies to older plants that have produced a crop of flowers during the winter and spring. Plants of this description will most likely now have a considerable length of stem, with possibly some flower buds attached, which the grower often feels reluctant to part with. But, to permit of the plants being got into good condition for flowering again next winter, these buds must be sacrificed. The stems in question should be cut down close to the bottom, which will cause a number of young shoots to be pushed that by the end of the summer will increase the size of the plants to double that which they have before been, with a proportionate increase of the quantity of flowers they will produce. When planted out the smaller stock should not have their roots disturbed more than by removing the drainage. In dealing with the larger plants it is best to shake away about half the old soil before planting them, and this will admit of their roots being kept closer together, without which, when the time comes for taking them up in autumn, they would either require larger pots than it would be convenient to give them, or some of the best new roots which they will make during the summer would be lost. An open position should be selected for them, as it is desirable that the growth should be compact and sturdy. A moderately holding soil suits these *Carnations* better than light land; at the same time, it should contain enough sand. Without this, when the plants are lifted many of the roots will be broken. The ground should be well dug and have a moderate amount of rotten manure worked into it. If possible it is best to choose a showery time for planting, or they must be well watered, and all through the summer, when the weather happens to be dry, care must be taken that the plants do not suffer for want of moisture. A mulching with rotten manure is one of the best means for securing free growth.

WINTER-FLOWERING SOFT-WOODED PLANTS.—SALVIAS.—The cuttings that were struck some time back and are now in small pots will soon require more room. They are quick growers and make roots rapidly, 6-inch or 8-inch pots not being too large to put them in. The soil should have plenty of rotten leaf-mould and manure mixed with it, in addition to which manure water should be given freely later on in the season when the plants are well established in the pots in which they are intended to flower. A second stopping may be necessary to secure the requisite bushy condition of the specimens. This should not be delayed too long, or the bottoms of the plants will not be sufficiently furnished.

STOVE.—APHELANDRAS.—Young plants of the different sorts of *Apelandras* that bloom in the late summer and autumn months should now be moved into the pots in which they are intended to flower, giving them room proportionate to the size they are required to be grown to. The strong-growing *A. cristata* will need larger pots than such sorts as *A. aurantiaca* Rozeii, small examples of which will bloom well in 5-inch or 6-inch pots. These will not require stopping, but young plants of *A. cristata* that have not already had their tops pinched out should have them removed.

THYRSACANTHUS RUTILANS.—The distinct habit of this plant makes it a striking object in the stove. Young plants that were struck from cuttings early in spring and are now in small pots, may be moved to those in which they are to flower, unless it is

deemed desirable to grow them as large as they can be got, in which case it will be better to give them another shift later on. They may now be put in 7-inch or 8-inch pots. If they have not already been stopped the points of the shoots may be pinched out, but it is not well to attempt to form this plant into bushy specimens, as its natural tendency to become tall is such that no amount of stopping will correct.

THE SCARLET SPURGE (*Euphorbia jacquiniæ-flora*).—This plant attains a much larger size when planted out than is possible when it is in pots, as when the situation chosen for it is suitable and the treatment such as required, it will make more progress in a single season than can be obtained in a pot in three or four. To give a fair chance of success the place in which it is planted must not be dark, or the plant crowded up with other things. The end of a low stove or warm pit, where the branches will get abundance of light through the season of growth, is a suitable position for it, as, when so situated, the extra light imparts vigour such as will enable the roots to bear more water than they will stand if the position is darker. The present is a good time for planting; strong plants that have been grown a year or two in pots should be selected for the purpose. If small ones are used the chances are that the few roots with which they are furnished do not take possession of the soil before it gets sour and unfit for them. Presuming that plants, such as described, were cut in after flowering, and have now made fresh growth, they should be turned out of the pots, and have their roots slightly disentangled, being careful that they do not get much broken. In planting, spread them out as far as they will bear. The soil should consist of good turfy loam, with more sand mixed with it than is used for the majority of plants. Make the material firm, and do not give any water for a week or two, and then it must not be applied in such quantities as to things that are less impatient of moisture. Plants that are turned out in this way and that have had their shoots cut in after flowering must have very little water until the young growth has made some progress. Later on, when the top growth is moving freely and the roots are also active, manure water should be given plentifully. This is necessary to keep up the strength of the shoots, on which mainly depends the amount of bloom that should be forthcoming next winter. T. B.

FLOWER GARDEN.

THE HOLLYHOCK UNDER COOL TREATMENT.

THE Hollyhock has not gained in hardiness at the hands of the florist; on the contrary, it has lost immensely in vigour of constitution during the last forty years. All, of course, will admit that the flowers have been improved, *i.e.*, if adding to the number of the flower petals be an improvement, and that the Hollyhock of the present day, when we can find a plant in good health, has been refined in appearance from the Hollyhocks we were familiar with in bygone times. Some of the lack of vigour of the present race of Hollyhocks is due to the methods of propagation practised under glass, and if we want to bring back the vigour and hardihood of the Hollyhocks of the past we must use the same methods practised then, *i.e.*, raise young plants annually from seeds sown in the open border in May or June. The ground should be well prepared so as to secure a fine tilth; rake the surface quite smooth, draw drills from three-quarters of an inch to an inch in depth and 6 inches apart; sow the seeds thinly and cover with fine soil. If the soil of the bed is not good enough, prepare a little sifted compost to cover the seeds with. In raising seedlings that we wish to inherit a full share of vigour, these little helps in the springtide of their lives will have a lasting effect. The routine culture until the

young plants are strong enough to transplant will consist of frequent surface-stirring between the rows. It is impossible to over-estimate the value of this. Very few cultivators do enough of it. When the young plants are large enough to transplant from the seed bed, lift them carefully with a trowel and plant in a well prepared bed in rows 1 foot apart, and 6 inches apart in the rows. Here they will stand the winter and be planted in their blooming quarters at the end of March or beginning of April. Old plants sometimes suffer in a cold winter, and the snow, which forms such a beneficial shelter to some plants, has rather a bad effect upon Hollyhocks, especially when frost and thaws alternate with a bright sky overhead. But young plants that have been reared in the open air do not suffer like old ones which have exhausted themselves by flowering. Seeds saved from good flowers invariably produce good flowers, and each grower may very easily save his own seeds, as the plants seed freely. If they are treated as biennials, like the Canterbury Bells, for instance, and young plants raised annually, and either have fresh soil given them or be planted on fresh land every year, we shall soon see every garden furnished with healthy Hollyhocks again.

E. H.

HARDY FLOWERS IN MASSES.

THE garden presents at this season its most charming aspect, as there is from now onwards a gay succession of beauty, interesting for its delightful variety and naturalness. There are few gardens in which there is not some attempt to establish hardy plants, but it is seldom that they are grown so as to show off their true loveliness, and that is in large masses. In many of the larger rockeries, such as in the Royal Gardens, Kew, the splendid capabilities of hardy flowers for giving glowing masses of colour are displayed, reminding one of their natural beauty as seen in their native homes. Small puny pieces of, for instance, such free-growing things as the dwarf Phloxes, the Aubrietias, Windflowers, and many other flowers that could be mentioned give no more idea of their real beauty than a sprig of Honey-suckle does of the plant when seen clambering over hedges by the wayside. Many of the most beautiful features in the garden are the masses of hardy flowers, especially those of mossy growth that hang down over the ledges, and give brilliant patches of colour. It is when seen in this way that we become enraptured with the simple beauty of alpine, and wish that more would repeat such effects and not kill the plants with kindness, as is too often the case, under the impression that they are tender and fastidious. Aubrietias and many of the Rock Pinks need no special conditions beyond a sunny nook and plenty of space to spread at will. It is when they are constantly tampered with by dividing that the plants are hindered from making that progress that they would do if left alone, as in Nature. It is, of course, impossible where the garden is small to grow many things and have large patches of each; but it is infinitely better to restrict the number, and do those well, than have a lot of weakly things that give but little pleasure. The waving masses of the Apennine Windflower, Bluebells, and earlier in the year Snowdrops, Daffodils, and Crocuses at Kew were a source of the greatest delight to the visitors, simply because they were grown as naturally as possible, peering up through the Grass, as we should expect to see them in their homes on the mountain slopes, or in the valley, as the case may be. Treating our hardy flowers in this way costs but little, gives scarcely any

trouble, and the pleasure derived is ten times as great to those who admire simple beauty as if only a wretched scrap were seen. In exhibiting hardy flowers it is far better to show large tufts than small bits, and this is becoming the fashion, for such we must call it, with the result that we have bolder groups of flowers, that, seen at the show, are as effective and telling as we can desire. Whatever it is, whether the tiny Rock Pink in a chink on the wall, or the Apennine Windflower in the wild garden, or the Marsh Marigold in the moist corner, let all grow as naturally as possible, and they will bloom with their wonted freedom and brilliancy. It is a pity that that class of hardy flowers—the aquatic plants—does not receive a little more favour. It is not difficult to establish what is known as a bog garden, and the specimen in the centre of the Kew rockery is a good model of its kind. There the Marsh Marigolds grow like weeds, and such things as the scarlet Lobelia, a truly moisture-loving plant, *Sarracenia purpurea*, *Spirea palmata*, &c., find conditions which by their vigorous nature they thoroughly enjoy. It is a true pleasure to see flowers under artificial conditions growing as if they were in their native homes.

NOTES ON HARDY PLANTS.

Saxifraga squarrosa.—As might have been expected, many things are flowering this spring that once were shy, as, no doubt they are, unless we have fine dry summers. This Saxifrage is now flowering and seems to have made much greater progress than it is wont to do. The specimen referred to is in a small rock bed, but from its small size the plant hardly seems to associate with anything, and, I fancy, it will be better in a pot, where it does well in stony soil.

Polemonium confertum.—It is amusing to meet with so many expert growers of alpine and other hardy gems confessing themselves baffled with this charming species. The plant grows here like a weed and is perfectly hardy. It requires a light vegetable soil and a sunny position, for if the underground stems cannot run freely the plant will not make a vigorous growth. The old flowering crowns die off annually. Young plants are now in a forward state for flowering, and, as far as I know, it is the earliest of all the genus to bloom.

Androsace Laggeri.—What is this but a strong-growing variety of *A. carnea*. It is, however, of more importance to know that one-year-old pieces flower freely, its bright rosy red blooms lasting quite six weeks. It also seems useful as a spring bedder. I happen to know that in all parts of the kingdom this kind flourishes, showing none of the fickleness reputed to belong to its genus. A small bit about the size of a florin and set in an ordinary bed last summer is now quite 8 inches across.

Draba bruniaefolia is a lovely flower, and this and *A. Laggeri* would give a grand bit of colour in early spring, especially if bits of the blue-flowered *Muscari*, *Chionodoxa* or *Squills* were planted amongst them.

Primula bellidifolia.—Some plants before referred to, which from the form of foliage were supposed to be this rare species, have, with the exception of two, been killed during the winter. One of the two is now in flower, but there seems a want of vigour, the scape being short and rather soft. The flowers are very beautiful; they are in a dense head as regards the buds, and the flowers open a few at a time. Each bloom is about the size of that of *P. rosea*, and somewhat approaching the flowers of that kind in colour—not so intense, however, and the petals are deeply lobed. I fear that it is not hardy enough to stand our wet winters, but should it prove otherwise it will be a grand acquisition. It seems to have some affinity to *P. pulcherrima* and *P. rosea*; the foliage, however, is flat, but scarcely of such a rounded form.

Saxifraga aromatica is well worth growing for the quality suggested by the specific name. In spring the substance on the surface of the leaves is of a gummy or waxy nature, and when the plant is touched it gives off a pleasant scent resembling that of the Gum Cistus. On warm days, however, it is not needful to touch it to enjoy its grateful odour, as a number of small plants scent the walk along which they are planted.

Dwarf alpine Candytuft (*Iberis petraeus*), once seen in a good-sized specimen in bud, and just before the flowers open, will never be forgotten by the keen lover of alpine plants. Corymbs of ivory-white, bead-like dots set in green-brown claws, the numerous clusters springing from the most minute form of foliage, but still showing in the flower-stalks a reddish purple hue, and the whole but 3 inches or 4 inches high, is but a very inadequate description of this lovely little shrub. I find it is of very slow growth. The specimen referred to is four years old and only 8 inches across; possibly it may grow faster in stiffer soil, mine being light. I also fancy that a bit of lime is helpful to plants so treated in pots. It should have the fullest exposure to be seen in its true character.

Salix pyrenaica might, no doubt, be more properly classed with shrubs, but as an alpine plant it may well be noticed. Here it grows about 9

a beautiful pleasing white, not snow-white, but of the tint of the best white writing paper.—MAX LEICHTLIN, Baden-Baden.

HESPEROCHIRON PUMILUS.

PEOPLE interested in hardy flowers have had so many *desagrégements* in the shape of cherished plants slain by the climatic diversions of last February and March, that the mild astonishment that one generally feels at seeing anything coming up again has been, perhaps, unusually enhanced in the present spring. At any rate, when my plant of the above made its first appearance above ground some five weeks ago, I was most agreeably surprised, for I had made up my mind, with what appears to have been altogether unnecessary despondency, that I should see no more of it. A very small specimen of this rare and remarkable plant, having the appearance of a seedling, was kindly sent me last spring by Mr. Wolley Dod. I say "having the appearance of a seedling" simply to give some idea of its slowness of growth, for as a matter of fact the plant was, if I rightly recollect, three, or it may even have been four, years old when it reached me. It flowered

been other than a fancy sketch) must have been seen in its native habitat, and not in any English garden. It is found, I believe, in the Yosemite Valley, though whether exclusively confined to that habitat I cannot say, neither am I enough of a botanist to name its Natural Order, though I should be disposed to guess Hydrophyllaceæ. J. C. L.

TULIPS IN THE LONDON PARKS.

I CAN uphold your views as to the brilliance and beauty of the Tulips this season. The whites, scarlets, yellows, Van Thols, &c., are specially bright; but there are several lines of a sort of lilac-pink largely used that would be better dispensed with. All Tulips would be more satisfactory were the ground under them partially, at least, clothed with some other form of verdure or bloom, such as Sedums, Saxifrages, Pyrethrums, Forget-me-nots, Aubrietias, &c. These might be so massed or contrasted with the Tulips as to enhance their effect by toning down their glitter and glare by a base of contrasting colour or verdure.

For example, a bed thinly planted with the charming *Myosotis dissitiflora*, pincushioned with golden-coloured Tulips, would be far more satisfactory than an entire bed of Cloth of Gold or Van Thol Tulips; and so with many other possible contrasts. By the way, will not this Forget-me-not thrive in London? Has it been tried and found impracticable? Otherwise it seems difficult to understand why it is so conspicuous by its virtual absence from the London parks in the spring.

Writing of Tulips in the parks suggests the inquiry why so few are seen in the Manchester public parks. Not a few horticulturists who turned aside from the great treat provided for them in the Botanic Gardens to see what there might be of spring gardening in the public parks were grievously disappointed at the scarcity of bulbs of all sorts and the backwardness of Pansies, Violas, and other spring flowers. In some of the parks these latter flowers, so magnificently and numerous shown in the Botanic Gardens, Old Trafford, were so small and starved-looking on the 19th of May, that one had to put on their spectacles to see them. Another curious feature of these public parks was that few of the Rhododendrons, excepting a few white strains, promise much bloom this season. Will some horticultural, botanical, or financial Manchester authority, say Leo Grindon, kindly explain the present wintry appearance of the public park in their great and wealthy city? Are these things the penalty exacted by the climate, or do they arise from other causes? That they can hardly arise from climatal influences is proved by the unequalled display of alpine plants in bloom at the Whitsuntide show of the Botanical Society already referred to, as well as by the abundance of hardy plants in bloom in the great central and other markets in which the writer was pressed to purchase a box of hardy plants in bloom sufficient to furnish a fair-sized flower bed for 1s. 6d.

HORTUS.

Honesty (*Lunaria biennis*).—If the pure white and the dwarf purple Honesty were better known, I am sure they would be universally grown. When those familiar only with the old pale purple kind see the white and deep purple varieties, they invariably express both surprise and admiration. By-and-by, after the plants have seeded and the branching stems are cut and carefully dried, very pleasing indeed are the satiny-like partitions of the seed-pods which remain attached to the stems and look so pretty all the winter when utilised with dried Grasses and Everlasting Flowers. Just now a clump of white Honesty stands out with marked beauty when looked at from a window. A bed of *Papaver orientale* furnishes a base of luxuriant and elegant foliage, amongst which the Honesty is growing and blooming. Ere the flowers have decayed, the Poppies will be coming into bloom, so that the white flowers of the *Lunaria* will be succeeded by the gorgeous hues of the summer flowers. Seed of Honesty should be sown not later than the first week in



Hesperochiron pumilus.

inches high. It might not be advisable to praise it too much, and all I wish to convey is that it is a pretty and characteristic Willow for the alpine garden, representing in miniature a familiar and favourite genus of English landscape shrubs and trees. When well exposed and in a somewhat strong soil it succeeds well.

Mayflower (*Epigaea repens*).—Charming as this is wherever it flourishes out of doors, it is far more beautiful when given but the slight protection of a cold frame. I have just tried it both in a cold frame and slightly heated greenhouse, and I find it to do better with the coolest treatment. Its pure waxy bluish white flowers are of remarkable beauty and their fragrance is full and aromatic. Those who wish for an uncommon flower for personal adornment should take note of this plant and the mode of growing it. It may be quite easily grown in a cold frame. J. WOOD.

Woodville, Kirkstall.

Iris stylosa alba.—It appears that there are inferior varieties of this plant, a conclusion to which I am led by statements in several papers, as also by that in THE GARDEN, May 19 (p. 450). I can say nothing as to its hardness, the plant being scarce, and in consequence has here been hitherto kept in a frame; but it is a far stronger grower than the blue variety; the leaves are three times as broad and as long as those of the latter. The flowers are fully 3½ inches across and of

with me last year with two blooms. This year it has increased in strength and has thrown up five, so I may hope that if I can manage to keep it undisturbed, it may in time grow into a strong specimen. The flowers somewhat resemble those of the common Wood Sorrel (*Oxalis Acetosella*) in form, but are in colour of a whitish purple. It is a pretty little plant, but its rarity is its chief title to distinction, or at any rate to the interest of amateurs of hardy flowers, for it would be absurd to say that it has much value as a garden plant; indeed, a well-known nurseryman in whose catalogue it appeared honestly told me that if I bought it I could not keep it, and if I could I should not like it. The former dictum has been so far disproved. It grows with me in a sunny position in light sandy soil at the foot of a small rockery, and the stones are so arranged as to prevent as far as possible its being scratched up by birds during the winter or early spring, as the roots are near the surface and appear to have little hold on the soil. There was an illustration of this plant in one of Mr. Ware's catalogues three or four years ago, but the impression given was of a free-growing rock plant, and I suspect that the original of the portrait (supposing it to have

May to ensure strong plants for next spring's blooming. My own seed, in fact, was sown a month since, and the young plants are well through the ground. It is only when really strong plants are thus secured that fine heads or spikes of bloom may be looked for, and the earlier sowing is thus well repaid.—A. D.

YELLOW CARNATIONS AND PICOTEEES.

"R. D." in THE GARDEN, May 12 (p. 449), writes as if yellow Carnations had now been raised for the first time in this country and the sister isle; whereas they were grown in this country more than half a century ago, but the want of constitution has been against them. Now and again yellow Carnations have appeared from Continental seeds, but the constitution of the plants has been such that they would not live in the open. I saw one last year exhibited for a certificate at the Crystal Palace, but it was not thought worthy of an award. There is an excellent plate of a yellow Carnation in the *Horticultural Register*, vol. v., for the year 1836. It is named Rodger's Unique Golden Crimson Bizarre Carnation, and was raised in Kent from seeds procured from Brussels. It is stated that Mr. Rodgers had great difficulty in getting up a stock, "but has now a few pairs to dispose of at one guinea a pair." It would be interesting to know where Mr. Gyles obtained the seed from which he raised the yellow Carnations, that are so much superior in their masculine beauty to the yellow Picotees. I do not seek this information out of idle curiosity, but because all the yellow Carnations I have ever known to be raised in this country are from seeds obtained on the Continent, where they have been grown for nearly a century, but their constitution is not good enough for our English climate.

The yellow Picotees are English-raised and have good constitutions. The original parent is Prince of Orange (Perkins) raised nearly thirty years ago. I have grown the same stock for twenty years, and the plants are now quite as vigorous as they were at the first. Ne Plus Ultra, a seedling from Prince of Orange raised at Slough, is also in our collection, and is the parent of the seedlings I exhibited last year and the year previous. I like my seedlings to speak for themselves. I said not a word about them until they were exhibited at the Crystal Palace, Royal Horticultural Society, and National Carnation Society, and they obtained first-class certificates at each place. I have raised over 500 seedling yellow ground Picotees, and will most likely have some new ones this year.

The general run of yellow Picotees does not flower so early as the white ground Picotees or the Carnations with white grounds, but I find many amongst the seedlings flower at the same time. The whole collection is only about two weeks late. Considering the weather, I thought they would have been much later than this. If the fine weather which set in here on the 18th should continue, the plants will soon make up for lost time. We are looking over the plants for the first time since they were repotted in February, decaying leaves are being removed from the plants, and weeds from amongst them. They are still in frames, but the glass lights are not used, and in a few days we shall stand the entire collection out of doors and place sticks to them. I have heard of some that are so dwarf and stiff in the stems that they do not require sticks; I have never seen them, nor do I care for dwarf plants. We have had some with good stiff stems not more than a foot high, but where they fall over is at the base, and whether the stems are long or short they are apt to be broken with the first wind and

rain combined, and the fair flowers are sad ruins before their beauty is seen.

During dry weather sparrows were very busy amongst those planted in the open ground, pecking the centres out of them. They left off as soon as we ran some white crochet cotton over the tops of the plants. The heavy rains in April made the surface of the soil hard and impervious to the air; we ran a Dutch hoe through amongst the plants and this made it all right again. Maggots, of a similar character to the bud-worm in Roses, eat into the centre and destroy the flower-buds unless they are watched and picked out in time. Green-fly spreads amongst the tender young shoots if not destroyed in good time. We fumigate the frames when the plants are confined there, but afterwards the pest is killed with tobacco powder. In some cases a surface-dressing of some rich compost will materially benefit the plants. J. DOUGLAS.

The Snowy Crowfoot.—I observed a very fine form of this in the garden of Mr. Samuel Barlow at Stakehill House, Castleton, Manchester, a few days ago. An old and well-informed Lancashire botanist who was present stated that it is an unusually fine form of *Ranunculus amplexicaulis*, the flowers being larger than usually seen, and they were borne in bold clusters of five or six. In the moist loam of the Stakehill garden, which contains a good deal of vegetable matter and sand, it appeared to be quite at home. As it appears to strike its roots down directly and deeply into the soil, a deep medium is a matter of some importance and should be provided for. The Snowy Crowfoot makes a good plant for exhibition in pots at this season of the year.—R. D.

A runnerless Neapolitan Violet.—This is the best and rarest novelty I have heard of in a long experience of many years. If "J. P." has got a Neapolitan Violet (as he describes on p. 428) that grows into great rosettes, and produces such few runners as to force him to divide these for stock, I wish you could persuade him to forward me a few plants of it through your office, and I will through the same channel gladly supply him with the Neapolitan I have always grown, that will save him the trouble of division by supplying him with suckers to any extent. His hybrid variety flowering from September to May must also be a most valuable Violet. Perhaps he will kindly say whether the colour is that of a Neapolitan, Marie Louise, or what. Could "J. P." favour me with a few plants of Coolcronan Hybrid? I would gladly set him up with the finest white Comte Brazzas in exchange. By the way, we seldom hear of hybrid Violets, and as I presume this hybrid is a double one, a few notes of its origin and introduction would prove of botanical interest, though they might not greatly add to its cultural value. I fancy I noted some difference of colour between the Parma and Marie Louise Violets in Covent Garden Market the other day. However, that might readily be accounted for, inasmuch as the former had obviously come from Italy or France, and the latter were English grown.—HORTUS.

Hymenocallis humilis.—The true *Pancratium* are all natives of the Old World, and are characterised by having the tube of the flower considerably dilated upward, and therefore funnel form. The American species all belong to the genus *Hymenocallis*, and are found in marshes and on river banks in the Southern Atlantic and Gulf States, mostly near the coast, though one species, which is supposed to be the same as the *H. rotata* of the coast, is found in Tennessee and Kentucky. *H. humilis*, discovered in Florida by Dr. Edward Palmer in 1874, is a low and slender species, the smallest of the genus. The bulb appears to be attached to a rather thick rootstock, and sends up a few short narrow leaves and a short scape, which bears a single flower. The plant was found on the banks of the Indian River in flower early in March,

but it has not been again collected. Dr. Palmer speaks of it as common in the grassy meadows near the river, a free bloomer, and very showy, and the most attractive plant found by him in that region.—S. W., in *Garden and Forest*.

DOUBLE-FLOWERED DAFFODILS FROM SEED.

MR. C. WOLLEY DOD's name is so identified with the question of double Daffodils, that what he says on p. 449 is peculiarly worthy of all serious acceptance. When I said (p. 431) that no double Daffodil had been raised from seed for the past 200 years I did not quite mean that double Daffodils had not been reproduced from seeds, but that no named varieties, *i.e.*, variations differing from those known for the past 200 years, had been so produced. Let us glance at the life work of the great raisers of Narcissi. Firstly, Dean Herbert raised *N. incomparabilis*, *N. tridymus*, *N. Burbidgei* var., but no double Daffodil. Secondly, Mr. W. Backhouse raised *Stella*, *Empress*, and *Emperor*, and many more good single-flowered varieties, but no double-flowered Daffodil. Thirdly, Mr. Leeds, of Longford Bridge, raised hundreds, if not thousands, of Narcissi from seed, but no double-flowered Daffodil. Mr. Tyerman, of Penlee Tregoney (not Penllergare) sent me a batch of mixed Daffodils, single and double, and these I call "Cornish Yellow." In some phases the double variety is pale and looks different from *N. Telamonius plenus*, but in other seasons it is not so, and the same is the case with the double varieties which now and then appear amongst collected bulbs of *N. obvallaris* from Tenby. I again assert that no new or distinct double Daffodil has been raised from seeds in English gardens for the past 200 years, although I acknowledge that *N. Telamonius plenus* has again and again been reproduced from seed. No new double Daffodil has ever been named or passed by the Narcissus committee during the past three or four years, for the simple reason that no new forms have been produced at its meetings. The fact is, we know little or nothing as to the origin of double Daffodils, and, at the present moment, no one can say, or prove, the origin of *N. Telamonius plenus*, *N. pumilus plenus* (= *N. lobularis plenus*), *N. Tradescanti*, or of *N. eystettensis*. *N. Rip Van Winkle*, a small double-flowered Daffodil, is presumably a double phase of *N. minor*, and the Queen Anne's Jonquil (*N. odoratus plenus*) may be a form of *N. odoratus rugulosus*, but it certainly is not a double-flowered form of *N. odoratus minor*, as is generally assumed to be the case.

It will be noted that Mr. Wolley Dod, while contradicting my statement, offers not a shadow of evidence in the shape of a published record to prove that I am wrong. Where, for example, can I find any published record of his having raised double Daffodils from seed of single *N. obvallaris*, or Tenby Daffodil?

After all, the main point is not whether a writer be "anonymous" or not, but whether what he writes is right or wrong. VERONICA.

Double Daffodils from seed.—I am glad that Mr. Wolley Dod has corrected the mistake made by "Veronica" in his statement that no double Daffodil has been raised from seed in English gardens for the last 200 years. Surely those I sent to "Veronica" three years ago have flowered this season.—A. D. WEBSTER.

Centaurea montana.—This very old, but exceedingly showy plant is now in great beauty in Messrs. Jackson's nursery at Kingston. It is a dwarf species with good foliage and large heads of beautiful blue flowers, quite a town plant. It should be largely grown, but I fear it is too old to be well known or cared for. It was largely grown and much esteemed by my grandfather many years ago, when there was less choice at command to stock a garden, but it can still maintain itself in the front rank.—W. H. G.

Tufted Pansy Countess of Pembroke.—This is one of the fancy class, but deserves to be noted, because it makes such an excellent bedder, being of a dwarf bushy habit, and throwing its flowers well above the foliage; the blooms are yellow, with a large dense

black blotch. It is a grand yellow Pansy, having massive flowers, which are well displayed above the foliage. A bed of it in Mr. Samuel Barlow's garden is an object of great beauty just now.—R. D.

USEFUL DAFFODILS.

THE Poet's Narciss (*N. poeticus* poetarum) is a very distinct and beautiful variety of the Poet's Narcissus. The perianth is white, and the cup, when the flower first expands, is scarlet. I think it equal in beauty to either *P. ornatus* or *P. recurvus*, and, no doubt, when its merits are known, it will be grown as largely as those varieties. *N. Burbidgei* is much like the above in colour, but it is a smaller flower and earlier. *N. Barri* conspicuous is a most striking variety, with a very broad sulphur yellow perianth, and cup of similar colour stained with orange and scarlet; the blooms are borne well above the foliage on stout stalks. There are many varieties of *incomparabilis*, the majority differing but slightly from each other, and whilst all are beautiful, those who can only grow a few naturally wish for good ones, and are often puzzled which to select. The following are good and distinct kinds and reasonable in price. *N. Sir Watkin* hardly needs any further commendation, as it has been well brought forward this season; I will only say it well deserves all that can be said of it. Its price keeps up, as in the case of all good things, but all lovers of these flowers should try to have a few roots. *N. concolor* is a great favourite of mine. It is what may be called a self, both perianth and cup being of a rich yellow. *Frank Miles* is another fine form and paler than the last-named. *Figaro* has the cup stained with orange-scarlet. *Cynosure* is a fine variety, perianth primrose, cup stained orange-scarlet. *Mary Anderson* should be in the most select list, the perianth being white, with the cup orange-scarlet.

The forms of the *incomparabilis* section are well adapted for planting on Grass, being hardy and vigorous. In such positions they are very effective. We have a quantity growing under some large Elm trees in company with our native Daffodil, to which they form a good succession. When the flowers commence to fade, I generally give each clump a shovelful or two of fresh compost, having some short manure mixed with it. The Grass is not mown where the Daffodils are until the foliage commences to turn yellow. Daffodils in Grass are not injured nearly so much by wind as those grown in beds and borders. A few other desirable kinds for a small collection are *N. pallidus præcox*, *obovularis*, *maximus*, *Horsfieldi*, *grandis*, and the beautiful *cernuus*. Double kinds are not so beautiful as the single ones. The double form of the Poet's Narcissus is the best, and the large double yellow (*Tellamonius plenus*) is valuable on account of its earliness. A. BARKER.

Hindlip.

SHORT NOTES.—FLOWER.

Saxifraga Wallacæi is an excellent Saxifrage for pots and for the rockery. It is very free-blooming, and the flowers are large and pure white.

The large-flowered Poet's Narciss is a beautiful flower that will become no doubt as popular as the common kind. It is pure white, very large, and sweetly scented.

Persian Tulip (*Tulipa persica*) is a dwarf, neat form, with a yellow flower something like that of our common Water Lily. It makes a compact clump on the rockery.

Wild Hyacinth of North America was flowering freely in Mr. T. S. Ware's nursery the other day. It is a robust plant with a tall spike of blue flowers, and is named *Camassia Fraseri*.

Gentian Speedwell (*Veronica gentianoides*).—This is one of the prettiest flowers of the season; it is rather dwarf, and the colour is a delicate blue.

Grass-leaved Buttercup (*Ranunculus gramineus*) is a beautiful plant for the rockery. It has narrow glaucous grey leaves and a golden Buttercup-like flower.

Dodecatheon splendens is well named. A mass of it under a shady hedge in the Tottenham Nursery was in perfection a few days ago. The flowers are rich rose-purple, and borne well above the leaves.

Pentstemon Scouleri.—A semi-shrubby plant, bearing in terminal racemes stately blue flowers about the size of those of a florist's variety. It is blooming freely at Chiswick on the rockery.

Caltha palustris flore-pleno.—In a pond in the gardens of Stakehill House, Castleton, near Manchester, can be seen a very fine and striking double Marsh Marigold, which Mr. Barlow states he obtained

under the name of *giganteum*. It produces large and full ball-like flowers of the richest golden hue. It is planted near the edge of the pond in shallow water, where it would appear to have taken deep root, and the branches have extended themselves to a considerable distance. It is an object of great beauty, and remains in bloom for a long time.—R. D.

FLOWER GARDEN NOTES.

HARDY PERENNIALS.—At the present time these require a large share of attention in the way of supports. We use about three Hazel sticks to each large plant, and divide the heads or stems into three equal parts, each of which has its own stick, and being tied loosely, yet securely, the effect is far better than bunching the entire head together. *Pæonies*, *Delphiniums*, *Galegas*, *Phloxes*, and perennial *Sunflowers* are amongst those that require immediate attention in this way. At this time of year when the work of every department is pressing, it is very difficult to follow the usual rule and tie up or peg down all kinds of plants as soon as it requires to be done, so that the growth does not become crooked or lop-sided. There should be no bare or unfurnished places in the borders, and if there are they should be filled with whatever description of plants may be on hand; *Asters*, *Stocks*, *Phlox Drummondii*, *Zinnias*, seedling *Pansies*, and *Carnations* are amongst the plants we have set apart for the purpose, and on parts that are bare, owing to the dying off of the bulbs, small patches of *Sedums glaucum*, *corsicum*, and *acre elegans* will be dibbled in immediately over the crowns of the bulbs. Any blank spot at the back of the border will be planted with *Dahlias*, annual *Sunflowers*, *Maize*, *Hemp*, &c. Watering will be needed by all plants that have been planted this season, but those that have been in the borders all the year round will stand the drought of summer without artificial watering. It should be added that *Mignonette*, *Virginian Stock*, *Candytuft*, *Saponaria*, and such like annuals are also excellent for quickly filling up bare parts amongst the perennials.

BEDDING PLANTS.—All plants that cannot now be planted without risk of injury by frost and cold winds should be excluded from the bedding plant list. This I am striving at, and have succeeded in respect of all but the Brazilian *Alternanthera*—a substitute for which it is difficult to find—and until this is done they will be used in as small numbers as circumstances will allow. The new *Iresine*, *William Coleman*, is not nearly so tender as *Alternantheras*, and as it bears pinching and pegging with impunity, and is as brilliant in colour as the best *Alternanthera*, it will prove to be a good substitute for the dark-foliaged *Alternanthera*. All other descriptions of bedding plants should be got out without delay, and their immediate growth will be much assisted by the application of a surfacing of Cocoa fibre. Until growth is well advanced all flowers should be picked off, and those plants that have to be pegged down should have that operation performed as growth progresses. A few of the dwarfier growing single *Dahlias* may be so treated, and the effect is both novel and beautiful, and of special importance where large beds of *Dahlias* are grown, as the outer margin can be pegged and the centre plants tied up. A pleasing break is thus made from that formal appearance that beds of *Dahlias* usually present. *Dahlias* that are being planted out with a view to this mode of treatment (pegging) should, when being planted, be laid on their sides, so that pegging down may be commenced without risk of breaking off the branches, which, generally speaking, are very brittle. Beds that have raised edgings above the ordinary ground line quickly become dry, hence it is necessary to keep the edging plants constantly watered until the roots have extended into the bed. The Grass edgings should also be regularly cut, as also must the tips of plants that form the raised edgings. This will conduce to a thicker growth of the plants, and of course more rapidly furnish the edgings. The manner in which the plants are put out has so much to do with their after success that it is impossible to take too much pains to do the work well, both as to planting and in respect of having the

balls well moistened, in fact wetter than the soil into which they are to be planted. There will then be no risk of the plants suffering from dryness by reason of artificial watering having been neglected. I always both advocate and practise the application of surface mulchings with Cocoa fibre refuse, a plan that saves a great amount of watering, and is better for the plants. *Calceolarias*, *Violas*, *Pansies*, *Verbenas*, &c., all need this to do them well, and a great depth of rich soil is essential.

VARIETY IN GARDENS.—The more variety there is, so much the more is the interest in gardening increased. Hence the greatly extended variety in flower gardens by the freest use of plants that a few years since would have been considered quite out of place. But we are beginning to realise our error, and to repent of the same by a greatly extended use of the so-called common flowers, many of which we have now ready for planting out. Others were planted out a month or three weeks since. They consist of summer-flowering *Chrysanthemums*, annuals of various kinds, including *Salpiglossis*, *Scabious*, *Pyrethrums*, and many others. In gardens of moderate size there is ample space for all descriptions of flower gardening, and which, if well carried out, cannot fail to produce interest and enjoyment, and, as a matter of course, be profitable to gardening in general. There is no phase of flower gardening that has not some beauty, and as there is room for all, there is no need of fault-finding with one at the expense of another. My only quarrel with any of the forms is that which needs most tender plants, and if one branch must become extinct, I hope it may be this.

GENERAL WORK.—To get all planting done as early as possible, and to water and mulch all beds that are likely to be benefited by doing this; to place stakes to *Dahlias*, *Castor-oils*, and all other plants that are readily broken by wind. *Stake Sweet Peas*; train *Clematis* to trellis, also *Canary Creeper*, *Cobæa scandens*, *Convolvulus*, and *Roses*. The latter are already smitten with blight in the form of the leaf-rolling caterpillar, and must be hand-picked. Tobacco water is about the best destroyer of fly, and free supplies of water both at root and top the best remedy for mildew.

W. WILDSMITH.

Carnations Wm. Swayne and American Florist.—The first is white, and is highly recommended by those who have seen and tried it. The second is of a rosy orange shade, striped and flaked with carmine, and is a seedling raised by Mr. Chas. T. Starr, the introducer of *Buttercup* and other well-known varieties. The flower is a handsome one, and Mr. Starr states that it is very free and early flowering, and the blooms can always be cut with a long stem—a very desirable feature in a fancy Carnation. The habit of the plant is described as similar to that of *Snowdon*.—*Garden and Forest*.

Columbines.—All forms are throwing up flower stems strongly, showing that they suffered little from last year's drought. But the chief interest is in the hybrid forms, as these are invariably stronger at all times, and specially show that feature now when foliage is the only decorative element about the plants, whilst *chrysanthas* and *caryophyllioides* have given the most robust forms, quite excelling even the garden varieties. Very marked, too, are the hybrid products of *chrysanthas* and *glandulosa*, for the plants one year younger are even twice as large as are those of *chrysanthas*, which is one of the most robust amongst pure species. Those who appreciate good bunches of handsome leafage in their borders early in the year will do well to plant hybrid *Aquilegias* largely and to allow them to remain for several years. Cross-fertilisation is very simple work in the case of *Aquilegias*, as it is only needful to select a flower which has just expanded, remove the anthers carefully, and a couple of days later fertilise the stigma with pollen taken from some other species. It is true that cross-breeding does not so far seem to have given us colours more striking than are found in original species, but we get larger flowers and very strong growth. A beautiful variety well

worth the attention of the hybridist is Grigor's variety of glandulosa, which, whilst producing such very fine flowers one year, is yet a sparse bloomer, indeed, cannot in some cases be induced to bloom the second year. Such a lovely flower as Grigor's glandulosa produces, found in abundance on strong plants, would make the variety most welcome and popular. The flowers are not very enduring, but of all hardy ones none are more elegant or graceful. It is a capital time now to sow seeds of Aquilegias.—A. D.

PROPAGATING.

FIGUS.—Many species of *Ficus* will in a warm moist atmosphere push out roots from various parts of the stem, so that their propagation is a very simple matter, while several of the others, such as *Parcelli*, *exculpta*, and *macrophylla*, strike root readily enough from cuttings if they are taken and treated as the ordinary run of stove plants. The India-rubber plant (*F. elastica*) is the species that is most commonly grown, and yet many fail to propagate it in a satisfactory manner, but it is by no means difficult to increase, provided that suitable cuttings can be obtained. Unless this is the case it is useless to attempt its propagation. Many of the failures result from trying to strike shoots of the plants that are so largely grown for sale in some places, for they, in common with all plants that have had a considerable amount of stimulating manure, do not propagate readily. In proof of this I may mention the case of a number of *Bouvardias* we had here that were largely grown with the assistance of Clay's fertiliser, and though they formed grand specimens that flowered profusely, it was impossible to strike any of the cuttings taken from them, although they received exactly the same treatment as that accorded to some taken from plants that had not been given such a liberal amount of stimulating material, and cuttings from which rooted well. This attempt to strike such *Bouvardias* induced me to try the experiment on other things, and the result was always the same. In returning to the *Ficus*, I may mention that they may be struck either from cuttings of the young shoots or from single eyes. Where a regular supply has to be kept up, it is a very good plan to keep a few old plants in some out-of-the-way structure simply to yield a crop of cuttings. A length of 4 inches to 8 inches is a very suitable one for the cuttings, which must be taken off at a joint, inserted singly into small pots of sandy soil, and plunged in a gentle bottom-heat in a close propagating case in the stove. In the case of shoots that are too long to be used entire as cuttings, the bottom part may be cut up into single eyes and put into small pots. In this case the naked piece of wood at the base of each leaf must be allowed to remain, as it will serve to hold all secure when inserted in the soil. It must be put in at such a depth that the base of the leaf-stalk is just below the surface of the soil, and in order to prevent it swaying about when moved the leaf should be secured to a small stick. When this is done, the pots may be plunged in a bottom-heat of 80° or thereabouts, and if kept close the cuttings soon root. Though they will strike in a lower temperature, they take a much longer time, and another thing that facilitates their rooting is to keep the stock plants rather warmer and closer than ordinary a little while before taking the cuttings. In taking the single eyes for propagating, a very good plan, if it can be carried out, is at first to remove the top as a cutting, and allow the eyes below it to remain on the plant until they begin to show symptoms of bursting into growth, when they may be cut up and treated as above recommended. If this is not done some of the single eyes are apt to stand a good while after they are rooted before commencing to grow. If desired, pots can be dispensed with altogether for the propagation of this *Ficus*, as both the cuttings and single eyes may be put in the Cocoa-nut refuse which usually forms the plunging material in propagating houses. I have also propagated the India-rubber Fig by grafting the shoots on to pieces of the root which, where large specimens exist, are often obtainable. The

roots should, if possible, have a few fibres attached thereto, and then all that is necessary is to split the upper part of the root, and having fashioned the base of the shoot in the shape of a wedge, it should be inserted in position and tied there securely. The grafted plant must then be potted at such a depth that the point of union is covered with the soil, which will serve to keep out the air, and thus do away with clay or wax. The grafted plant must then be plunged in a case, and treated exactly as a cutting until it begins to grow.

CONIFER SEEDLINGS.—The best time to sow seeds of the different *Coniferæ* is during the spring months, and in the case of the choicer kinds it is far better to sow them in boxes, pans, or pots than in the open ground. A very good way is to prepare whatever receptacle is intended for the purpose by thoroughly draining it and then filling it to within an inch of the top or thereabouts with soil, consisting, for the great part, of sandy loam, lightened, if necessary, by an admixture of peat or leaf mould. If the whole is passed through a sieve with a quarter of an inch mesh, it will be all the better to use, and in that case the rougher portions that do not go through the sieve may be used for putting immediately over the drainage material. The soil having been pressed down moderately firm and made level on the surface without making it too smooth, the seed should be sown thinly and covered to about its own depth with soil. A gentle watering having been given, they may then be placed in a cold frame, in which there should be a good bed of coal ashes for the pans to stand on, as such a bottom not only ensures good drainage, but also tends to keep away worms. The soil should be kept slightly moist, always using a fine-rosed pot, and although a little air may be given at all times, the amount must be considerably increased directly the young plants appear above ground. From that time the lights must be employed, principally to keep off heavy rains, as they should be removed whenever possible during fine weather, in order to encourage as sturdy a growth as possible. In spite of this, however, the young plants sometimes damp off, the part affected being just above the soil, and should any signs of such decay set in the young plants must be at once pricked off. For this purpose boxes or pans should be prepared as for sowing them, except that the soil is only just below the rim, and the young plants must be carefully dibbled in at such a depth that the seed leaves are but a little above the surface of the soil. This is not necessary in the case of all kinds, as most of them can be allowed to stand in the boxes until they are planted in prepared beds in the open ground during the following spring. The seed will come up well if the pots are placed on a shelf in the greenhouse, or in some such spot, but they must be removed to a more airy situation directly the young plants are above ground. The principal thing to guard against after the seed is sown is to keep clear of mice, as a single mouse will often in one night play havoc with a choice selection. While some of the larger kinds which have such long, bold roots scarcely lend themselves to the above treatment, for it is difficult to dibble them in, they should, if it is necessary to shift them, be potted into small pots, but, above all, they must not be allowed to remain therein any longer than is necessary, as a *Conifer* that has remained a long time in a pot seldom grows with the same freedom as one that has not been so grown.

WITSENIA CORYMBOSA.—This pretty little plant, whose bright blue flowers form such a pleasing feature in the greenhouse during the autumn, is by no means easy to propagate, and that, no doubt, accounts for its scarcity. It may be increased by means of cuttings, each being formed of one of the fan-shaped tufts of leaves, with a heel of older wood at the base. Very frequently the best cuttings are to be found clustered around the bottom part of a plant. The better way to treat the cuttings is to dibble them round the edge of a pot in very sandy peat, then plunge this pot inside another and cover with a bell-glass. By this means the cuttings have the advantage of being close to the edge of the pot in which they are inserted, and are

yet covered with a bell-glass. A greenhouse temperature is very suitable for them when first put in, but after a time a little additional heat will assist their rooting.

WISTARIAS.—These beautiful climbing plants cannot be propagated by means of cuttings, but where a few only are desired, a sure, though rather slow, method of increase is to layer a few shoots that are conveniently situated for this to be carried out. Another way is to graft the shoots on to pieces of the roots of the common *W. sinensis*, as it is a simple operation, and a union is soon effected. This may be carried out anywhere during the spring and early summer months, and though the plants make but little headway the first season, they grow away rapidly the next.

OLEANDERS.—Few plants are more readily propagated than these, as the young growing shoots will quickly strike root either in sand, water, or soil. If struck in the two first mentioned, especial care must be taken in potting them so that the very delicate roots are not injured. T.

GARDEN FLORA.

PLATE 651.

OXERA PULCHELLA.*

At one of the meetings of the Horticultural Society held early this year, Mr. Ross, the gardener at Pendell Court, exhibited flowering branches of this plant. They were much admired at the time, and it was predicted that in a short time we should find the *Oxera* as frequent among stove plants as its relatives the *Clerodendrons* are now. The plant at Pendell Court is growing in an intermediate house, but Mr. Ross thinks it would thrive equally well in a stove. It did not succeed at all in a greenhouse. It flowered for the first time in the December of 1886, when it was figured for the *Botanical Magazine*. The enthusiastic proprietor of Pendell Court, Sir George Macleay, has rendered good service to horticulture by introducing many beautiful garden plants, as well as rescuing from oblivion many fine things which, to the younger generation of gardeners, were unknown. The *Oxera* is a case in point. Sir George, having heard of the plant, secured seeds from New Caledonia, and a beautiful addition to stove climbers is the result. *O. pulchella* grows vigorously, a plant two years old from a cutting completely clothing a rafter and bearing numerous axillary bunches of flowers. The leaves are from 2 inches to 5 inches long, ovate, and shining green. The flowers are borne in the axils of the leaves upon the young ripened wood, the weight of bloom pulling the shoots downwards, so that the flowers hang gracefully. Each flower is 2 inches long and 1 inch across the mouth, the form being broad trumpet, almost bell-shaped, and the tube slightly curved. The large calyx is yellowish white, the rest of the flower being ivory white. Being of good substance, the blooms last some time on the plant, and also when cut and placed in water. This species is one of several which are natives of New Caledonia, to which island the genus is at present limited.

There is a good deal about this plant which

* Drawn for THE GARDEN by H. G. Moon from specimens sent from Pendell Court Gardens, January 12, 1888, and lithographed and printed by G. Severeys.



NERIA PULCHERRA

suggests the well-known *Clerodendron Thompsonae*, and, indeed, the genus *Oxera* is very near to *Clerodendron*, the only difference of any importance being in the number of stamens, *Clerodendron* having four and *Oxera* only two—a character which, however, does not appear of much value, seeing that in many genera, such as, for instance, *Rhododendron*, the number of stamens in the different species varies considerably. However, *Oxera pulchella* is a name which no one can find fault with, and certainly the plant has sufficient distinctness and beauty to make it a favourite climber for the stove or intermediate house.

W. W.

ORCHIDS.

W. H. GOWER.

GOLDEN YELLOW DENDROBIUMS.

OUR illustration represents one of a group of *Dendrobies* with golden yellow flowers of great

its roots and in the atmosphere. After growth is finished the plant should be well ripened by removing it to a lower temperature and greatly reducing the water supply, care being taken not to allow the leaves to flag, nor its bulbs to shrivel, while at the same time an abundance of light and air must be given. In this condition it may be kept until spring, when the spikes of bloom will begin to show, and it may then be removed into a stronger heat and watered more freely. The flowers are usually fully developed during the months of April and May, but I have seen the plant flowering in June. It is sometimes to be found in collections under the erroneous name of *D. Paxtoni*. The typical plant of *D. fimbriatum* is similar, but its flowers are smaller and wholly golden yellow, being destitute of the large blackish eye-like spot which is such a conspicuous feature in the variety.

D. CHRYSOTIS is a nearly allied species to *D. fimbriatum oculatum*. It is, however, much larger, and the flowers are produced just before the shoots have attained their full size, and consequently when the leaves are fresh and green upon them. The plant is some 3 feet or 4 feet high; the stems are erect, and the racemes are pendent, bearing

across; sepals and petals spreading, slightly incurved, and very deep orange-yellow; the lip is slightly pale with a slight fringe at the edge; a somewhat woolly surface, with a spot on either side at the base of blackish purple. It is a spring blooming plant, which should be well rested during the winter months, but grown in strong heat.

D. CHRYSANTHUM.—This is a charming old plant, which requires to be grown in a hanging basket, as its growths are pendent, attaining a length of from 3 feet to 4 feet, but are more frequently seen from 18 inches to 2 feet, and bear numerous leaves of a vivid green, which remain with the flowers. The blooms are produced just about the time when the bulb has attained full size, and are of a shining golden-yellow, with two blotches of deep blood-red at the base of the lip. It blooms at various seasons, but every strong growth will produce a wreath of golden-yellow flowers, which, however, are not long lived. It comes from Northern India.

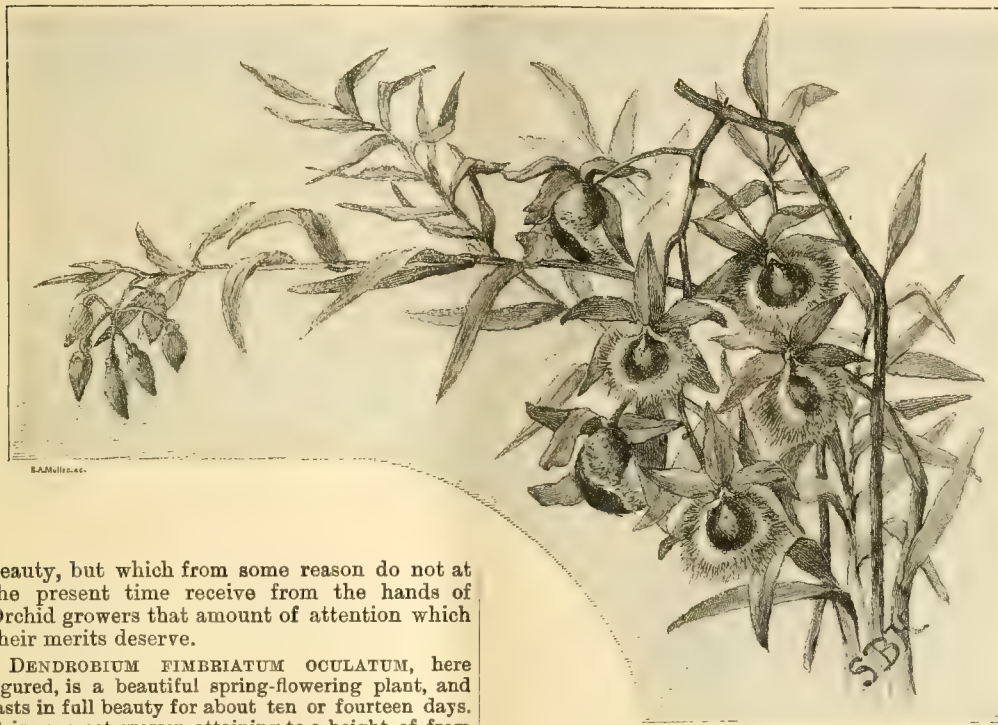
D. PAXTONI is a plant of less beauty than some of the previously named kinds. It grows to about 4 feet in height, and the flowers, produced in pairs, are deep yellow, with a large dark stain at the base of the lip which is slightly woolly on the surface, and with a narrow fringe. It blooms during spring and early summer, and comes from Khasya.

D. GIBSONI.—This is a beautiful plant, which worthily commemorates the labours of the late Mr. Gibson when collecting Orchids for the Duke of Devonshire. It thrives best as a basket plant, and its flowers, produced in autumn, are rich deep apricot yellow, with two dark purple blotches at the base. It comes from Khasya.

D. CLAVATUM.—A plant which much resembles *fimbriatum oculatum*, but has no fringe to the lip, and there are two ornamental dark crimson blotches at the base. It is a spring bloomer, and the flowers, produced in close heads of about five together, are of a bright orange-yellow. Native of Assam.

Cattleya Wageneri.—This plant, although introduced many years ago, and before white flowers were so largely in demand as they are at the present day, was at once acknowledged to be a gem of the first water, and although it has now become somewhat more plentiful, it is by no means common. One of the very finest forms of this plant which I have yet seen is now flowering with Mr. Tautz at Shepherd's Bush. It is a very fine form of *C. Mossiae*, the whole flower being pure snow white, saving a stain of yellow just at the base of the front lobe of the lip. This form was flowered first by the Messrs. Backhouse, of York, about the year 1856, and in the following year a large plant flowered with the Messrs. Jackson, of Kingston, from amongst an importation of the typical plant sent home by that ill-fated collector, Birschell. Since this, the first of the white *Cattleyas*, albinos of nearly all the kinds have made their appearance, and all command high prices.—W. H. G.

Odontoglossum vexillarium.—Large importations of this wonderful plant have reached this country through Mr. Sander, of St. Albans. Some of the plants had produced flowers on the journey, revealing the fact that there were many superbly coloured forms in the consignment. Mr. Sander has lately been selling a quantity from the same district that yielded the variety *superbum* of Sir Trevor Lawrence. This form, so well portrayed on plate 171 of the "Orchid Album," I recently saw in Mr. Tautz's garden at Shepherd's Bush; indeed, there is a lovely display here of that magnificent species, some 600 blooms being expanded, and fully as many more to maintain the display, thus proving it to be purely a town Orchid, bearing individually one of the largest flowers of any Orchid, and yet



Dendrobium fimbriatum oculatum.

beauty, but which from some reason do not at the present time receive from the hands of Orchid growers that amount of attention which their merits deserve.

DENDROBIUM FIMBRIATUM OCULATUM, here figured, is a beautiful spring-flowering plant, and lasts in full beauty for about ten or fourteen days. It is an erect grower, attaining to a height of from 3 feet to 4 feet; the leaves are ample, and arranged on the stem-like bulbs in a regular two-ranked manner, from which, however, they fall after about eighteen months, so that whilst the flowers are produced from naked stems, which are two years old, the growths of the preceding season are furnished with foliage. Those who advocate pruning of Orchids must be careful how they proceed with this plant, as I have had the plant produce flower-spikes from the same old stems for five years in succession, and, therefore, had they have been removed much of the display would have been lost. The sepals and petals are broad and spreading, thick in texture, the latter slightly toothed at the edges, all of a rich, deep golden yellow; lip large and hooded, of a slightly paler hue than the outer portion of the flower, beautifully fringed at the edge, and bearing at the base a single large, deep blood-coloured spot of a velvety appearance. For the introduction of this plant we are indebted to the late Mr. Gibson, who discovered it in Northern India. It is often considered a shy-flowering plant, but this is more attributable to bad management than any other cause; when growing it enjoys strong heat and an abundant supply of moisture, both to

from three to eight flowers, each of which measures about 4 inches across; the sepals and petals are large and spreading, plain at the edges, and bright golden yellow; lip large, slightly paler in colour than the sepals and petals, deeply and heavily fringed round the edge, and bearing on either side near the base a flaked blotch of deep blood-red. It usually flowers during September and October, after which its growths should be carefully finished and the plant allowed to remain dormant during the winter. It is said to be found wild upon trees in the hot valleys of Assam and Sikkim, ranging from 1000 feet to 5000 feet elevation.

D. FUSCATUM is another member of this Himalayan group of golden-yellow-flowered kinds, which, however distinct the extreme forms may appear under cultivation, may probably prove to be only one of a polymorphous type. The present plant is nearly allied to the eyed form of *D. fimbriatum*, and, like it, its blooms are produced from leafless stems, which bear upon the pendent zigzag racemes a dozen or more flowers, which are about 2 inches

flowering so profusely. There are numerous varieties, but all are beautiful. I observe that all the best growers of this species give it almost the temperature of the intermediate house, but even then it appears to be very subject to the attacks of thrips, which greatly mar the beauty of its leaves and injure its health. Are the attacks of thrips caused by too high a temperature? *O. Roezli* grows well under cooler treatment, and its enemy the thrips do not injure it. Has anyone grown and flowered *O. vexillarium* satisfactorily in the cool house? and if so, does it remain free from the black pest?—W. H. G.

Odontoglossum Schillerianum.—This is a very little-known plant, and appears to have been discovered in Venezuela some thirty-five years ago, but was only introduced in a living state some five years since, and so the veteran Orchid grower in whose honour it was named never saw the plant. Recently, however, I saw this species in one or two collections, and a form I noted last week in the Studley House collection is very fine, the flowers being rich yellow profusely dotted and blotched with cinnamon. This plant is found near Merida, in Yucatan, in Central America, within some thirty or forty miles of the sea, and therefore in all probability requires more heat than the majority of *Odontoglossums* to induce it to show its beauties to the greatest advantage.—G.

Cattleya Mendeli.—This is undoubtedly one of the very best forms of this gorgeous genus. Even what is now termed a bad *Mendeli* would have been hailed with delight thirty years ago. It, like the others, varies considerably, but a form I recently noted flowering with Mr. Measures at Camberwell bids fair to create a sensation by-and-by when the plant has become stronger. At present it is only in a 3-inch pot, and the plant is small; the flower, however, is exceptionally large, being $8\frac{1}{2}$ inches across, the petals being 3 inches in breadth and the lip fully 4 inches long. The sepals and petals are white, shaded lilac, the petals having a crisp marginal border; lip white both inside and outside, the large front portion being rich magenta-crimson, dark lemon-yellow in the throat, stained with crimson. It is from a batch which was imported about two years since from a new district. It has very short bulbs, and was stated by the collector to be a very superior form, partaking of the nature of a hybrid between *C. speciosissima* and *C. Mendeli*. The first to flower amply bears out his testimony.

Vanda roots dying.—In compliance with the remarks of "W. H. G." in THE GARDEN, April 28 (p. 358), I have shaken out the Vandas and found the roots in much the condition which he there speaks of. The material in which they were growing was quite sweet. After removing every particle of decayed roots and washing them in clean luke-warm water, I have potted the plants up. I may say that three years ago I found the plants in much the same condition as they are at present, and having become rather leggy I placed them down a good deal lower in the pots, after which they grew away quite free of the spot, and I thought I had succeeded in ridding them of it. About six months ago they again showed signs of it, and since that time have continued to become worse. I have all along been convinced that it has not been caused by the treatment which they have received, and have been confirmed in that belief by a recent examination of the roots with a powerful glass. I have enclosed a few roots for "W. H. G." to examine, and shall be pleased to hear what he thinks of them.—N. F. B.

* * * Yes; the roots were just in the condition I expected. I hope, by attending well to the efficiency of your drainage material, by the admission of a free circulation of air, and by not over-loading the roots with *Sphagnum Moss*, that your plants may soon grow out of their great disfigurement.—W. H. G.

Odontoglossum citreum punctatissimum.—This is a very distinct and handsome form, with large flowers, the sepals and petals being pure white, profusely dotted with crimson, whilst the lip is rose colour. I recently noted this in the Studley House collection, where it is a conspicuous object amongst many others.

Cattleya Schroederæ.—The more this beautiful form of *C. Trianae* is grown, the more it is appreciated, if for nothing else but for its delightful perfume. I recently noted some fine plants flowering in Mr. Tautz's garden, and, independent of the lateness of the season for this species to be in flower, the odour emitted by the flowers was very grateful. It deserves to be largely grown.—W. H. G.

KITCHEN GARDEN.

MANURING FROM THE SURFACE.

A KITCHEN garden closely cropped requires, and must have, plentiful supplies of manure, or otherwise it will not long bear the strain put upon it. That much may sometimes be done by a systematic rotation of crops I readily admit; but although this is theoretically correct it is rarely practised; in fact, the more a novice puzzles his brains over the matter the greater the muddle he gets into. In the case of farmers, market gardeners, and those in charge of large gardens, rotation may be practised without much difficulty; but where a great variety of vegetables has to be grown on from one to three acres of ground, it is a very difficult matter to follow any strict system of cropping. At least such has been my experience, and I have long held the opinion that the necessity for and value of the practice of following a strict rotation of crops has been somewhat over-estimated. Those with unlimited supplies of farmyard, or even good stable manure, may do almost what they please with their land, as the former especially more nearly approaches a perfect manure than anything else that can be used, and a judicious use of it will generally restore to the soil the principal portion of what a crop has absorbed from it. That this should be the case is a matter for congratulation, as otherwise it would be utterly impossible to utilise a small garden to the fullest extent.

Unfortunately, there are a good many gardens where good solid manure cannot be had in sufficient quantities, and in very many instances what stable and farmyard manure is available must be, or, at any rate, is spoilt prior to its being wheeled on to the ground. When a heap of strawy manure has first to be used for hot-bed purposes, and, in addition, is kept in a solid mass for another six months, there is very little manurial property left in it. Nearly fresh manure, such as market gardeners dig in, is rich in ammonia, nitrogen, and phosphates, or such as meet the principal wants of most vegetables; whereas the old hotbed material is little better than a mass of moisture-holding humus. The latter, used without artificial manures of any kind, is of little real service, but in conjunction with them is distinctly valuable. In a showery season it might in many instances be dispensed with altogether, but during a dry season artificial manures are of little avail unless accompanied with something that is capable of both holding moisture and also of absorbing it from the atmosphere. Land, then, that has either been dressed with old hotbed manure prior to having been dug, or which is already largely composed of decayed, yet inert, vegetable matter, absolutely requires, and is in the best condition for receiving, a surface sprinkling of some kind of artificial manure, mixed or natural. Fortunately, these are now supplied at comparatively cheap rates, and can be had of recognised agents in nearly every town or large village in the country. No one need be deterred from buying what I shall recommend owing to the supposed necessity of analysing their particular soils in order to discover what constituents are most plentiful or otherwise, as this,

though right enough in theory, is not often practised. It is in this way we get over this supposed difficulty. If during one season more of one class of manure, mineral or organic, is added, or which already exists in the soil, than a crop will assimilate, it remains for that which follows, and it often happens that what we apply, say for Potatoes, really proves even more beneficial to any member of the Brassica planted in close succession to them.

There is a great variety of special manures now in commerce, all more or less effective, and among these Peruvian guano still holds a front position. The samples very often obtained, however, are not worth the price asked for them, but if it can be bought at a fairly cheap rate, and mixed with superphosphate of lime or, better still, bone superphosphate in about equal quantities, a grand manure for surface dressing and suitable for most vegetable or fruit crops is the result. Another first-class mixture would consist of 1 cwt. of sulphate of ammonia and 2 cwt. each of superphosphates and kainit. Kainit or crude potash salts is the cheapest of all manures, and even when used alone has a surprising effect. Common salt, we are now told, is of little manurial value, and it is not for me to question the results of carefully conducted experiments, but in spite of what the *savants* may say I am using several hundredweight in connection with the mixture of ammonia, superphosphates, and kainit. We have now to depend largely on special manures, owing to the smallness of the supplies of solid manure, and I find a sprinkling of salt most necessary. It is on finely divided soils that it is most effective, and least desirable on clayey soils or those already of a cool and moist nature. Soil lightly dressed with common salt holds moisture longer than it would otherwise do, and this alone is an inducement for mixing it with other special manures. If anyone doubts the efficacy of common salt, let him test it on a Violet bed and also in the Celery trenches. A mixture of soot, salt, and wood ashes makes a capital manure, say at the rate of three bushels of soot to one each of salt and wood ashes. In this district malt-dust is plentiful, and if used moderately or mixed with salt and soot it is a powerful fertiliser. If too plentifully applied, or in insufficient quantities to form a mulch, it has a most injurious effect, causing a very vigorous growth one season and a collapse during the next.

Although I have enlarged upon the properties of certain manures, my original idea was to point out how and when any of the many special manures can be best applied. If added to the soils much in advance of the crops which it is intended to benefit, the most soluble portions may be wasted; whereas if applied now or just as everything is growing freely, little or any of it will be wasted. During May and June we reasonably anticipate dripping or showery weather, or such conditions as are most favourable to the full utilisation of any special manure used. Applied later in the season, the chances will be that little or no benefit will be derived from it by the summer crops at any rate. In no instance is it advisable to use large quantities at a time, an overdose being both wasteful and injurious; hence the advisability of mixing these special manures with a good bulk of burnt garden refuse, ashes, leaf-soil, sand, or sifted accumulations from the potting-bench. When any such additions are made, the whole of Onion, Carrot, and other seed beds may be coated over with it, but if the manure only is sown, it must be sparingly and carefully applied.

Asparagus, Seakale, Artichokes, Potatoes,

Cauliflowers, Lettuces, and other crops would be greatly benefited by the immediate applications now and again early in June. In all cases where it can safely be done the manure ought to be stirred into the soil, and if applied in showery weather so much the better. Peas and Beans are also much benefited by some kinds of special mixtures, notably blood manures; but to be effective they ought either to be mixed with the soil prior to the seeds being sown, or else be washed in, as after this date but little rain-water reaches the roots of staked Peas especially.

That not half enough special manures are used by gardeners few will care to dispute, and I hope I have advanced enough to induce others to commence applying them to various crops, even if a certain amount of fairly good solid manure has been already dug in. One thing is very certain: the few pounds expended on special manures will not have been spent in vain, as they are far from being exhausted by the first crops to which they are applied.

W. IGGULDEN.

KITCHEN GARDEN NOTES.

BRUSSELS SPROUTS.

THOSE raised under glass and duly pricked out ought now to be quite large enough for transplanting to their final quarters. The sooner this is done the better, so much depending upon a good and early start being made with this most useful winter vegetable. What they delight in, or, at any rate, what is best for them, is a fairly rich and firm root-run. Planted on a deeply dug, heavily manured, and only slightly settled ground, they form very rank growth, and which is not so hardy nor so productive of firm sprouts as the more sturdy plants put out on firm ground. We cannot afford to keep a large breadth of ground waiting for Brussels Sprouts, nor is it wise to wait until the earliest Potatoes are cleared off before planting. The difficulty is surmounted by placing the rows of Ashleaf Potatoes 30 inches apart, and after the latter are finally moulded up the Brussels Sprouts are set between them. Before moving the latter they receive a good watering, this facilitating the process of lifting with a good ball of soil about the roots. Trowels only are used, as pricked-out plants ought never to be replanted with a dibber, and all are firmly fixed and watered in. In dry weather one or two subsequent waterings are needed, and in showery weather slugs must be trapped or kept away with the aid of soot and lime. We make a point of lifting the Potatoes as early as possible, or otherwise it cannot well be done without crippling some of the plants between them. At the same time the Brussels Sprouts are moulded up, and give no further trouble. The roots soon reach the old Potato lines, and the superphosphates or other manures sown with the latter also greatly benefit the successional crops. This season we are relying almost exclusively on the variety *Ne Plus Ultra*, this being of moderately strong growth, very productive, and the sprouts are of excellent quality, not being too large. They are planted 2 feet asunder in the rows, but those who intend planting the stronger growing *Aigburth*, *Exhibition*, *Perfection*, or other tall varieties ought to set them out at least 30 inches apart, crowded plants never proving so productive as those given plenty of room.

AUTUMN CAULIFLOWERS AND BROCCOLI.

Plants of *Eclipse* and *Autumn Giant* Cauliflowers and *Veitch's Autumn Broccoli* raised last autumn and wintered in frames ought now to be growing strongly on good ground, these affording a good succession of fine hearts during August and September. Those raised this spring and pricked out at the same time as the Brussels Sprouts may be treated in every respect similarly to the latter. They may be planted between either early or second early Potatoes, always supposing the rows are not less than 30 inches apart in the case of *Ashleafs*, and 3 feet and upwards where the varieties form more haulm. As none of these are expected

to stand any very severe frosts, it does not matter if they do become slightly drawn, as the moulding up steadies them sufficiently. The breadth of any variety of Autumn-protecting Broccoli that it is intended to lift and store in frames, pits, or cool fruit houses for midwinter use ought, however, to be grown in the open in succession to early Peas, Kidney Beans, Potatoes, Turnips, or other quick-growing crops, where if planted not less than 30 inches apart each way, they grow sturdily and are fairly hardy. These are some of the most valuable crops of Broccoli that can be grown, and we obtain our plants from the same seed-bed as the earlier batches were drawn from, and also by sowing seed in April on a warm border.

CABBAGES.

These are yet comparatively scarce, especially in the markets. To grow them quickly they ought to be planted on well manured ground, and in dry seasons, such as we are now experiencing, they need plenty of liquid manure. The rows ought first to be well moulded up, and the drill thus formed midway between them is the proper place for the liquid manure. Quite strong sewage or other liquid manure may safely be applied, and quickly grown, very tender Cabbages be the result. Especially are these supplies of liquid manure necessary where it is intended to leave the plants on the ground for successional crops of hearts and greens, or otherwise these will be poor in quality and the soil be ultimately left in a most impoverished condition. Lightly tying up the outer leaves expedites early hearting and blanching, and if successional hearts are needed the old stumps ought not to be stripped of all the leaves. When as many outer leaves as possible are left these favour the early formation of strong side shoots. During the summer, when other vegetables are plentiful and the Cabbages tough, they are not much in demand, but in the late autumn and winter tender young hearts are always appreciated. Coleworts or small hardy Cabbages are usually very useful, these taking up but very little room, and can be planted in succession to *Tripoli Onions* and other early crops. Now is a good time to sow the seed. I prefer the *London Rosette* and *Shilling's Queen*. Improved *Nonpareil* and *Little Pixie* are also suitable for present sowing.

LETTUCES.

We commenced cutting excellent Lettuces from a sunny border about May 6, the variety being the *Early Paris Market*. This valuable Cabbage Lettuce ought to become still more popular, seeing that it is quite as hardy as the *Brown Cos* or any other varieties wintered in the open air. During the winter we lost about one-third of the plants pricked out, and the rest are now hearting in well and a long way ahead of other varieties. Plants of this variety raised and grown in frames are invariably so very tender that they have to be packed in boxes for the town house, and they are always commended. Lettuces in variety raised in gentle heat and duly pricked out, will, if planted in good open positions, form a close succession to those raised in the autumn. Some of these, and also a portion of those obtained by sowing on a warm border, may well be planted on the spaces between the Celery trenches, where they will grow to a great size, no matter how hot and dry the season may be. The surface soil should be made fine, and two drills, 1 foot apart, drawn through the centre of each raised space. Water these if at all dry, and also the plants, a short time before removal, and carefully transplant where possible with a trowel. The *Cos* Lettuce should be put out 9 inches, and the Cabbage varieties about 6 inches apart. When given more space they form more outer leaves than are needed, and do not heart in so quickly. A few plants may be left in the seed-beds to be in readiness for making good any failures, and some may be left to heart in. From this date Lettuces should be sown every fortnight, and as much as possible where they are to grow, as they do not transplant readily in dry, hot weather. Well-manured open ground, or any, say, which has received a good dressing of old Mushroom-bed manure, will grow Lettuces in the hottest weather, and failures very rarely occur when the seed is sown between the Celery trenches. Shallow

drills should be drawn from 10 inches to 1 foot apart, and if at all dry be thoroughly moistened prior to sowing the seed thinly and covering with soil. Later on the seedlings should be lightly thinned out, eventually leaving them 6 inches or rather more apart. One of the best for summer use is the *Black-seeded Brown Cos*, this, with a little assistance in the shape of a strip of matting lightly tied round it, forming large, beautifully blanched, sweet and crisp hearts, really superior to anything of the sort. This variety also stands well, or, in other words, does not run to seed so quickly as the *White* or *Green Cos* varieties do. A good strain of the latter may well be grown with it, as being the earliest to heart in, and a longer succession from one sowing is thereby secured. Cabbage Lettuces are much too flabby in hot weather, the only noteworthy exception being *Perfect Gem*, this when well grown almost rivaling good *Green Cos* in quality and appearance.

ONIONS.

The Onion seed never probably germinated more quickly or evenly, and the plants have since made good progress. The thinning out should be done early, or while the plants can be easily drawn. Doubtless the thinnings later on would be more serviceable, but it would be a mistake to delay the necessary thinning on that account. If young Onions are wanted for salad, a row, or rows, should be occasionally sown thickly, especially for providing these as required. Those to form good bulbs cannot well be thinned out too early or before they weaken each other. If extra large bulbs are required eventually thin to a distance of about 6 inches apart, but the best and most long keeping crops are obtained by leaving them more thickly on the ground, or from 3 inches to 4 inches apart. This season there is a tendency for the soil to become very dry, and as a firm root-run is necessary to induce the formation of solid, small necked and early maturing bulbs, it is advisable in many instances to trample the ground as much as possible without actually crushing the plants. Where blanks occur these may be made good by transplanting a few seedlings, but this must be done in dull showery weather.

POTATOES.

As yet, ours have not been seriously injured by frosts, and all, early and late alike, are well above ground. "Hacking" or heavily hoeing among the rows is very beneficial in several ways. Being done in dry sunny weather all the weeds are destroyed, the soil is loosened to a good depth, and the warmth and air are admitted to the roots. A loose root-run just suits Potatoes, this favouring the spread and growth of numerous well-formed tubers. As soon as a soaking rain has fallen all should be finally moulded up, and thus treated very little more moisture is needed, in our case, at any rate, to bring the crops to maturity. Those planted very near to, or quite on, the surface ought to be rather heavily moulded up, there being less need for this when they are set deeply. If extra fine tubers, rather than a larger quantity of smaller ones, are wished for, it is advisable to thin out the haulm where at all thick. This should be done before moulding up, and the central or strongest shoots be reserved, the rest being drawn carefully out of the ground.

JERUSALEM ARTICHOKEs.

These require treatment very similar to Potatoes, the ground about them being hoed and the rows eventually moulded up. If grown in the same situation as last year, many more shoots will come through the ground than are needed, and these ought to be freely thinned out.

W. I. M.

Main crop Peas.—Peas are always popular, and their season can never be too long. In many gardens it is an easier matter to secure early and late Peas than it is to have a full supply of good main crop varieties, or Peas for use in July, August and September. When the Pea season begins, the supply immediately increases until it becomes almost a drug in the market; but this is rarely the case after the very hot weather sets in, and August

Peas are quite a rarity. I do not think anyone buys Pea seed who does not intend to have a supply of Peas all the season; but how few accomplish this end. They either make a mistake in sowing them all too early, or sow in such a way that the plants succumb to the first spell of dry hot weather they have to contend with. The latter is a very common occurrence in the case of main crop Peas. At the time of sowing the seed in March, April, and May the soil is moist and the atmosphere cool, and cultivators seem to forget that, by the time the plants are in flower or the crop maturing, the plants may have extremely hot and dry weather to fight against, and this Peas cannot stand well. As soon as the soil becomes dry and hot, growth ceases, and if the pods are not formed, most of them will fail to do so, and if the Peas are swelling, they will fail to gain flavour. Mulching and watering will help a little to prevent this; but in such a summer as the last they will fail in spite of all temporary attention, and the only way of contending successfully with the dry weather and ensuring a continuous supply is to prepare for it before sowing the seed. This is best done by throwing out trenches for the rows to a depth of 1 foot or so; then place a good layer of manure in each trench, and dig it down as deeply as possible. Sow the seed on the top of this, and cover over with a little soil from the edge of the trench, and note the result when hot weather comes. Peas treated in this way are sown about 9 inches from the surface, and the roots penetrate down to the manure, and the main portion of them are soon away from the influence of the sun and drought. I have seen surface-sown Peas fail altogether, while those put down in this way blossomed, podded, and remained green and tender until the crop was naturally exhausted. Round-seeded Peas may be sown in trenches during all the spring months; but I have known wrinkled ones fail in January and February, particularly where the ground was wet and heavy; but from the beginning of March onwards all kinds may be sown in trenches with impunity—in short, no Peas should be sown after that time without being put in trenches.—CAMBRIAN, in *Field*.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Daphne.—Most of the hardy Daphnes are beautiful flowering shrubs, besides being among the finest of Evergreens. The best known and the most popular Daphne is the old Mezereum.



Garland Flower (Daphne Cneorum).

(D. Mezereum), whose leafless branches are wreathed with a profusion of fragrant blossoms before winter is past. The common sort has reddish purple blooms, but there are pink and white, single and double-flowered forms. It is, in short, an indispensable shrub for every garden and should always be planted in a spot

where its beauty can be enjoyed in early spring. It dislikes shade, and does best in an open sunny place in almost any kind of soil. In some seasons it flowers from the end of January until April. The pretty D. Cneorum (the Garland Flower) is likewise a favourite little shrub, but it is more suited for the rock garden than the shrubbery. It is of trailing growth, and makes dense cushion-like masses of evergreen foliage a few inches high. The flowers, which are deep pink, are deliciously fragrant and produced in dense clusters at the tips of the shoots. It prefers a peaty soil in an open situation, and flowers in spring and again in autumn. D. Blagayana is a newer alpine shrub also suitable for the rock garden. It is of dwarf straggling growth, and bears in early spring dense clusters of ivory-white strongly perfumed flowers. It is very hardy, and thrives anywhere in good soil in open spots. Another rather new Daphne is the Japanese D. Genkwa, introduced twenty years ago, but still uncommon. It produces freely large lilac-tinted fragrant flowers in spring before the leaves appear. D. Fortunei, from China, is similar to it. The foregoing are the



Daphne Mezereum.

best of the hardy Daphnes; others in cultivation of less value comprise the following: D. alpina, a dwarf deciduous shrub, growing about 2 feet high, produces in clusters fragrant white flowers; D. collina, from South Europe, is a dwarf evergreen form, growing about 2 feet or 3 feet high, and bearing dense clusters of very fragrant pink blossoms during the first half of the year; D. neapolitana, from Italy, is similar to this, probably only a variety of it; D. altaica, with neat growth, like that of D. Mezereum, has white scentless flowers; D. pontica and Laureola are good Evergreens, although not remarkable for their blossom; while the pretty D. odora and its variety Mazelli are scarcely hardy enough for open-air culture in this country. Such a beautiful family of shrubs as the Daphnes deserves the best attention.

Desfontainea spinosa.—In favoured gardens along the southern coast and in other mild parts this very beautiful evergreen shrub from Chili can be grown and flowered successfully out of doors, but, generally speaking, it cannot be called a satisfactory open-air shrub for this country unless protected by a wall. It is a bush of moderate growth, the foliage being much

like that of the Holly. The flowers are in the form of a long tube, bright scarlet tipped with yellow, therefore extremely showy. It usually



Desfontainea spinosa.

flowers about the end of summer, and in some parts of Devonshire it blooms profusely. It thrives in a light loamy soil in an open, yet sheltered situation.

Desmodium penduliflorum.—This is the name under which the beautiful Lespedeza bicolor is more generally known in gardens. It is a slender-growing shrub, extremely graceful when in flower. It rises 6 or more feet in height, has trifoliate leaves, and bears dense drooping racemes of small Pea-shaped flowers of a rich carmine-purple colour. It is a native of China and Japan, and is hardy enough for open-air culture except in cold districts. It makes a beautiful wall shrub, in which position it can be easily protected.



Deutzia crenata Pride of Rochester.

Deutzia.—The best of the few species of Deutzia in cultivation are D. gracilis and D. crenata, both common and well-known shrubs,

the first generally seen in greenhouses, the second to be found in almost every shrubbery. *D. gracilis*, though usually grown in pots, is perfectly hardy and makes under suitable conditions a dense bush about 2 feet high. When planted in a free soil it flowers as freely as when growing in pots. *D. crenata* (also commonly known as *D. scabra*) is a much larger bush, reaching to a height of from 6 feet to 8 feet or more. Its leaves are large and rough, and its slender stems are wreathed when in flower with racemes and panicles of pure white blossoms. There are two very distinct and beautiful varieties of it, viz., *flore-pleno*, with

culture should not be attempted in cold localities.

Edwardsia tetraptera (New Zealand Laburnum).—The genus *Edwardsia* is now classed with *Sophora*, but for the garden it is well to retain the old name, as there is one tolerably well known wall shrub belonging to it. This is *E. tetraptera*, which has been not inaptly called the New Zealand Laburnum. It is quite a large tree in its own country, and here it makes a charming wall covering, its foliage being so elegant, and its flowers so bright. The illustration shows well the character of a spray of the variety *grandiflora*, which has larger flowers

warm parts of this country, even without the protection of a wall. At Combe Royal, in South Devon, it grows quite 20 feet high, and is, as Mr. Lucombe observes, a spectacle of wondrous beauty about the end of April or the beginning of May, when every twig is carrying a cluster of fiery scarlet flowers, which remind one of those of the Honeysuckle in size and form. Sometimes even on the favoured Devonshire coast a sharp, late frost will injure the flower crop. It is, therefore, only a plant for warm gardens in southern coast districts. In cold districts and the north it requires greenhouse protection. It is easily obtained from the large nurseries, and should have the best attention as to planting.

Eriobotrya japonica (Loquat).—A noble-leaved shrub from Japan, but only suitable, on account of its tenderness, for clothing walls. Its large evergreen leaves are handsome at all seasons, and in warm districts it flowers freely, the blossoms being white, but it never fruits in the open in England. It grows from 10 feet to 20 feet high.

Escallonia.—Some few of the numerous *Escallonias* in cultivation are extremely beautiful and valuable shrubs, and these happen to be the commonest. There are, in fact, few finer shrubs (evergreen and flowering combined) than the popular *E. macrantha*, which has made a home for itself in many an English garden, especially in coast districts, where it luxuriates with a vigour scarcely surpassed in its native home in Chili. The dark green, glossy leaves of this shrub give it a handsome appearance all the winter, while clusters of crimson-red flowers adorn it in summer for several weeks. In mild places it succeeds quite in the open, but, as a rule, it must be regarded as a wall shrub. Even in the mild districts it is cut down during severe winters, but it usually shoots up strongly again in the returning spring. There is a variety called *sanguinea* with deeper coloured flowers than usual. Somewhat similar to *E. macrantha* is *E. rubra*, but the foliage is not so handsome and its flowers are paler. *E. Philippiana* is a very beautiful shrub and very hardy, as it may be grown as a bush in the neighbourhood of London. It is an Evergreen with small leaves, and bears a profusion of large panicles of small white flowers in the manner shown in the illustration. It is a first-rate shrub, and certainly one of the best of the *Escallonias*. *E. pterocladon* is very free flowering, the small flowers being white and pink, while *E. punctata* has dark red flowers, somewhat similar to those of *E. rubra*. Another species, *E. montevidensis*, also known as *E. floribunda*, bears large loose clusters of white flowers, and there are varieties—usually seedling forms—known under different names, especially in seaside gardens. Among these, that called *E. Ingrami* is one of the best, being hardier than *E. macrantha*, though not so handsome. Being, as a rule, of rapid growth and easily propagated, the *Escallonias* have of late years become common garden shrubs, and they can always be safely recommended for walls.

Eucryphia pinnatifolia (the Brush Bush).

—A beautiful shrub, and quite hardy, though a native of Southern Chili. It will, no doubt, prove as suitable for our climate as Darwin's Barberry, *Pernettya*, and other Chilean shrubs. It belongs to the Rose family, but the flowers remind us in size and form of those of *St. John's Wort* (*Hypericum calycinum*), except that they are white instead of yellow, the central tuft of stamens being very conspicuous. The flowers, borne plentifully among foliage resembling that of some of the Roses, are extremely pretty. It is as yet very little known, for, as its hardiness



Escallonia Philippiana.

double flowers, tinged with purple, and caudidissima, which produces an abundance of double snow-white flowers. This is one of the finest of hardy flowering shrubs, and is known also as *Pride of Rochester*. The *Deutzias* grow in any kind of good soil, and are partial to slight shade. If too exposed they are liable to suffer during drought. The *Deutzias* should be pruned annually, the old wood cut away and the young growths thinned.

Drimys Winteri.—An interesting evergreen shrub from South America, but not hardy enough for open-air culture except against a wall. In mild districts its milk-white fragrant flowers are freely produced, but its out-door

than the original, and is altogether more robust, while the variety *microphylla* is remarkable for its finely divided leaves and smaller flowers. They are all uncommon shrubs, but are procurable at the best nurseries. In sheltered gardens against walls in the southern and mild parts, they may be successfully grown, always remembering that they need extra protection in severe winters. Another species of *Edwardsia* in cultivation is *E. chilensis*, which also needs protection.

Embothrium coccineum (Fire Bush).—A remarkable and very beautiful South American evergreen shrub belonging to the *Protea* family. It is hardy enough for open-air culture in the

has been a subject of doubt, it has been but sparingly planted. There is another species in cultivation, *E. cordifolia*, but this is rarer and not so beautiful.

Exochorda grandiflora (the Pearl Bush).—One of the loveliest of hardy shrubs. Allied to the *Spiræas*, it differs from them in having larger flowers. It is a large-growing shrub, of dense growth, making when full grown a rounded bush of about 10 feet high and as much through. It flowers about the middle of May, just after the foliage unfolds, and the contrast of the tender green leaves and racemes of snow-white flowers as large as florins is charming. It likes shelter, and grows best in a rich loam. It makes an excellent wall shrub, as its growth is so thick, and it flowers very profusely at a time when there are not many other plants in bloom.

The Fringe Tree.—The requirements of *Chionanthus virginicus* are very correctly described at p. 416, where it is mentioned that it must have a moist soil and sheltered position. We have a poor specimen here which I have known for more than twenty years, but it is very little larger than when I first knew it. The soil in which it has been growing is rather sandy and the lower stratum rocky; besides this, it has been too much exposed to cold east winds. It is clear that it is of no use to attempt to cultivate this tree unless the conditions are suitable.—J. C. C.

Cytisus præcox.—Among hardy species of Broom this is the least common, although it is a very ornamental flowering shrub, and quite distinct from either the white or yellow Broom, being somewhat in the way of the first-named, but it is of a more bushy habit; the blossoms are also of a pale sulphur or primrose tint. It is a first-rate flowering shrub at this season of the year, for like all the Brooms it will thrive in situations that are drier and more sandy than those in which the generality of shrubs will flourish. It cannot be relied upon to come true from seeds, for though some of the progeny reproduce the characteristics of the parent, many of them often revert to the common white Broom.—H. P.

Seasonable flowering shrubs.—For furnishing a flower garden in the spring months, or perhaps in any month, I do not know anything better than the numerous species and varieties of flowering shrubs. What is more beautiful in its way at the present time than *Berberis stenophylla*? A small plant of it put out in our garden five years ago is now a fine specimen, and well furnished with its graceful wreaths of orange-yellow flowers. A dwarfer plant, and one that I would place next to it in importance is *B. Darwini*; it is also a beautiful plant, and its showy masses of strongly perfumed rich yellow flowers are much admired. *B. stenophylla* is supposed to be a hybrid between *B. empetrifolia* and *B. Darwini*. Another shrub I greatly admire, either for planting in the open garden or training against the garden walls, is now opening its bright blue flowers, viz., *Ceanothus Veitchianus*; it is also of very vigorous growth. Being a Californian plant it is quite hardy. *Pyrus japonica*, with its bright reddish scarlet flowers, and *P. japonica nivalis*, with white flowers, are excellent for the open garden, although they are more often trained to walls. I planted both varieties near each other, and the white form has surpassed the other in vigour. The white variety is a different plant from *P. nivalis* of the *Botanical Register*, tab. 1482.—J. DOUGLAS.

The European Palm (*Chamærops humilis*) in the Isle of Wight.—This is the only wild Palm which is found in a wild state in Europe, and it does not grow naturally further north than Nice. It appears to thrive well in the Queen's garden at Osborne, where there are two specimens some 8 feet high, which form very elegant objects on the terrace in front of the house, bearing a large crown each of their beautiful glaucous, fan-like leaves. These plants have a much better appearance than a speci-

men of *C. Fortunei*, some 20 feet in height, which stands near them. Some slight protection is afforded these plants in winter, more to save them from wind than frost, and in all probability even this would not be necessary were they planted with a natural protection and not in such isolated positions. This species naturally forms suckers or young plants near its base, but these require to be kept cut away in order to allow the development of the single stem, in which condition the plant has a more noble appearance. It would be well if this Palm were planted largely in this favoured island, associated with other trees and shrubs that would afford it natural protection, as doubtless in a few years it would give a very tropical aspect to the landscape.—W. H. G.

FRUIT GARDEN.

W. COLEMAN.

LAZY POT STRAWBERRIES.

OUR friends who have recently recorded partial, if not complete failures surely have been unfortunate in selecting for their bullets such a free, hardy prolific kind as *Vicomtesse Héricart de Thury* is well known to be. In France, throughout England and the southern parts of Scotland, this variety, to my knowledge, is most extensively grown both in the open air and under glass, and, independently of quality, which is only second rate, so proverbial is its fertility, that I question if any Strawberry since the palmy days of Keen's Seedling has been so extensively planted by market and private growers. About the time Messrs. Munro and Bennett took Covent Garden by storm with early forced fruit of Garibaldi, a variety which I could not distinguish from the *Vicomtesse*, Mr. Knight, then of Floors Castle, Roxburgh, was growing the same Strawberry by the acre, and so satisfied was he with it that he discarded all others, maintaining his succession by planting large breadths upon early and late aspects. As a forcing Strawberry he must have been well satisfied with it, as I recollect seeing 8000 excellent plants in pots and boxes, each box containing about eight plants, at the time of my visit ready for housing. Thinking it possible there might be a difference without a distinction, I obtained the *Vicomtesse* true from Mr. Knight, still have the stock, and although I do not now force many hundreds, I never have any reason to complain of the shortness of the flower-stalks. In Hampshire, again, notably about Farnborough and Heckfield, where the soil is light and one might suppose unsuitable, this Strawberry forces well enough to give Messrs. Crook and Wildsmith, no mean judges, entire satisfaction. From these remarks, which many can verify, we may safely conclude that laziness on the part of the *Vicomtesse* arises from some hitch in the preparation of the plants for forcing. Being an early variety, it is one of the first to give a stock of runners, and as these are placed in exceptionally small pots the balls become one mass of roots by the end of July or the beginning of August, as a rule, the hottest and most trying part of the summer. Intended for very early work, the grower congratulates himself upon having made an extra good start, and having the ball well in hand he decides upon giving an early rest by reducing the supply of water. So far all has gone well and might continue so were watering, nay feeding, with diluted liquid and syringing persevered in until growth in the open air has ceased, when plunging up to the rims of the pots, whilst economising the quantity of water, even then will not justify an entire cessation of this indispensable element. Indeed, Strawberries from the day the runners are pegged

down until the fruit is gathered should never become dry at the roots. Water pure and simple is better than drought, but, considering the small quantity of soil which these 5-inch pots hold and the way in which the roots coil round and round the outsides of the balls, I question if it would be possible to overdo them with liquid before the end of October. But what about split crowns? Well, I maintain that the withholding of water too early in the season destroys the vitality of the roots, checks the crowns and causes them to split when a change from dry to wet weather sets the paralysed roots going again late in the autumn. The small pots containing not more than 3 lbs. or 4 lbs. of soil are quite sufficient check upon grossness, feed as we will; but of two evils it is better to have split crowns that will throw up several flower-stems, which we can thin, than single crowns which would produce one bold scape were the roots kept fresh and vigorous by the liberal use of water. The past season was exceptionally dry, and many plants and trees in the open air where there was no limit to their root-run are now beginning to show the effect of that drought, whilst other members of the same species, in fact the same varieties, that were well mulched and tended are showing the good that may be derived from hot seasons provided there is no lack of water. Take Raspberries as a fair example: they do not look well, in fact I never saw them looking worse, and few, I think, will deny that they are now showing the effect of the recent water famine. Apples, again, on deep, well-manured soils in gardens are covered with bold strong flowers, whilst kindred kinds in dry grass orchards are flowerless, or producing extremely weak trusses, which will soon be swamped by the too prominent foliage. Pears also which did not fruit last year, and as a consequence were passed over by the knight of the hose and the barrel, in some places are only just breaking and many branches are dead, whilst others are weak and flowerless. One might go on with the enumeration of similar cases, but having shown that the Strawberry in disfavour is most prolific and free, also that a great number of plants and trees are barren through drought, I will leave my friends who have complained to decide whether or not their failures are due to the effect of heat and drought when life as well as fertility were dependent upon an abundance of water. A hot dry season following upon the heels of a rainless winter told heavily upon thoroughly established fruit trees whose roots had travelled far away and were deeply anchored in the subsoil. We have had nothing like a sufficiency of rain to reach those paralysed roots; consequently, although forgotten by the ordinary passer-by, to the horticulturist the effect of that drought will be visible this year, next year, and for years to come, as some of them will never recover. And yet those trees, as compared with the lowly moisture-loving Strawberry perked up in a quart pot and fully exposed to the burning sun, so far as taking care of themselves goes, were in the land of Goshen.

Waltham Abbey Seedling Apple.—At page 474 this variety is stated to be one of the most persistent fruiters. Is this the general estimate of its character, as in our soil I find it as a young tree very shy in bearing? It was planted with others many years ago as dwarfs on the Paradise stock, but the trees never came into good bearing condition. They would make a thicket of young wood and required constant thinning out. I was so disappointed with it that we did not plant any of it in the garden here. I fear "A. D.'s" experience

with an old tree is not a safe guide for those intending to plant a quantity of young ones. It is a good kitchen Apple, but there are plenty as good, and some better, which have also the property of being free bearers.—J. DOUGLAS.

STRAWBERRY VICOMTESSE HERICART DE THURY.

EVER since I first grew the above Strawberry, some ten years ago, I have considered it by far the best variety for forcing that I know, and I doubt if ever it will be surpassed for very early work in any of its good qualities. First amongst these must come flavour, and I believe it to be better in this respect than any other kind which can be ripened so early. For size, while not equalling Sir J. Paxton, President, and some others, it beats by a long way the old Black Prince, and that it can be grown to quite a large size was proved a few weeks back by the fine sample which you noted April 14 (p. 351) grown by Mr. Allen, of Gunton Park, three dozen of which weighed $18\frac{1}{2}$ ozs. Such fruit are not often met with, but from forty to forty-eight to the pound may be taken as a good average sample, far from small, and from twelve to eighteen such fruit may be grown on a plant in a 6-inch pot, which shows it to be an excellent cropper. The foliage is not gross, and this accounts for the fact that a light sandy soil suits it better than the heavier loam in which most other Strawberries grow best, and also, I think, for some of the failures sometimes noted with this variety. The flower stems are thrown well up above the leaves, and the comparatively spare foliage allows of their being more crowded than other sorts will bear. Where the plants can be kept clean and free from red spider, a difficult matter sometimes, I am greatly in favour of allowing one runner to develop itself on each plant of the Vicomtesse, these making very useful plants for the early crop of the following year. I do not see that this affects the size of the fruit in the least, while I believe it improves the flavour by providing an additional lung and preventing stagnation of growth when the fruit is ripe or nearly so. I should not advise these runners being left, or rather used, unless they can be kept clean, for if they get infested with spider they will be worse than useless. The Vicomtesse travels well, and is far preferable to Keen's in this as in other respects. One more good quality yet remains, which is, that it is probably the best of all Strawberries for preserving, for the flavour is good, the colour high, and its cropping powers immense. JOHN C. TALLACK.

Livermere.

Strawberry Auguste Nicaise.—I have grown this variety for something like fifteen years. I bought it the first year it was sent out from a Continental grower. It is a free-bearing variety, producing large sized fruits of good quality, but given equal chances it does not produce such large fruit as the variety James Veitch, or a better flavoured variety, named Lucas. This last we gave up, as it would produce one or two very large fruits and a numerous family of small ones. Those expecting to obtain fruits of it weighing 2 ozs. each, as a rule, may be disappointed.—J. DOUGLAS.

Australian Apples.—The freshness and excellence of the Apples from Australia shown at the Temple the other day by Mr. J. B. Thomas naturally attracted considerable attention. Some other Apples from Nova Scotia in barrels were anything but attractive, as they showed all the defects incidental to rough usage and to long keeping. But the Australian Apples were as fresh apparently as if just gathered, and consisted of Blenheim Pippin, King of the Pippins, Ribston Pippin, and Cox's Orange Pippin ostensibly, although it was pretty evident to the initiated that very many of these latter were the rounder Kings. Ribstons were a more russetty aspect than ours usually do, whilst the others were fairly well coloured and of good medium size, probably were the selected best of the consignment. It would have been all the more satisfactory could these Apples have been tasted by experts, as quality as well as appearance at this

time of the year should have some consideration. We must, however, not forget that Australia, whilst so much farther removed from us than is North America, yet enjoys the advantage of having its fruit season almost in accord with our spring; hence it is no matter for surprise that the fruits from that distant colony looked so fresh. Australia is not likely to become a formidable competitor to home growers, as we cannot hope under any conditions to have first-class Apples more than six months after gathering, whilst the distance from us also handicaps the Antipodean colonist. Our chief competitors still remain the North American growers, whose season is similar to ours, and whose habitat is relatively so near. We do not make a good start this year in the direction of competition with Apple bloom somewhat sparse, and opening fully a fortnight late. Much, however, depends upon the autumn, which we hope may be as late continued as the season starts late.—A. D.

GRAPE GROS COLMAN FAILING.

I HAVE a span-roofedinery with Grape Gros Colman on the one side and Black Hamburg on the other. The Hamburg, as also the Gros Colman, did well up to the ripening stage, when the latter turned a tawny colour, did not finish, but cracked and went mouldy. The berries began to colour early in August. Can you assign any reason for this?—D. F.

* * * Started early enough to commence colouring in August, Gros Colman and Hamburg in a season like the past should have coloured and finished all together in the same house. Gros Colman, notwithstanding, is not quite so well mated in the Hamburg as in the Muscat house, and for these reasons: It swells and ripens best under Muscat treatment; also it improves in flavour and keeps a long time in perfection when made subject to the long-continued high and somewhat dry atmosphere so essential to the perfect finish all desire, but do not always attain, in Muscats. In the absence of details as to aspect and borders, it is impossible to say with any degree of certainty why the splendid autumn did not bring about a more satisfactory result, but, judging from the fact that colouring was arrested, whilst the berries cracked and turned mouldy, it is only reasonable to suppose that the Colmans received a severe check prior to the commencement of cracking. This check may have been brought about in several ways: first, by overcropping; second, by suddenly lowering the temperature of the house when the Hamburgs required drier and cooler treatment; third, by allowing the border to become too dry at a most critical time, and again inflating the berries by copious watering after the skins had set, if they had not become contracted. One or all of these checks combined would be quite sufficient to bring about the failure complained of, but taking into account the peculiarity of the season, it is very probable that the first and third mistakes were at the bottom of all the mischief. In order to avoid a repetition of this great disappointment, "D. F." should now examine his borders and see that they have a steady supply of water until the Colmans as well as the Hamburgs are ripe. Occupying as they do separate sides of his span-roofed house, the roots, as a matter of course, will be in separate borders, an arrangement most favourable to giving or withholding liquid food. If inside, and danger from stagnant moisture doing mischief after the Hamburgs are ripe is apprehended, this may be prevented or greatly ameliorated by placing a good layer of dry mulching over the Colman roots immediately after watering, also by the performance of the operation on dry, mild mornings, when the house throughout the remainder of the day can be liberally ventilated.—W. COLEMAN.

Figs on open walls.—I agree with what "J. C. C." says with reference to the fine show of Figs on open walls, and not only so, but trees growing here (Suffolk) without any protection as bushes are equally promising. The cold, however, at the end of last month will, I fear, be fatal to many, as I well know, from past experience and close watching, what effect such a low temperature has on the young tender fruit, causing it to turn

yellow and fall off wholesale when it should be swelling and coming into flower. Unfortunately, there is no help for this, except by protecting the trees on walls with old sashes, which if fastened on poles resting below a wide coping, will add much to the temperature, and if a cloth of thick canvas can be strained in front the Figs are almost as well situated as if they were in a house. Why Figs fail so frequently in so many places when they are grown out of doors is because the plants make too much wood from being in ground that is too good or loose. In this way long thick gross shoots that never ripen are formed and are consequently killed back, or if they escape destruction by winter frosts they are never fruitful, as it is only those that are short-jointed, stubby, and hard that bear Figs. This being so, the thing is to get the trees into that condition and habit, which no amount of pruning or stopping will ever do, and the only way to attain this is either to restrict the root-run by bricking the plants in and confining them to a limited space, or give chalk and gravelly soil mixed up and rammed in hard, which will induce fibres and check growth, and the shoots made after are sure then to be fertile. If the bricking in, which is the most satisfactory in the end, is resorted to, a yard or so square will be found quite sufficient space to give each plant, and the $4\frac{1}{2}$ -inch brickwork should be laid in cement, or a mixture of cement and mortar, so as to ensure hardness of joints. Otherwise the roots will get through. Where Figs are found to do best outdoors is on shallow soils resting on chalk, and about Shoreham heavy crops of fruit are the rule. Those who have not started to cultivate Figs in the open will find the present a good time to begin, as plants can always be obtained in pots, and a hot sunny position should be chosen to plant in and plenty of water given till the roots get away from the ball.—S. D.

FRUITS UNDER GLASS.

THE EARLY ORCHARD HOUSE.

WHERE this was started in December, or even as late as the first week in January, the fruit upon many of the early varieties of Peaches raised at Sawbridgeworth, as well as the American semi-clingstones, will now be ripe, or approaching a stage which will necessitate an increase in the supply of air and a decrease in that of water. If in pots, as all this section should be, and rooting through into the border has been prevented, the proper course will be removal to the lightest and most airy part of the house, or, better still, to a small compartment in which water and syringing can be reduced to an extent that will ensure good flavour without running to an opposite extreme. By adopting this plan, mid-season varieties which will stand syringing and feeding for some time longer can be treated to more room, and well they will pay for it, as colour and flavour cannot be secured where an abundance of light and fresh air are denied the fruit and foliage. Years ago, when the amateur thought it necessary to mingle all the known varieties, early and late, together, the blocking of the different sections was never thought of; consequently orchard house fruit was rated by the craft as very inferior. But all this haphazard treatment is changed, and we now find the professional filling a fair-sized structure with what he considers the cream of the early race to save the hard forcing of his first Peach house. When the early fruit is ripe enough for detachment it is best to gather it before the house is syringed in the morning, and convey it at once to a temperate airy room where it will ripen up and keep for several days for use as wanted. As ripe Peaches will not stand the slightest pressure from the fingers, I always use flat shallow boxes or baskets well padded with Moss; detach the fruit, a little under-ripe, with a pair of Grape scissors, place each one upon a square of silver paper, by the corners of which they can be moved when further handling is rendered unnecessary. As these early trees are cleared of fruit they will require good syringing to cleanse the foliage, and plenty of water to the roots to encourage another flush of sub-laterals which, at this early season, will keep the main buds safe until the weather admits of full exposure in the

open air. Meantime, a shift being thought desirable, each tree intended for next year's forcing may at once be put into a pot two sizes larger than the old one, when detention for a few weeks under glass will restore root action. Having disposed of the very early batch, the general selection, including the best of the Georges, the Mignottes, and others too numerous to mention, must be regularly top-dressed and fed with warm diluted liquid to help them through the last swelling. The syringe, too, for some time longer will play a very important part,

sented, but the Peach, the king of all occupies the largest space. Although a taste of warmth from hot water pipes is a tower of strength in time of frost and fog and long-continued periods of sunless weather, a few barrowloads of small coal often ensuring an abundance of fruit where otherwise the crop might be thin, good crops of all kinds, it is only fair to say, may be secured year after year without it. This at least is my experience, as I have a few very old Peach and Nectarine trees which for years have required no end of thinning, and this season,

round with a wall of turf rising 18 inches above the level of the floor, and in these circular beds, about 3 feet in diameter, the roots ramify, but cannot get out of order, as it is simply impossible to over-water. As these trees do not receive more attention than we accord to a bush Pear or Plum in the open air, I do not claim one atom of credit, but knowing that by this time there must be hundreds of old trees in the country asking to be free from the potter's bondage, I mention this matter in the hope that their owners armed with a hammer will break their prison walls, and by this means add many years to their profitable and healthy existence.

POT TREES

now growing very fast will require an abundance of water slightly tinged with liquid, and unremitting attention twice a day with the syringe. The best time to syringe is early morning soon after six o'clock, and again on fine afternoons about four o'clock, when the house may be shut up quite close for two or three hours to help the fruit forward, when night air from this time onward will be found beneficial. If the trees are in very small pots and the latter are full of roots, rich top-dressing must be given from time to time as the old is washed in, and the better to prevent the possibility of drought, which means a wasted season, they may be dropped into others just large enough to receive 2 inches of top-dressing. In other words, the rims of the smaller pots containing the roots should sink 2 inches below those of their protectors. As growth proceeds, all the strongest shoots, especially those near the tops of pyramids and bushes, must be regularly pinched, not only to keep the trees in form, but also to let in light and air, and force the superabundant sap into shoots near the base which may not require pinching. As this work is carried on, the thinning of the fruit must not be neglected, the quantity left to swell to maturity being regulated by the size of the pot, the condition of the roots, and the command of top-dressing and stimulants. Overcropping being the amateur's bane, I must remind him that one dozen fine Peaches will be found of more value than twice the number of inferior fruit, and for this reason he should always err on the side of moderation. Plums and Cherries in like manner should be carefully thinned, otherwise the trees will exhaust their strength in the formation of stones and kernels. Cleanliness and freedom from insects being important factors, the floors and borders should be kept free from dirt and decaying matter, and the appearance of fly, black or green, the signal for dipping or smoking. Another pest to which Cherries and Plums are subject is the small lively grub whose presence in the curled or closely folded leaves is easily detected. If left alone he will speedily spoil the crop and damage the trees for another year into the bargain. As smoking or syringing with insecticides does not reach this enemy, the only remedy is timely crushing or hand-picking. If choice Pears are grown in pots, and space as the trees grow becomes crowded, these may be removed to the open air and plunged upon warm south borders to ripen when warm weather in June has left frosty nights in the distance. Last, as to Strawberries, which should not do any harm where the syringe, the hose, or the engine can be freely plied, and yet in nine instances out of ten they leave a legacy of spider behind them. The only preventive is liberal washing with pure water twice a day, occasionally with clarified soot or sulphur water, and good feeding with warm diluted liquid.

MELONS.

Where the pot system is closely followed and three crops are taken from the earliest compartment during the season, timely sowing to secure extra strong plants for the second and third relay is necessary, otherwise much valuable time will be lost in the autumn. If small plants are put into fruiting pots and carefully trained to stout sticks in succession pits, there is no reason why they should not be quite 3 feet in height by the time the last fruit is cut from the batch they are intended to succeed, but before they are taken in, a thorough scalding and cleansing must be given to every part



The New Zealand Laburnum (*Edwardsia tetraptera* var. *grandiflora*). For description see p. 515.

but on no account must other than soft water, or water free from lime or sediment, be used overhead amongst Peaches. So soon as the fruit shows signs of becoming transparent for ripening, this process must be discontinued, but considering the increasing heat and light, the moistening of the stems; the pots, and borders may be repeated twice daily, until every fruit in the early house is gathered.

GENERAL ORCHARD HOUSE.

In this department it is not unusual to find Plums, Cherries, Pears, Figs, and Strawberries fairly repre-

although their home is a very indifferent glass-roofed shed, the crop they are again swelling is enormous. Once upon a time they occupied pots and often required watering twice a day. Then they were treated to paraffin casks cut in half and required skilful watering, sour, sodden soil in a tub being quite as pernicious to any plant or tree as drought itself, and all gardeners know what that means in a Peach house. Years ago I knocked away the hoops and staves, left the bottoms resting on drainage for the roots to devour, packed them

of the structure. Where hot-water pipes aid the fermenting material, the latter, entirely new for the first crop, if well turned and slightly renovated with a few fresh leaves, may be made to do duty for the second, always provided a circulation is turned on the pipes whenever a temperature of 80° cannot be maintained without it. But, lacking this aid, the beds should be made extra deep and solid, otherwise they will fall off when a maximum bottom-heat is of most service. As pot Melons do not require a run of more than 5 feet, we generally plunge two rows of plants 18 inches apart, and pinch every lateral at the first joint until a good set of fruit is secured. Some allow one leaf beyond the female shows, and in this way crowd the trellis with more foliage than is absolutely necessary. Others defer stopping until the fruit is set and swelling, then shorten back to the first leaf in advance; but this is a waste of time and strength, as I find every lateral that is pinched the moment the fruit is perceptible makes another growth long before the flower opens. This sub-lateral I allow to grow until the Melon begins to swell, then stop back to one joint in advance. I carefully preserve every main leaf, and in this way escape one great incentive to canker. Melons should neither be top-dressed nor fed too early, but once the fruit attains the size of pigeon's eggs, good friable loam enriched with bone-dust may be placed over the roots to the depth of an inch or more and firmly rammed in a convex form to prevent water settling about the stems. Diluted liquid guano and soot-water, always separately and alternately during the time the fruit is swelling, can then be used pretty freely, care being taken that every part of the ball, including the sod at the base of the pot, be thoroughly soaked, as nothing can be more pernicious than constant dribbling. The same remark applies to the use of the syringe, for much as the Melon enjoys tropical heat and moisture, our dark uncertain climate does not justify the twice-a-day system of barely moistening the under sides of the leaves only. Indeed, from this time forward all morning syringing should be discontinued, but the walls and floors may be well damped when the temperature begins to rise, the thorough bath being deferred until the house is closed at a temperature ranging from 85° to 95° on bright afternoons.

Frames.—Plants in pits and frames must be kept thin of vine and regularly trained to prevent the possibility of crowding or confusion. If four shoots have been led away from each plant pinch out the points when within a foot of the sides, and renovate the linings to secure a strong heat by the time the female flowers on the first flush of laterals open. Fertilise carefully about noon on bright days, and select fruits of uniform age for the crop. It is a good plan to keep the roots, as well as the atmosphere of these structures, on the dry side during the setting process, but once the Melons commence swelling, warm water at a temperature of 85° or 90° must be given to the soil and foliage not later than 3.30 p.m., when the lights must be kept quite close for the remainder of the day. As the Melons swell, it will be necessary to elevate them on inverted pots and to maintain an even spread of healthy foliage by the incessant removal of lateral growths. If pure loam free from manure has been judiciously selected for the roots, the plants may require one or two soakings with warm liquid, but flavour being the test of merit, it is not a good plan to aim at large fruit or foster a gross growth of vine and foliage.

PINES.

Although the season, on the whole, is late, the fine weather which has prevailed throughout the month now passing away has favoured the free admission of light and air, with the natural result that root action has been more rapid than we at one time anticipated. I lately remarked that Pine plants should not be disturbed before they have made sufficient roots to hold the balls together; neither is it wise to allow them to remain until they become pot-bound, and from this cause alone liable to premature starting. To strike the happy medium it will now be necessary to examine the different batches of successions and suckers, and when ready,

to make arrangements for the speedy performance of the operation. Free-growing plants having filled their pots with active, healthy roots, will require rather liberal watering to secure a moist condition of the soil at the time they are transferred to others a size or two larger. The pots should be clean, dry, and well crocked, and the compost, consisting of good sustaining loam, bone-dust, lime rubble, and a little peat, if at hand, warm, dry rather than wet, otherwise it will become pasty under the process of ramming. Assuming that this is to be the last shift, all plants that have filled 8-inch pots may be placed in 12-inch pots to fruit, and the next set into others an inch or so smaller. The fermenting material into which the plants are to be plunged should stand about 85° at the base of the pots, or it may be a few degrees higher, say 90°, when non-disturbance of the tan or leaves and shallow plunging will be the safest course to follow. It will be necessary to shade slightly for a few hours during the hottest part of the day, also to dew the plants over with the syringe, and when it is found that the slight disturbance has not caused the heat to rise, the apertures between the pots may be filled up with a loose body of fresh leaves or tan, but not to an extent that will revive fermentation. When the different batches of plants have been overhauled they should be kept rather close, and the atmosphere of the pits or houses somewhat moist to encourage fresh growth and prevent waste, watering being deferred for ten days or a fortnight until fresh growth is perceptible. Stock being plentiful, the pits should not be cluttered with weak or inferior plants or suckers, as too often happens when the general potting is brought to a close. A few of the best hard, well-ripened suckers should be preserved and potted on, as it is by this means only that small groups in different stages can be kept on hand.

Fruiting plants.—As the early Queens approach the change for ripening all stimulants must give way to pure water, and not much of that. Syringing, too, must be discontinued, whilst fresh air may be increased, otherwise the fruit, if not black at the heart, will certainly be pale and deficient in flavour. Pines, like all other fruits, and not unfrequently the very finest grown specimens, vary in flavour sometimes to an extent which renders it hardly possible to believe that a very fine-looking Queen is that variety at all. Too much water and confined moisture, too little sunlight and fresh air being the predisposing agents, each plant on the day it shows signs of change should be lifted out bodily and placed in a light, dry, warm well-ventilated structure to ripen up gradually. Here the slightest shade may be necessary to the protection of the pips, which otherwise turn rusty, a defect we have often prevented by enfolding the fruit upon the plant in a sheet of silver paper. Later on the house in which early Grapes are ripe is the best of all places for ripening fruit. Later plants now swelling up fruit must have plenty of clear stimulating liquid whenever they actually require water, and the same or guano water may be used for filling up the evaporating pans and damping available surfaces after the house is closed for the day. With the longest day now close upon us, and solar heat considerably on the increase, the temperature in the fruiting stove may range pretty high, say 70° at night with a chink of front air, which, as a matter of course, must be shut off early in the morning. When the house has been properly damped and the temperature touches 76° a little top air must be admitted, or rather liberated, and this opening must be slightly increased as an outlet to vitiated air, until a maximum of 85° to 90° is secured. As the supply of fresh air is admitted through the front ventilators it will be necessary to balance the circulation by reducing and closing the top openings to prevent a sudden depression after the turn of the day. Where shading is used it is not unusual to close the top lights altogether, and by this means prevent a draught of cold air over the plants.

W. C.

Fruit prospects.—These by no means come up to early appearances. Not a few wood buds this season had swollen to such abnormal dimensions as

to be mistaken for fruit ones; hence while these went all to leaf, the disappointment was, in not a few cases, loud as well as deep. But worse than this has happened. The month of cold weather during the blooming season has simply chilled off the major portion of the Apple and Pear blossom. It is hard to say as yet how little of this will set, but it is certain that the major portion of it seems to have perished. Add to this, in many districts almost a total absence of Plum blossom and a very scant crop of Apricots. Also, in other places, indifferent crops of Strawberries, Peaches and Nectarines are also thinner than last year, and it is yet almost too early to write authoritatively of the crop of Cherries, though they have blossomed well. Bush fruits and Raspberries promise a full crop, and in some localities, Strawberries. But even the promises and the sets are by no means safe. On the evening of the 27th and morning of the 28th, a sharp frost cut all the Potatoes, French Beans, &c., to the ground line, and gave one ugly thrust to all the fruit bloom and embryo fruits. We must wait till the first or second week of June before being able to estimate with tolerable certainty the fruit prospects of the year. One thing is already obvious enough: the crops of maggots and grubs are prodigious.—HORTUS.

RENOVATING OLD APPLE TREES.

I SHOULD very much like to learn from Mr. Coleman whether he has ever attempted the renovation of old Apple trees by budding rather than by grafting, or, indeed, whether anyone else has done so. I believe the invariable rule has been to do so by grafting, and therefore it was unfortunate in the case of "A. F. S." that he did not make his inquiry fully a month earlier, unless he had in the meantime beheaded his trees and provided proper grafts. However, I am tempted to push discussion upon the above matter further, because I note that Mr. Coleman advises that the young growth, which after grafting will inevitably break out on the upper portions of the stock, should be retained for the first year or possibly for two years. That it is to me, although an old hand at that kind of tree renovation, so distinctly new, that I would urge Mr. Coleman to elucidate as clearly as possible the reasons which induced him to give that advice. My own plan always has been to remove those stock growths as fast as they appeared, that the scions might have the fullest possible assistance from the flowing sap, and so far I do not think that I have done wrong. I am by no means too old to learn, however, and therefore shall be very pleased to learn now what are the benefits the scions are likely to derive from the growth of these stock shoots. But what I wished to ascertain chiefly was whether, as it is too late for "A. F. S." to graft his old trees this year, he might not be able to secure all he wished by budding in the autumn. Assuming that the trees were beheaded at once, in a few weeks scores of fine young shoots would appear all over the portions of the heads of the trees left, and were these shoots early thinned to, say, from twelve to twenty, or even more, on a large tree, why could not these same shoots be budded with other and good sorts of Apples in September, as fruit stocks now so commonly are? whilst it is worth learning whether the renovation of old trees by budding in this way has been previously performed, and what was the result. Possibly, it may be a more troublesome plan than grafting is, but as the value of an operation is best shown by its results, we cannot tell which is the best method until the results have been ascertained. Perhaps it would be pleaded that whilst it is the rule for bud growths to run away in the form of one strong shoot only, not a desirable form of growth in tall old trees, the graft growths usually take the form of two or three stout shoots from each graft, and thus a denser head is sooner formed, and one less liable to suffer from rough winds. Generally, I do not care about grafting too high up, or on too many branches, preferring to cut hard back to some few stout, clean stems or arms, and inserting three or four stout grafts in each. In that way the foundation of a fine new head is laid closer home than is the case

when grafting is done on many arms remote from the ground. A. D.

DESTROYERS.

INSECTS IN THE FRUIT GARDEN.

WITH the bursting of the buds and the first unfolding of the young leaves, multitudes of tiny grubs awake to life and commence devouring the tender foliage and blossoms. The appearance of these hosts of grubs, and also myriads of aphides, is accounted for in a somewhat extraordinary way by a great many people. One often hears the query, "Are we going to have rain, or is it blight?" referring to a peculiar hazy condition of the atmosphere, which often occurs in the spring-time. The idea seems to be that the blight is carried in the air and deposited on the trees, and all endeavours to explain that the insects existed on or near the trees in the form of eggs or germs long before the time when their presence in such numbers is first noticed are futile. You are met with the statement that after these heavy, hazy days the blight appears; consequently it must come in the air. Those who understand a little of insect life know the source from which these pests spring, and although the east winds and hazy days no doubt favour the increase of the insects, or at least prevent the tender shoots from growing out of their way, I do not think it can be proved that at this season of the year they are carried in the air.

All kinds of fruit trees are attacked by these grubs, which are the larvæ of various kinds of small moths belonging to the families of Geometræ and Tortricidæ. Of the former, the winter moth (*Cheimatobia brumaria*), the brimstone moth, and the mottled umbre moth (*Hybernia defoliaria*) are abundant, and each fruit generally has some one of the small Tortrix moths peculiar to it. These insects have either hibernated in the larva state or existed as eggs on the trees during winter, and with the first unfolding of the leaves commence their depredations, but unless the trees are closely examined they are not noticed until the shoots are 1 inch or 2 inches long. The Apple seems to suffer most, principally from the winter moth. I have seen whole orchards in this locality nearly defoliated in some years, and although the trees were covered with bloom, it has all been spoiled and the crop destroyed. The mischief, however, does not end here, as the trees, weakened from the loss of foliage, cannot form fruiting wood for the next season. On trained trees of Pears, Apricots, Plums, &c., on walls we can get at and destroy the grubs by hand-picking. Much can also be done to diminish their numbers by winter dressings in killing the eggs and larvæ, but the orchards must be left to our feathered friends the finches, more especially the greenfinch, the tits, and the whitethroats. I watched a pair of the latter birds the other day at work on some cordon Apples. How dextrously they twisted themselves and peered about for the tiny grubs, of which they seemed to find plenty.

It, no doubt, is very vexing to see our fruit buds being destroyed, apparently wholesale, by the birds; but is it not better to submit to a little bud-thinning than to have blossoms and leaves devoured later on by the grubs? Where the winter moth is very numerous, special measures should be taken to destroy the wingless female moths by preventing them from ascending the trees to lay their eggs. Various compositions are recommended for smearing on the stems of the trees for this purpose; but as I have never tried any, I cannot speak from ex-

perience as to their use, but I have killed numbers of the moths in the months of October and November when visiting the trees in the evening with a lantern.

Of the other formidable foes to the Apple, I hardly know which to place first, the American blight or the codlin moth (*Carpocapsa pomonella*); both are very destructive, but the first is easiest to get at, and if proper measures are taken and persisted in it can be eradicated. The codlin moth, however, defies us from the time the eggs are laid in the flowers until the larvæ are full grown. Even then there is but little time in which they can be destroyed, for with the fall of the affected Apples the grubs make their escape, and spin for themselves small cocoons on the trunks of the trees; therefore the fallen Apples should be gathered up frequently, and either destroyed or used immediately. Many of the pupæ may also be destroyed by scraping the trunks of the trees.

For American blight, a mixture of soft soap and paraffin, thickened with clay, and applied with a half worn-out painter's brush, will be found an effectual means of removing it.

The Pear does not suffer from the ravages of insects to the same extent that the Apple does. The larvæ of the Geometra and Tortrix moths which have been mentioned as feeding on the young shoots and blossoms of the Apple are also destructive to the Pear. Hand-picking must be commenced as soon as they can be seen. The oyster scale is sometimes very troublesome, attaching itself to the young branches, and often to the fruits. Painting the branches with a solution of soft soap and paraffin will destroy it. The young leaves are often blistered by a gall mite, which appears to be most frequent upon weak or unhealthy trees, from which it follows that the best means of prevention is judicious cultivation.

The most troublesome pests to the Plum, Cherry and Apricot are, no doubt, the different kinds of aphides. The black-fly frequents the Cherry and Peach, and is the most difficult to kill. I have used tobacco powder with excellent effect when the fly has only been partial, and before it has spread over every part of the tree. The trees should be well syringed in the evening, and while wet apply the powder by means of a distributor, forcing it well under and behind the affected parts. Early on the following morning the trees should be again well syringed, when the fly and the powder will all be cleaned off.

Much time will be saved and injury to the trees avoided by adopting the above means of checking these pests on their first appearance, as they increase with alarming rapidity in the warm weather, when the young do not pass through the egg state, but are ejected alive, and in their turn quickly multiply in the same manner. In some seasons the Plum is so badly attacked as almost to baffle our endeavours to check the increase of the insects, but remedies should always be persevered in, or, besides the loss of the crop, irreparable injury is done to the trees. When badly affected, washing must be resorted to. A safe and effective wash is made by boiling 1 lb. of Quassia chips in 4 gallons of water, adding to it 1 lb. of soft soap; it should be applied to the trees late in the evening, and on the following morning a good washing with the hose or garden engine will greatly assist in cleaning the trees. After all, winter dressings will be found the most effectual for preventing the ravages of aphides, because they can be applied in sufficient strength to kill the eggs of the insects while the trees are dormant. A dressing that will do no harm

to the trees is made by mixing 8 lbs. of soft soap and 2 quarts of paraffin together; this is best accomplished by putting them into a common furnace boiler with a fire under, and stirring until they are both blended together; then add 20 quarts of soft water (boiling). This mixture can be applied with a brush and is best used warm.

Coming to the smaller fruits, wireworm is often very troublesome in plantations of Strawberries. When such is the case, a new plantation should be made and the old one destroyed, taking extra care in the preparation of the ground by dressing it with gas-lime and keeping a sharp look-out for the grubs when digging. The Gooseberry and Currant have a very formidable foe in the saw-fly (*Nematus Ribesi*), which attacks these fruits. If left to itself this insect will soon quite destroy a plantation of Gooseberries or Currants. The wonder is that this fly is allowed to commit such havoc when its destruction is not at all difficult to accomplish. The winter is the best time to set about it, when the larvæ and pupæ are an inch or two under ground. Remove the soil from round and between the plants and burn it to destroy the grubs; if this is not done the flies will emerge and find their way to the bushes again; replace the soil with new, mixing a good proportion of lime with it, but if the weather is favourable, this operation may with advantage be delayed, because if any pupæ are exposed the birds will find them. The larvæ of this insect are often confused with those of the magpie moth (*Abraxas grossulariata*), but they are very dissimilar, those of the saw-fly being bluish green; they feed in gangs, and when disturbed suddenly elevate their heads, while those of the magpie moth are solitary feeders, cream and orange-coloured, with black bands. I have never seen these insects in sufficient numbers to do material mischief, but I believe they are very numerous in some districts. Being very conspicuous, they are easily cleared off by hand-picking. The moth, too, is not difficult to capture, being of a sluggish habit; its colour is creamy white with blotches of black and yellow.

When the bushes are getting well into leaf, a diligent search should be kept, and the larvæ of the saw-fly picked off on their first appearance, as it is almost useless to attempt hand-picking if they are allowed to make headway. I am not in favour of dusting the bushes with Hellebore powder and other poisonous preparations, unless the fruit is intended to be sacrificed.

In battling with our insect enemies, it is of the first importance to commence early. I am well aware of the difficulty of always making use of this advantage when scores of other apparently more pressing things demand our time and attention, but "a stitch in time saves nine" is an old adage, and may well be applied in the present case. An hour in time will save a day.

A. BARKER.

Hindlip.

A Subscriber.—Your Vine leaves are being eaten by the Vine weevil (*Curculio betuleti*). Look for the insects at night with a candle, and place a white sheet on the border, when by giving the plants a vigorous shake they can be dislodged and destroyed.

Anemone leaves diseased.—Enclosed is a leaf from a border of remarkably fine Anemones. I never have seen the same sort of growth on a plant before. Can you name it, and is it injurious? It looks much like a coral.—F. J. RADCLIFFE.

**** In reply to the above, your Anemone leaf is infested with a fungus, one of the cluster cups (*Aecidium quadridium*); it certainly is injurious to the leaves; but unless many on a plant are attacked, the plant probably would not suffer. Pick off and burn the leaves which show signs of the fungus.—G. S. S.

Vines diseased.—I am much obliged for your replies to my inquiries *re* Vine, and would have written again before this had I been able to do so. I now send you by parcel post a box with the Vine flower bunch so arranged that I hope it will arrive quite fresh, and so show the blight. In the same box is a glass tube containing some specimens of the blight in water, and another small tube with the same after three weeks just kept moistened. I hope this will enable you to discover the enemy and to tell me how to slay him.—W. B. LIDDIARD.

* * In reply to the above, your carefully packed specimens arrived quite safely. The blight is evidently the eggs of some insect or mite, but of what kind I cannot say. Perhaps by this time some of the eggs may have hatched on your Vines; if they have and you would send me a specimen, I will gladly tell you what it is.—G. S. S.

Beetles destroying Cabbages.—I send you specimens of a beetle which is spoiling my Cabbages. It is in shoals on the backs of the leaves, and on being disturbed makes a spring and disappears. I have tried soapy water, but without effect. Any information about its habits or how to get rid of it will be welcome.—TOLLCROSS.

* * In reply to the above, the beetle attacking your Cabbages is one of the Turnip flea beetles, belonging to the genus *Phyllotreta*, but the specimen is so damaged that I cannot name it more precisely. Cover the ground underneath the plants with soot or sand soaked in paraffin, and then apply your soapy water, so as to wash them off, or wet the ground very thoroughly and then shake the beetles off, and while caught by the wet earth beat the soil with the back of the spade.—G. S. S.

THE BROWN WEEVIL.

I WISH to call the attention of fruit growers and gardeners to this enemy, which has hitherto been overlooked by cultivators. It is a small earth-brown beetle, which, being nocturnal in its habits, is not often detected. Its habit is to climb up the trees and bushes in the twilight and to devour the young buds as they appear. In May, until the buds sprout the weevils will eat away the bark from the ends of the shoots, more especially from the sharp angles left in pruning, leaving the ends bare. Its attentions are not confined to one kind of tree, as it may be found upon all fruit, nut, and many ornamental trees, which in isolated specimens it will denude of its buds, so that the trees appear dead. It also affects Roses, and can be found on Rhododendrons, Laurels, and such large-leaved Evergreens, where it confines its attention to young tender leaves, which afterwards assume a jagged appearance. It is not a new insect, but has always been a native, and is spread over the whole country, and my object in calling attention to it is to state that tar and similar substances placed on the bark will not arrest its progress, and the only effective remedies are: First, to catch them by night. One man carries a lantern and another holds under the trees a net or white cloth, and the other throws the lantern on the tree, when the beetles at once fall; the remainder (in shady parts) will fall on a smart tap being given with the hand. The insects can then be collected and destroyed with hot water, as they are so tenacious of life that none of the usual remedies will kill them. In fact, by accident some were shut up in a tin box for twelve months and then came forth lively. Secondly, they may be killed in the earlier stages by ramming the soil tightly round the stem of the tree or bush and thus smothering them, but as they become perfect insects they are tough and will stand a great deal without suffering injury. Thirdly, the soil round the trees may be made smooth with the foot and a few flat stones or clods of earth may be laid on it. The insects will crawl under these in the daytime and can be caught by lifting the clods and watching the soil. At first none may be seen, as they so much resemble the colour of the soil, but they will soon move to get away from the light and then can be detected and caught. In my opinion orchards suffer most when a plantation of Raspberries, Currants, or Gooseberries has been removed, as the insects then concentrate their efforts on the remaining trees. As a rule, they are not so

abundant in Grass orchards. Cleanliness is very important, as they winter in tufts of Grass, &c.

Its Latin name is *Othiorhynchus tenebriocosus*, and its allies, *O. picipes* and *O. sulcatus*, are also found on the same deadly work in its company—the latter is occasionally troublesome in vineries. As the insect is now at work, prompt measures should be taken, as they will soon pair and lay eggs. Like other insects, it passes through an egg state; a larva or grub state; a chrysalis; and emerges as a perfect insect or imago in April or May, according to the weather. In the grub state it also does much damage to the roots of trees and plants. Figured plates and further information can be found in Miss Ormerod's work on noxious farm and garden insects, and live specimens can be seen at our office.—GEORGE BUNYARD, in the *Maidstone and Kentish Journal*.

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

Jaborandi.—Mr. Morris reported that the specimen exhibited by Mr. Lynch at the last meeting was the true plant, *Pilocarpus pennatifolius*, which yields the medicinal substance above-named.

Fertilisation of the Scarlet Runner.—With regard to Mr. Burbidge's remark at the last meeting, that "the Scarlet Runner does not set its fruit in South America, but in this country it fruits freely, owing to the bees, which bore through the base of the flower," Mr. Henslow observed that this was an error, as no flower is benefited by the perforations made by insects from without. The bees fertilise them, however, in the legitimate way, but in their absence the Scarlet Runner can scarcely fertilise itself. The French Bean, on the other hand, is quite self-fertile, as horticulturists can force it in winter.

Shoots of Spruce Fir injured, &c.—Referring to the specimens exhibited on the last occasion, Professor Boulger suggested that the injury might have been occasioned by hail. The general consensus of opinion, however, was that the damage was, as previously stated, effected by squirrels. Mr. McLachlan alluded to the death of large Hollies in consequence of the "ringing" of the bark by rabbits. Similar injuries were detailed as caused by deer.

Self-coloured Tulip.—A pale primrose-coloured Tulip, shown by Mr. Walker, was referred to Mr. Baker for report. It had occurred among a bed of *T. Gesneriana*, of which it is only a seedling form.

Himalayan Primula.—Rev. C. Wolley Dod sent a specimen with the following communication:—

In the winter (January, 1886) I received amongst many others from Dr. King a packet marked *Primula reticulata*. This produced in April, 1886, a fine crop of *P. sikkimensis*. When these were removed, there came up in spring, 1887, a small crop of very delicate seedlings, all with distinctly cordate leaves, and very different from *P. sikkimensis*. I sent a few away. Those I kept have nearly all been cleared off by the "leather jackets." I enclose the largest left. I cannot make it fit any species described in "Flora of British India" (Hooker). The calyx does not seem to fit *reticulata*. It is three weeks earlier than *P. sikkimensis* under the same conditions.

The specimen was referred to Kew for comparison, and has been determined as *P. glabra*.

Cynomorium coccineum.—Mr. Morris showed a fine specimen of this curious parasitic plant from Gogo, whence it had been received from the Governor of Malta, Sir Lintorn Simmons. This is the fungus *Melitensis* of old writers, and was formerly valued as an astringent; so highly was it valued, that the plant was placed under the protection of a special guard.

Canker on Maréchal Niel Rose.—Mr. Froud, gardener to Mr. G. N. Marten, sent a portion of the stem of this Rose cut 6 inches below the soil. The plant was covered with buds which failed to open, and on examination the stem was found cankered. The specimen revealed traces of old injury rather than of present mischief, the appearances being possibly due to the attacks of fungus. Mr. Morris remarked that Maréchal Niel was the best Rose for the Tropics, where it is not subject to canker.

THE GARDENERS' ORPHAN FUND.

A MEETING of the committee took place at the Caledonian Hotel, W.C., on Friday, May 25, Mr. Geo. Deal in the chair. A letter was read from Mrs. Woodbridge acknowledging the letter of condolence on the death of her husband, he having been an active member of the committee of the fund. The hon. secretary, Mr. A. F. Barron, reported that a sum of £772 16s. 5d. stood to the credit of the fund at the banker's. The total amount of donations promised to date was £1195 8s., of which £1093 5s. had been received; subscriptions to date, £398 12s., of which sum £244 2s. has been paid. Those who have promised subscriptions need to be reminded that the first election of children to the benefits of the fund takes place on July 13, and that no one will be eligible to vote whose subscription remains unpaid. Since the last meeting of the committee the sum of £27 4s. has been received from new subscribers. Mr. Smith, of Mentmore Gardens, handed in the sum of £7, the proceeds of a concert given at Mentmore on behalf of the fund, and the sum of £7 16s. was announced from Mr. W. Howard, collected by him at the Temple show. Votes of thanks were passed to each of these gentlemen. Resolved, that a further sum of £500 stock be purchased in consols, making £1000 so invested. A copy of the voting paper was approved. A letter was read from the employer of the late father of one of the candidates, Albert Edward Best, the youngest of a family of four children, stating that since his nomination the mother also had died, and that the child is quite destitute. A sub-committee, consisting of Messrs. Deal, T. A. Dickson, Assbee, and W. Richards, was appointed to carry out the details of the evening promenade and floral fête in the wholesale flower market, Covent Garden, on July 6. The arrangements for the annual dinner on July 13 were also considered, and a letter was read from Mr. E. Roger Cutler, on behalf of his daughter, Miss Marie Belval, who has kindly promised her gratuitous services as a vocalist on the occasion of the dinner. This kind offer was warmly accepted by the committee. A list of donors and subscribers to the fund has been published to date, and anyone desirous of possessing a copy for the purposes of the election can have it by applying to the secretary, Mr. A. F. Barron.

DRAWINGS OF PANSIES.

TO THE EDITOR OF THE GARDEN.

SIR,—I write on behalf of colonial Pansy growers to ask if you will kindly assist us by publishing in THE GARDEN this season two plates, one of show and the other of fancy Pansies. I would suggest that the plates should contain as many as possible of the leading Scotch varieties of each class, drawn actual size and colour, and with all imperfections. Horticulture has many lovers out here, and the Pansy has a great and deserved popularity. Unfortunately, the Pansy is a most difficult plant to import, and we are so far entirely dependent upon seedlings. Hence the great advantage which absolutely reliable plates would be to us as a standard for comparison and to keep down our conceit. The Pansy has been so vastly improved, that the plates you published in 1878 are no longer of any use for comparison, though admirable at the time. S. A. READE.

Roslyn, Dunedin, N.Z.

* * We shall be happy to do them, provided they are drawn on the plant as they grow, and without collars or even placing them in a stiff position. The best way would be to draw them where they grow.—ED.

In our notice of the meeting of the Royal Horticultural Society, May 22, the Roses shown by Messrs. Paul and Son, of Cheshunt, were attributed, by mistake, to Messrs. W. Paul & Son, of Waltham Cross.

Names of plants.—*R. P. O.*—*Laila elegans*.—*G. M. F. M.*—Orchard shrivelled.—*Heath*—Apparently *Myosotis desatilliflora*.—*R. B. M.*—*Ranunculus amplexicaulis*.—*E. H. N.*—Please send another specimen.—*Anon.*—1, Arum, next week; 2, *Ranunculus acris*; 3, Hackberry (*Prunus Padus*). There are several varieties of this, including the following: *argentea*, *aculeata*, *bipectinata*, *heterophylla*, *parviflora*, and *rubra*. Can be increased by seeds budding, or grafting.

WOODS & FORESTS.

THE WHITE, OR WEYMOUTH PINE. (PINUS STROBUS.)

I WAS pleased to see the favourable notice taken of this tree in *THE GARDEN*, May 26 (p. 498), by Mr. H. Mayr, and as you solicit the opinions of readers of the note, I gladly, though at the risk of repetition, for thrice already have I referred to it as one of our most valuable timber-producing trees, acquiesce by giving mine. Next to the Corsican Pine (*P. Laricio*), I consider the white, or Weymouth Pine, whether as an ornamental tree or for economic planting, the most valuable of the many Pines that have yet found their way into this country. The woods at Gwydyr Castle, in North Wales, also of many other places that I could name, amply substantiate Mr. Mayr's remarks as to the great value of the Weymouth Pine as a rapid timber-producer, and likewise as to its yielding under similar conditions to the Scotch Fir (*P. sylvestris*) a far greater amount of wood than that valuable and much-cherished tree. Let us look at these Gwydyr specimens and compare their rate of growth and bulk of timber with that of the Scotch Fir with which they are associated. Unfortunately, we do not know when these trees were planted, but one thing is pretty conclusive, that the whole wood, which crowns a shingly-soiled hill in the romantic and picturesque Conway Vale, was planted at or about the same time. The Weymouth Pines are now what might in truth be termed giant specimens, for I am under the mark in stating that the average height is fully 90 feet, and the girth of the Kew flag-pole-like stems between 8 feet and 9 feet at a yard from the ground. Straight as ship masts describes well their appearance, they being smooth, nicely tapering, and destitute of branches for about three-fourths of their height. About the biggest Scotch Fir in the same wood is between 70 feet and 80 feet in height and with a bole fully 7 feet in girth. Were we to touch on cubical contents, the differences in these two species of Pine would hardly be credited, and should anyone feel inclined to doubt the genuineness of these statements, Mr. McIntyre, agent on this historic old Welsh estate, will gladly vouch for their accuracy. The soil at Gwydyr is of a rocky, shingly nature largely intermixed with the richest of vegetable refuse, fairly moist at all times, but without stagnant water. Situation not sheltered, yet not fully exposed. On another estate in Cambria I have measured specimens of the Weymouth Pine 57 feet in height, and with stems fully 50 inches in girth at a yard up, the trees being only thirty-one years old.

At 1200 feet above the level of the sea, at Strathkyle, in Ross-shire, the Weymouth, in conjunction with the Corsican and several other species, is doing well and making rapid progress. Then look at the Longleaf trees, which are fully 90 feet in height, not long drawn-up poles, but huge stems fully 8 feet at breast high. I will say no more about how it succeeds in this country, for that it does well I am quite convinced.

But some may ask, What about the timber? for plenty of foreign trees do fairly well in this country, and yet are valueless as timber-producers. I also know something of this, and am able to speak of it in terms of the highest praise.

The timber, judging from the specimens I have had a chance of converting into boards, is of exceptional quality, being clean and very easily worked, of a desirable colour, and, from experiments instituted five years ago, of a lasting nature.

It is the most valuable, most sought after, and now-a-days most difficult to procure of the North American woods. Some beautiful planks and other specimens of the wood were exhibited at the late Colonial and Indian Exhibition. The day of the white or Weymouth Pine in its native haunts is almost at an end, for that veteran tree lover, Mr. Little, of Montreal, tells us that "so scarce has it become, that our native white Pine may yet be peddled in some parts of our country as a rare exotic." That such a day is far distant let us all hope, for no tree of equal value in an economic sense has yet been found.

The French and Germans, who are always ahead of us in matters of forest administration, are going thoroughly into the question of how valuable a tree this is for Continental planting, and let us hope that this country will ere long follow suit. A. D. WEBSTER.

Holwood Park, Kent.

Wood for rustic work.—This is the proper time to select bur-wood for ornamental rustic work. The Oak and Birch occasionally produce fine gnarled knots upon their stems and branches, both of which are valuable, when properly selected, for constructing bridges over small streams, seats beneath trees, summer-houses, and such like structures which have a place in woodlands. Select suitable pieces of the branches with proper bends, and when dry, store them away in a well-ventilated shed to season and be ready when wanted.

Tree guards, whether made of wood or iron, should be close enough to prevent damage being done to the trees by mischievous persons. Circular guards are handsomer than angular ones; they should be ample, and not less than 7 feet out of the ground. I may add that the expense of planting is, of course, materially diminished where the soil is sufficiently good not to necessitate further excavation than that which is needed for the trees. In such cases the soil should be removed to a fair depth, say at least 3 feet, and in every instance good drainage must be assured. The after-management appears to be a disputed matter, authorities disagreeing as to how far pruning and thinning should go, and in what manner they should be done. Trees, however, do not, as a rule, grow with any extraordinary vigour in London, and therefore it is, perhaps, best to leave them very much to themselves, unless someone thoroughly conversant with the matter is consulted. —C. D.

Peculiarities of the Oak.—We have no tree in England more sensitive of exposure to wind than the Oak, and the best and fastest growing woods are those in sheltered positions, well inland. There is a tract of country in the south-east of Sussex, lying between Battle and Hailsham, the soil of which is well adapted to the growth of Oak, but which, from its nearness to the sea—about 10 miles as the crow flies—fails to produce, except in very deep, narrow gills, other than short stumpy trees with bushy boughs, evidently thrown out as a protection against the south-west wind. These trees, I observe, produce knotty and unsaleable timber. About thirty or thirty-five years ago, the planting in St. Leonard's Forest was begun with Larch and Oak, the proportion being about five of Larch to one of Oak. Since the Larch were seven or eight years old, they have been gradually thinned out, and though in no case have they thoroughly disappeared, the land is fairly planted with straight-grown, silver-rinded Oak trees, which bid fair in due time to form a fine forest. This land is ordinary forest land. My experience is that Oak will grow in almost any description of clay, from the poorest and stiffest to a good deep loam. As the Oak, in its earlier stages of growth, has a long tap-root, a deep soil, free to a certain depth from rock, is necessary to its rapid development. Oak will grow with considerable luxuriance in a gravelly soil, but on arriving at a size fit to be called timber, it becomes what is termed shaky, and will be found when felled to be little

more than a bundle of laths, and utterly unsuitable for the uses to which Oak timber is generally put. —R. W. C.

PRUNING.

THE articles appearing in *THE GARDEN* on forestry from time to time are very welcome to those interested in the advancement of this subject. Besides being thoroughly instructive, these articles generally indicate the point at which foresters differ in their judgment as to what is the most suitable treatment of the manifold subjects discussed. This is a wholesome, safe, and sure way of reaching the truth.

I cordially agree with Mr. J. B. Webster's ideas which have appeared in recent numbers of *THE GARDEN* treating on the pruning of trees. There is a near relationship between pruning and thinning, and he who can do the one work properly is not likely to err in the doing of the other. Pruning as practised by experienced and practical men is always performed in such a way, and with such intelligent understanding as to its object and the result to be attained, as not to prove pernicious, but highly beneficial to the fullest enlargement of all the productive qualities of the tree. Pruning to be well done must begin early in the existence of the tree, even so early in some cases as in the seedling stage of growth, and ought to be continued periodically until the tree has attained its utmost height, after which there will not be so much danger of multiplicity of leaders. The work of foreshortening any erratic and strong lateral branches is then a very simple process. Wherever the best quality of timber on the smallest area is the end in view, then what the timber-grower is mainly concerned about is not the fostering of, but the suppression of branches, subject to the healthy development of the tree trunk.

The mutilation of trees in hedgerows and other places by farmers and others calling themselves foresters, entirely destroying the life of the tree, and also the quality of its timber, is frequently seen. It is through such crude operations that this very advantageous and essential branch of practical forestry is brought into contempt.

It is impossible for anyone to make a short tour in almost any part of these isles and not meet with abundance of evidence to corroborate the accuracy of what is here asserted. It is likewise impossible to pass to and fro and not be struck with the vast quantity of scrub and bush timber which is being produced everywhere. There are at hand three prominent causes directly connected with this most unsatisfactory condition of forestry, and there is a fourth cause that tends in the same direction, but does not directly produce such evil consequences. The three causes which tend most to bring about this end are, 1, planting too thinly to begin with; 2, neglect of pruning when the trees are young, hence divarication and other aberrations; 3, the predatory raids all kinds of vermin make on trees. The fourth cause comes of injudicious thinning, the utility and application of which are not well understood by many who have to perform it.

Were a regular and rational system of pruning assiduously adhered to and carried out, it could not but be salutary in the highest degree to the absolute expansion of every function and quality the tree possesses, and would also ensure its greatest excellence. J. FARQUHARSON.

Fasque.

Pines for Lancashire.—In answer to "J. B. W." in *THE GARDEN* of May 12 (p. 448), my soil is chiefly old rotten turf, and the subsoil yellow clay. There is no surface herbage. I want to plant for ornament and shelter. —E. J. ROBERTS.

No. 864. SATURDAY, June 9, 1888. Vol. XXXIII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

LANDSCAPE AT THE ACADEMY.

WE are sorry to say that we see at the Academy very little good landscape or painting of the many things that rural England offers artists, and few or no garden scenes, which artists seem to keep clear of. The fearful crusts of the figure and "historical" painters leave no place for the English landscape painter, though that is the way that English artists have done best work. The influence of this place on the public taste must be fearful. The vile colour, bad drawing, affectation, bad taste, and crudities of all sorts are shocking to see. If anybody will look at Mark Fisher's picture—a beautiful landscape, but not one of his best—skied above a picture of Lord Nelson and his sailors by a Royal Academician, he will see what we mean. He will not wonder that some of the more sensitive of the rising school of artists will not show their work in such a collection of daubs.

The present state of the Academy shows the mistake of titling or "privileging" men at any stage of their lives. Had some of these men (the laughing-stock of artistic Europe and America) not been so labelled, they might now be happy in the feeling that if not enriching themselves, they at least were not harmful to the public or the student. The best way is for men to be known by their work. Allow them to label themselves, they at once use the ticket for "professional" ends. If this body were a private society for the good of the members, it would not be our business to deal with it. But it pretends to be for the good of art; it assumes public functions; it occupies much space in a public building. So far, therefore, as it deals with the landscape or garden, we intend to consider its doings year by year for the future, and we hope to get trained and true artists to speak of the work it shows and encourages.

Aquilegias.—For a suburban garden, let me recommend the Aquilegias. They seem to do on any soil and in any position, north, east, south, and west, and well-established plants come into bloom early in May, and even in a favourable season as early as the middle of April. No vicissitudes of winter appear capable of destroying their vitality. They are at home on heavy as on light soils; they root deeply and strongly, and appear to be independent of weather. The commoner single and double forms are very pretty indeed, some of the latter especially, but several of the species and their varieties are charming in the extreme. I have a strong-growing form of *A. cærulea* that is a queen among the Columbines; the perianth deep purple-blue, the corolla white, very handsome and striking, and admired by all who see it. This is so early that it always leads the way—chrysanth, hybrids of *californica*, *rosea*, &c., coming on later. When planted and left alone for a year or two these Columbines grow into a great size, and send up several stems of

flowers, and when well established are much more successional in flowering than is generally imagined. Now is the time to sow in order to have good plants to bloom next year. I have Grigor's variety of *glandulosa* in bloom.—R. D.

ROSE GARDEN.

T. W. GIRDLESTONE.

SOME NEW ROSES.

SAPPHO, the new Tea Rose, so well exhibited by Messrs. William Paul and Son at the recent meetings of the Royal Horticultural Society, is a variety that can hardly fail to take a high position among the denizens of our Rose gardens. The strong vigorous growth and handsome foliage indicate the excellent constitution of the plant, which is said to be of exceptional hardiness, while the fact that every shoot of the numerous plants staged in the Temple Gardens was terminated by a handsome bloom is good evidence of the free-flowering nature of the variety. The flowers are large, very full, built up high in the centre, and of a tawny yellow or buff colour, something in the way of those of Madame Berard, although more refined in form than is generally the case with the blooms of that Rose or Gloire de Dijon; and few of the new Roses as yet seen appear likely to be of greater general value than the so-called hardy Tea Rose Sappho.

The good first impression made by Madame Hoste (Guillot) was more than confirmed by the fine blooms on the handsome plants exhibited at the meeting of the Royal Horticultural Society, where it was awarded a first-class certificate. The flower is not unlike a pale yellow Innocente Pirola, having large petals and a pointed centre, and is well carried on the vigorous plant. There is always room for another good yellow Rose, and, given freedom and hardiness in equal measure with its already witnessed beauty and vigour, there is little fear of Mme. Hoste failing to maintain the high reputation of its celebrated raiser.

Madame Georges Bruant (Bruant) answers its description as a semi-double white hybrid rugosa, but it can hardly be said that the expanded flowers are so beautiful as those of the single *Rosa rugosa alba*. They may be more enduring on the plant, and the variety is of interest as the possible precursor of a new race of garden Roses, but the blooms are flat and greatly lacking in quality, and though the variety is an unquestionable rugosa, and consequently of immense vigour and (presumable) hardiness, it is doubtful whether it will attain very wide popularity.

Gloire de Margottin, the brilliant red Hybrid Perpetual sent out by Margottin, is most attractive in form and colour, especially in the half expanded state. It still remains to be seen whether it may not be too thin for out of doors in a hot season; but the excitability of the plant, that is to say the readiness with which it may be forced, and the brilliance of the colour of the forced flowers, which are well finished and of good depth, are qualities which will probably render the variety invaluable to growers for the cut-flower market. So many otherwise bright red Roses lose their brilliance when forced, and appear more dull in tint than when grown out of doors, but in Gloire de Margottin a Rose seems to have been found with which this is not the case.

To the ever-blooming dwarf Polyantha Roses several additions are made this year, all more or less attractive. Gloire des Polyanthas (Guillot), to which a first-class certificate was

awarded by the Royal Horticultural Society, may be described as a much improved Mignonne, being very free, with immense trusses of bright rosy flowers. Georges Pernet (Ducher) is a very dwarf, though vigorous variety, with exceedingly pretty and well-formed little flowers of a fresh rosy peach colour, shaded with yellow; quite distinct. Golden Fairy (Bennett) also received a first-class certificate from the Royal Horticultural Society, and appears to be in colour a good deal in the way of Perle d'Or, although stronger than that variety in habit and with a larger truss; the flowers not infrequently, like those of the Noisette William Allen Richardson, instead of being orange or tawny yellow throughout, have pale or even white edges. Little Dot (Bennett) bears a considerable family likeness to Golden Fairy in habit, but its well-formed little flowers are of a decided rosy pink colour with a deeper shade, and, so far as can be judged at present, they are a good deal neater and better finished, that is to say, with less rough, uneven edges than those of any other variety of their colour.

The Fairy China Rose, Red Pet (Parker and Paul and Son), has been a good deal seen and commented on, but there is no doubt about the brightness of its crimson colour, nor about the increasing freedom with which it blooms, and it is one of those Roses of which a good bed or mass would produce a brilliant and telling effect throughout the season.

DO ROSE (OR ANY OTHER) BUDS SLEEP IN WINTER?

I HAVE read with much interest the remarks of "D. T. F." on the above subject in THE GARDEN of May 12 (p. 429), and with a good deal which your able correspondent states I entirely agree. It is, perhaps, a difficult matter to define what really constitutes sleep or rest. In speaking of sleep, Milton says: "Reason then retires into her private cell when Nature rests"; and Shakespeare utters the words, "I needs must rest me." This, I suppose, embodies the common acceptance of the meaning of the term sleep or rest. If we go behind or beyond this we quickly become enveloped in mist. "D. T. F." says, "the tide of life is never at rest except through drought, famine, or frost," but I maintain if we refuse to accept the common rendering of the term or to bow down to the poetic dictum that we have no resting-place at all till the end of all things come, for the dead or lifeless material of to-day may become the living matter of tomorrow in the ceaseless round which is going on. Again, how shall we define ripeness or maturity? When we use the words ripe or mature, what do we mean? My meaning is this. When I speak of ripe or mature buds, I mean only those buds which are brought by a natural process to a complete state of development, and I contend that the little buds are not perfectly developed, or, in other words, are not mature. Possibly this is not the meaning intended by "D. T. F.," but in this matter of development we must come to an anchor somewhere, and I contend that nothing imperfect can be ripe or mature in the fullest possible sense. I agree with "D. T. F." that dormancy and maturity are not always synonymous terms, and that sometimes in pruning Roses the latter has to be sacrificed to secure the former; but in pruning a Rose I should always cut back to the largest, fullest bud within my scope of operations, for experience as well as reason tell me that the biggest buds produce the largest bunches of Grapes, and the largest and most perfectly developed Roses. E. H.

P.S.—To show that I have given a good deal of attention to this matter, I enclose a cutting from a local paper (*Peterborough and Hunts Standard*), which forms part of a series of articles I wrote for that journal some years ago:—

I have now lying on my table before me a number of leafless sprays, which I gathered from different trees as I was coming home this evening. Only a few short

months ago they were covered with green leaves, but with the approach of the lower temperature of autumn a green matter, or chlorophyll, was withdrawn, and the seared and yellow leaves fell, and were blown ther and thither by the winds until they finally disappeared. Technically the trees are said now to be at rest, but the bright plump buds on this spray of Lime tree speaks rather of renewed energy than weariness. Next I take up a branch of the Hazel, which is so common in the hedges and everywhere in the country. It is just pushing out its catkins, or male flowers, in triplets, at the ends of the small, many-branched twigs. Many plants and trees are hermaphrodite—that is, they have the organs of generation within the same corolla, or in the same floral envelope; but very large numbers, of which the nut is one, are monocious, carrying the male and female flowers on the same tree, but in separate arrangements. There is no rest for this nut bush; its catkins, or male flowers, are yet undeveloped, and the work of preparing the pollen for distribution cannot stand still, for to stop is to perish and die. In the meantime, those other little brown buds at the end of the slender twigs, which are showing no catkins, will gather size and become plump and glossy, and next February or March tiny stemless clusters of red florets will burst out from the largest buds, just as the dust or pollen from the catkins is being scattered by the winds, and so the work of fertilisation is carried on. The catkins are large and conspicuous, but the female flowers are small, and unobtrusive; people might walk along the country lanes without noting the way in which Nature is laying the foundation of stores of nuts for the little bright-eyed mouse and the squirrel, as well as the hungry schoolboys, who, in their mad eagerness to be first, will scramble over hedge and ditch when the russet tints of autumn settle again upon wood and meadow, denoting that the nutting-time has come. And yet we talk of rest, when 'tis nothing but a change of dress, exchanging a weather-stained and draggled garment for a bright new one. 'Tis simply a turning-point in life, which Nature marks in her own peculiar manner in the rings or layers of wood which surround the heart of the tree. From among the collection of buds I take another—a fat, solid, comfortable-looking bud. This bud was taken from a Horse Chestnut tree on my path, and has a glistening, polished surface, with a hard, sharp point, firm enough and strong enough to give pain if pressed hard against the hand. The outside scales are merely brown bracts, whose work it is to protect the more important organs folded up within, and when the spring comes and the advancing temperature causes the buds to open, these fall down and are no more seen, their occupation being gone. By the side of the large terminal bud, which contains the flower-spike, but about half an inch lower down the stem, is another bud, very much smaller, and from this springs the branch which adds to the size of the tree. But note how much more care is taken of the bud containing the spike of flowers, as if all the tree's efforts were to be lavished upon the part which was necessary for its perpetuation.

SHORT NOTES.—ROSES.

Rose Marie Van Houtte.—The 3rd of June sees the addition of the faithful Marie Van Houtte and of Gloire de Dijon. Marie is not yet quite in character, but still charming in her primrose-pearl trimmed gown; and a few more hot days will develop a greater display of bloom on Gloire de Dijon than the plants have borne for years.

Rose Marechal Niel.—This on a south-east aspect expanded its first flower on the 29th of May. The flowers are very numerous, but, probably owing to the long-continued cold of the spring, they are somewhat lacking in size and finish. Rubens, always one of the first to bloom on a south wall, followed on 30th of May, and continues to furnish flowers exquisite in form and tint.

Roses in bloom.—On June 1, nine varieties of Roses were in flower, five singles in the open and four Teas and Noisettes on walls. They were *R. alpina*, *R. rugosa*, *R. kamtschatica*, *R. pulverulenta* alba, and, most exquisite of all, *R. spinosissima*; with Marechal Niel, Rubens, Climbing Devonensis, and Souvenir d'un Ami exceptionally bright and pure in colour.

The thornless Rose (*Rosa alpina*).—The first Rose in bloom this year out of doors was after all neither Fortune's Yellow nor *Rosa multiflora*, but the thornless Rose (*R. alpina*), which was expanded on Trinity Sunday (May 27). This Rose is not one of the most conspicuous in the garden, in spite of the great size attained by the plant; but a bowlful of its fresh carmine flowers is bright and attractive at this time of year.

Rose shoots unhealthy (*R. Harvey*).—The insects on your Roses belong to one of the scale forms (*Lecanium rosarum*). It does not attack the leaves. Syringe or dip your trees in soft soap and water, to which is added some tobacco juice, doing this in about a week's time and again a fortnight later. The insects

you now see are the dead bodies of the females which are covering the eggs, which will soon be hatched and the young will spread themselves over the plants.—G. S. S.

Rose Fortune's Yellow.—We have received flowers of this beautiful Rose from Mr. Ross, who mentions that it is growing on the gable of the house at Pendell Court. The plant is about 50 feet high, presenting a mass of flowers which will remain in beauty for some time. It is a pity that because a Rose is old it should be almost totally discarded. There is many a bare wall where Fortune's Rose would grow and flower freely.

KITCHEN GARDEN.

BROCCOLI FOR SUCCESSION.

OWING to the drought of last summer and autumn, the Broccoli have this spring been smaller than usual; the long winter, also, though it did not kill the plants, checked their growth, and prevented the lost time being made up. We had a lot of nice hearts of Veitch's Self-protecting Broccoli in December and January from plants that had been set out in June on a bit of good land, and were established before the weather became so extremely hot and dry when the water and other attention had to be given to things of more importance than Broccoli. Broccoli, like other things, are very much under the influence of the weather as regards the time of turning in. Something can be done by planting out at two or three different times, with intervals of a fortnight or three weeks between. I like, as far as possible, to spread the planting over several weeks; indeed, the late Broccoli very often have to wait for land to be cleared, and in this case they are pricked out 6 inches apart on a bit of spare land till the Strawberries, or whatever crop they are to succeed, have been cleared off. Usually, we simply chop up the Strawberries with a spade, hoeing or stirring the surface up deeply, and giving a top-dressing of various manurial ingredients. Drills are drawn 3 feet apart, the plants set out 2 feet apart in the rows, a good soaking of water is given to settle the soil round the roots, which is followed by another in a few days if the weather continues dry, and afterwards they do not give much trouble. Sometimes the late Broccoli follow early Potatoes, and then they are usually planted 4 feet apart, every alternate row of Potatoes being lifted, and the Broccoli set out as soon as possible. I have planted the Broccoli between rows of Potatoes, but in a dry time the plants do not do so well in this way.

In trying to obtain a succession of Broccoli from the end of the Cauliflower season in autumn till they come in again in spring, a great deal depends upon the kinds planted. I have often wondered if anybody plants all the so-called kinds of Broccoli the names of which are found in the seedsman's catalogue, and if seeds-men are supposed to keep them in stock. I do not think anybody need grow more than half a dozen kinds if well selected. The best early winter Broccoli is Veitch's Self-protecting. It turns in before Snow's, and is superior to it. Plants of this set out now will be fit for use early in December, and will continue in use for a month, and a later planting of the same kind may be relied on to last through January with judgment in affording protection. Snow's Winter will follow on closely; indeed, it will probably come in before the other has been used. There is a prejudice against purple Broccoli, but the Purple Sprouting is an excellent and hardy kind. The Leamington, Knight's Protecting, if true, and Sutton's Late Queen will bridge over the time till the early Cauliflowers come in.

Those plants which are required for use this winter must have room enough to grow strongly and for the air to circulate on all sides, and should be grown in firm land rather than in that which has been freshly dug over. There are situations, I know, where both manure and cultivation just previous to planting may be desirable, but such places are the exception, not the rule. When winter approaches it is well to adopt some means of protection, but here, again, the question of latitude comes in, and a person living in a locality where the Broccoli are not usually killed need not devise means of sheltering the plants in the same proportion that another person living in a colder place may find it necessary to do. I do not think that any hard or fast line need be drawn. I have tried a good many schemes for the protection of Broccoli, but I think in a cold, exposed situation I should lay the plants down with the heads to the north about the middle or end of October, banking up the stems with earth as much as convenient. E. H.

KITCHEN GARDEN NOTES.

LATE PEAS.

HEAVY crops are seldom produced by the late sown rows of Peas, but, according to my experience, even small dishes of late Peas are always thoroughly appreciated. In the more favoured southern districts the best results are obtained by sowing Ne Plus Ultra, Latest of All, and Sturdy now, and again in the course of a fortnight. If the variety Hair's Dwarf Mammoth can be obtained true, this is also an excellent variety for the very latest sowings, and much to be preferred to the round-seeded early varieties. The best of the latter is William I., but if sown before the first week in July, or before the new seed is ripe, the crops are almost certain to be too early and of little value. The best positions for late Peas are the ridges between Celery trenches. I have tried them on these ridges, and also on deeply dug, well-manured ground situated in the coolest part of the garden. There was very little difference in the progress each made, but those in the presumably best position were destroyed by frosts long before those on the ridges. It is no uncommon occurrence for gatherings to be had from rows of Ne Plus Ultra between Celery trenches as late as the third week in November. The Celery trenches being cut about 15 inches wide to hold one row of plants, or 18 inches, this being wide enough for a double row, ought to be divided by not less than 5 feet, less space than this rendering it a difficult matter to get at the Peas. Exactly under the intended row of Peas a good spit of solid manure may well be dug in, after which the soil from the trenches may be spread over the ground, a drill drawn, watered if at all dry, the seed sown, and covered with not less than 2 inches of soil. Being duly staked and well watered in dry weather, the Peas will grow strongly and yield a few late dishes at short intervals for several weeks in succession.

RUNNER AND KIDNEY BEANS.

The most forward runner Beans ought now to be staked. If this is delayed until they have grown considerably, the running growths become badly entangled, and cannot be separated without being injured. Whether a double or single line of stakes is given, the same precaution must be taken to well fasten them together near the top, or otherwise the wind may twist them about badly. Especially is this necessary when stakes 8 feet in height and upwards are used, and, let me repeat, these tall stakes are very profitable, runner Beans being capable of reaching and cropping to a height of 20 feet. Our seed has germinated very evenly, but where blanks occur a few plants may be moved with a trowel from among those closer together than needed and the gaps made good. Where the Beans are apt to fail before the season is at an end, more seed should be sown now, and these rows ought to keep up the supply until cut down by frosts. They ought to have a deep root-run, plenty of manure, and abund-

ance of water in hot, dry weather. There is no necessity to mould up the young plants, this interfering with the watering. A trough formed with soil on each side rather than a ridge is best. In some establishments kidney Beans are preferred to runners, and in this case it is advisable to sow more seed at once. Either the Canadian Wonder or Negro Long-pod are suitable, and the seed should be sown on a good piece of ground in drills 2 feet apart, the plants being eventually thinned to a distance of 9 inches apart. They are more continuous in bearing if given stakes from 2 feet to 3 feet in height, the Canadian Wonder, especially when grown in rows 3 feet apart and a stake placed to each plant, attaining an unusual height. Sutton's Abundance, which may be described as a running kidney Bean, attains a height of about 4 feet, and produces a heavy crop of pods that are long, smooth, and very tender when cooked. It possesses a good constitution, and is earlier and very distinct in appearance from the ordinary runner Beans. A good row of this variety sown now would be more profitable than dwarf kidney Beans, and prove a good substitute. Our rows are 4 feet apart, and stakes of the same height are given them.

PUTTING OUT CELERY.

During the early part of June the kitchen garden has frequently to be neglected in order that important work in other departments of the place may be proceeded with. No time should be lost, however, in getting out the earliest and successional plants of Celery, as these may easily be left in the beds where pricked out a few days too long. After the leaves once touch each other all round, the plants soon, unless transplanted, become drawn and weakly, and when put out spread all over the trenches; whereas if put out before they are at all crowded, they flag but little, even in the hottest weather. We prefer to do the planting in showery weather, but do not wait for this long enough to let the plants spoil. If at all dry the plants are well watered a short time before transplanting, and being pricked out on a shallow bed of manure and soil placed on a hard bottom, they can easily be cut out with a good square of soil and roots attached. All small leaves and suckers are pulled off them, and they are then carried to the trenches in either wide shallow boxes or sieves. Opinions vary as to the advisability of putting more than one row of plants in a trench, but after having tried single and also two and three rows in each, I have long since arrived at the conclusion that the former plan is the best. Single rows are quickly planted, can be more carefully and expeditiously moulded up, and the produce is invariably superior to that obtained from crowded rows. Instead, therefore, of putting out double lines and allowing a space of 12 inches or more from plant to plant, set the plants 8 inches apart in a single row. If a few inches of good soil have been thrown into the trench after the solid manure was forked in, and this is advisable, especially if the soil is of a bad working nature, a drill may be drawn through the centre, say about 4 inches wide and nearly as much in depth, and in this the plants may be set, the soil being firmly packed and levelled about the roots. This will be found a better plan than cramming the roots into a small hole made with a trowel. A watering would complete the operation, very little subsequent trouble being needed beyond occasional overhead waterings, and a good soaking whenever the plants seem dry at the roots. Sturdy plants, or those raised thinly and not long covered with glass, may, in dull weather, be dibbled direct into the trenches, but any from a crowded seed bed would require a lot of shading, and even with this would be slow in commencing fresh growth. Late raised plants may be pricked out on a shallow bed of short manure faced over with fine soil on a hard bottom and enclosed by frames. As a rule, the red-stalked varieties are much the best for all but the very earliest crops. We find two good rows of a white variety ample. Major Clarke's Solid Red or Leicester Red, Sulham Prize, Incomparable Crimson, and Standard-bearer are all thoroughly good, and either or all of these should be largely planted in preference to white varieties. White Plume, a

variety that was to revolutionise our practice with Celery, is not worth garden room.

SPINACH.

During the hottest part of the year the ordinary summer Spinach, if sown in the open, invariably runs to seed before it has attained a serviceable size. On a cool border with a northern aspect it succeeds fairly well, and if it is in demand it is in such a position that the seed should now be sown, and again a fortnight later on. The New Zealand Spinach, although materially differing from the common Spinach, is yet a good substitute for it. It is of a vigorous, branching habit, a dozen plants being capable of yielding abundance of young tops suitable for cooking and serving in the same style as the ordinary Spinach. The plants, being duly raised in or potted off singly into small pots, ought now to be ready for putting out. A sunny border best suits them, and the plants, after being put out about 3 feet apart each way and watered, may usually be left to take care of themselves. If no plants have been raised under glass, the seed may yet be sown in patches where the plants are to grow, one only being finally reserved in each group of seedlings.

TURNIPS.

A cool border is also necessary for these, as the roots obtained by sowing now in the open are seldom fit to eat. Snowball and Veitch's Red Globe are the best summer and early autumn varieties, and even these are hard to raise and of little use on poor ground. Either solid manure must be dug into the ground or a little artificial manure sown with the seed, this causing a quick growth. The drills may be drawn 15 inches apart, and the seedlings early thinned to a distance of 10 inches from plant to plant.

VARIOUS.

In order to hasten the filling of the pods of early Peas, it is advisable to top the haulm as soon as the first are well set, an early rather than a continuous crop being required in the case of William I., First Crop, Ringleader, Sangster's No. 1, and other round-seeded varieties of indifferent quality. Broad Beans may also be similarly treated, and if a good length of top is removed this will clear off most of the aphids that usually collect on these plants. Broccoli, Kale, and Cauliflower stumps should be cleared off as soon as possible, as they have already sufficiently impoverished the ground. There is no excuse in many instances for the presence of many weeds in the kitchen garden. We are having plenty of bright sunshine, and if the flat or Dutch hoe is kept going whenever the time can be spared, weeds both large and small may be quickly destroyed. More cleaning can be done in an hour now than can be accomplished in half a day later on. The flat hoe is also fatal to slugs and serves to check their increase. Surface-stirring is also most beneficial to advancing crops, notably small Onions, Carrots, Beet, and others raised where they are to grow. Where there are a great number of seedling Asparagus on the old beds, as many of these as are needed may, in showery weather, be transplanted to a good piece of ground, and will form useful plants this season. Any old beds of Asparagus that it is intended to lift and force next winter ought now to be cut over, a strong early growth greatly improving the plants. If the shoots come up very thickly remove the weakest of them, as forced Asparagus cannot well be too large. Neither Rhubarb nor Seakale should be allowed to weaken themselves by flowering, and young plantations of the former or any that are to be forced next winter ought to be favoured somewhat or not drawn from any longer. W. I. M.

SHORT NOTE.—KITCHEN.

Potato Thorburn.—I think it very good and well flavoured as a new Potato, besides being so when mature. —S.

Braised Lettuce.—This is a very delicate and wholesome dish. We make a mistake in not cooking the Lettuce in the same way as the Continental people. In Paris the large Endive is more used for cooking than for salad. When in our country there is a glut

of Lettuce it is wasted. It is of more value in the kitchen than as a salad. The Flemish way of cooking Lettuce and Peas is welcome as a variety.

OPEN-AIR TOMATOES.

THE demand for Tomatoes, though considerable, will certainly increase as people acquire a taste for them, and become aware of their value both as an article of diet and a medicine combined. Though villages of glass have been built in the south for the culture of Tomatoes, there is still room for the open-air cultivator, if he selects a warm, sunny spot, and cultivates it well. One of the troubles of the Tomato grower under glass is the necessity for a change of soil annually. Without the change of soil the plants are not reliable—in fact they often die, and the crop is generally unprofitable. Rotation of crops is specially necessary in the case of the Tomato. The open-air cultivator can easily manage this, because he can move his Tomato plantation from place to place, and so give his land a rest. The usual way of growing Tomatoes under glass, when a heavy crop is aimed at, is to build a wide house, trench up the borders, and well manure the soil, and when the plants are ready, set them out in rows 18 inches or so apart, about 15 inches separating the plants in the rows. Nothing but the great cost of fuel for these great houses prevents them being started very early; in fact, they usually are started early enough to produce ripe fruit in May, when Tomatoes fetch a high price. I saw Tomatoes in Covent Garden ticketed 4s. per pound at the beginning of the month of May this year, but it is doubtful, taking all things into consideration, whether an early crop under glass pays better than an early crop in the open air. Supposing, for instance, one could obtain some warm situation in the south of England exposed to the force of the sun, but sheltered from cold winds, and could plant suitable kinds by the acre, whether as much money would not be made when all expenses were paid as if one went largely into their culture under glass. In the open-air culture of Tomatoes there are two things specially necessary, viz., a good warm, fertile soil and a free-bearing early variety. The land should have been well manured and exposed in winter to the ameliorating influence of the weather. Then when the month of May is waning, say from the 20th to the end of the month, having the plants ready and well hardened by exposure, set them out in rows running north and south, so that the plants may get all the sunshine, 2 feet apart between the rows, and 15 inches separating the plants in the row. Put a stake to each plant, and a tie to keep it steady at the time of planting. The summer culture consists in keeping the plants free from weeds by frequent hoeing, rubbing off all growth springing from the main stem in the bud state and tying up the main stem as it grows to the stake. In hot weather the plants may require water, and when the first lot of blossoms is set and begun to swell a mulch of manure will be beneficial, and liquid manure if it can be obtained. When the fruit begins to ripen some of the leaves may be shortened back to let in the sunshine more fully. It will not be necessary to cut off any leaves entirely; if enough be cut back to the last pair of leaflets to let in the light, there will be no necessity to strip the plants so far of their foliage as to cause a sudden check. It is so easy to do harm in cutting off leaves, that I should do such work very cautiously.

THE BEST METHOD OF RAISING THE PLANTS FOR planting on a large scale is to sow the seeds

thinly on a slight hotbed in March towards the end of the month, and when the young plants are large enough to handle, prick them off into other slight hotbeds to get them strong and early, as a good deal depends upon having good plants put out at the right time, and a small, weakly, drawn-up plant is not of much use.

VARIETIES.—Laxton's open-air Tomato has been highly spoken of by friends who saw it growing and fruiting last year in Mr. Laxton's grounds. It is very dwarf and sturdy. I saw a batch of plants last week hardening off ready to go out. They were not more than 6 inches or 8 inches high, and every plant had a large cluster of flower-buds ready to expand at the top. The Orangefield is a good early kind. Earley's Defiance used to be thought a good deal of years ago; the fruits of the smooth varieties obtain the readiest sale. If a large kind is wanted, plant the Trophy, but those who go in for profit had better plant a considerable proportion of the wrinkled sorts. It is generally admitted among large growers that a good stock of the Old Red will take a good deal of beating. It is best to grow the seed at home, as this enables each grower to work out any idea he may have formed in the matter of shape and cropping, and also to test the theory of others.

E. H.

NOTES OF THE WEEK.

Tulipa Gesneriana has flowered magnificently this season. We saw a delightful mass of it the other day in a Middlesex cottage garden.

The meetings of the Royal Horticultural Society on June 12 and 26 and on July 10 and 24 promise, we learn, to be exceptionally interesting.

Strawberries promise well, but need rain. There is a great show of flower, and the fruits on the Vicomtesse Héricart de Thury and other early varieties are swelling freely.

The **German Iris** is in perfection during the present week. It is a glorious town flower. A variety named **Purple King**, blooming at Chiswick, is especially rich. *Iris sibirica* will soon be in beauty.

Pæonia lobata comes to us from Mr. Douglas, The Gardens, Great Gearies, Ilford. It is a beautiful flower, bright red, and Tulip-like in shape—a single self Pæony that deserves to be more grown.

Pæonia anemonæflora is a single Pæony of a very rich crimson colour and with an Anemone-flowered centre. It is of handsome, spreading form, and a useful garden plant. From Mr. J. Douglas.

Dendrobium thyrsiflorum.—We have received a photograph of a well-grown specimen of this Orchid from Mr. James Cox, Woodford, Broughty Ferry, N.B. This is one of the very finest of all the Dendrobiums.

We have received flowers of *Anemone narcissiflora* and *Echium fastuosum* from Mr. F. Bedford, Straffan. Both these are interesting flowers, and the *Echium* is remarkable for its depth of blue.

A **Rose show** will be held at the Alexandra Palace on June 27 and 28, and it is intended to hold a plant, fruit, vegetable, and Potato exhibition; also one of *Chrysanthemums*, which will take place in November.

Aubrietia violacea is a useful *Aubrietia* that should be left to grow at will until it makes a dense mass. Then at this season it presents a perfect carpet of bright flowers. For edging large beds it is one of the best hardy things we have.

Balearic Sandwort (*Arenaria balearica*) should be planted on every rockery. It runs over the bare stones and hides them with a mossy carpet of vegetation bespangled at this season with small starry white flowers. It is planted freely on the Kew rockery, and on the moister, more shady spots does exceedingly well.

Odontoglossum Harryanum.—A fine form of this has been sent by Mr. Douglas. The flowers are massive, large, and well coloured. The stem bore several blooms. There are many fine forms of this *Odontoglossum* now in the country. The fault of it is the unexpanded character of the petals.

Hose-in-hose Mimulus come to us from Messrs. Cannell and Sons, Swanley. The flowers are of a strictly Hose-in-hose character and the colours ex-

trremely brilliant, varying from rich self yellow through shades of purple, with blotches and spots of the most vivid tints. They are of medium size, not flabby and ungainly, as many of the Monkey Flowers.

Redcross Garden.—On Saturday last Redcross Hall and Garden, Redcross Street, Borough, were opened to the public. The expense of the laying out of the Redcross Garden was borne by the Countess of Ducie, and much useful help was given by the Kyrle Society. This open space is a most desirable acquisition.

Grape Duke of Buccleuch.—I send you a bunch of this Grape. One of the plants of this worked on the Black Hamburgh is carrying fourteen bunches, some of which weigh 2 lbs.—W. CHUCK.

*** Excellent fruit of this Grape, the berries being very large, the flesh tender and juicy, and of a pleasant flavour.—ED.

Scarlet Austrian Rose (*Rosa lutea* var. *punicea*) has been sent by Mr. Ross, of Pendell Court Gardens, Bletchingley. It is a charming single Rose, perfect in shape and brilliant in colour. The shell-like petals are glowing crimson-scarlet, the reverse of a bright gold-yellow. It is flowering freely trained against the house.

The Carpentaria and Choisyia in Shropshire.—Both *Carpentaria californica* and *Choisyia ternata* are quite hardy here with the protection of a wall. The former flowered last year for the first time, and this year is covered with buds; the *Choisyia* is now covered with blossoms. *Choisyia ternata* does not need the protection of a wall.—T. M. BULKELEY-OWEN, *Tedsmore Hall, Shropshire*.

Anthurium Andreanum.—I forward for your opinion a spathe of the above. I have seen larger spathe, but have not yet observed one equal to it in colour. We have about 160 plants of it in pots, varying in size from 3 inches to 18 inches.—W. CHUCK, *Brodsworth Hall Gardens, Doncaster*.

*** The *Anthurium* is a showy variety; the spathe of medium size, but of the richest sealing-wax colour imaginable.—ED.

A new purple Beech.—We send you herewith a specimen of *Fagus purpurea rosea marginata* (tricolor), which is now in full perfection and a grand object planted amongst our specimens of *Coniferae*.—THOS. CRIPPS & SON.

*** A very distinct and beautiful variety, the leaves being purple-brown with a margin of dull crimson. The leaves when held up to the sun have a distinct rosy crimson shade.—ED.

Hybrid Rhododendrons.—We have sent you a box containing a truss each of *Rhododendron elegantissimum* and *roseum odoratum*. These hybrids were raised and sent out by us some years ago, and resulted from crossing a hardy white *Azalea* with hardy large-flowered *Rhododendrons*. The flowers of both hybrids are sweet-scented.—ISAAC DAVIES AND SON, *Brook Lane Nursery, Ormskirk*.

*** Two beautiful varieties, as welcome for their sweet scent as for their bright flowers. *Roseum odoratum* is of a rosy shade, and the other is pinky white.—ED.

A gathering of Orchids from Mr. Douglas contained flowers of a fine variety of *Cattleya Mossie*, with the sepals of great width, and a brightly coloured bloom of the beautiful *C. Mendeli*, the frilled lip rosy purple and sulphur-yellow at the base. There also came an exceedingly good form of the Siberian *Cypripedium macranthum*, a Lady Slipper that may be grown with success in the greenhouse.

Lilac Marie Leguay.—From Messrs. W. Paul and Son we have the above-named beautiful white Lilac, with the following note:—

We have the pleasure to send for your inspection blooms of the *Lilac Marie Leguay*, which we believe to be the finest of the white Lilacs. We have put in the box for comparison a piece of *alba grandiflora* grown under precisely similar conditions. This is the next best of the white kinds here, but is inferior in all respects to *Marie Leguay*.

White Lilacs and Lilacs generally are neglected in gardens. The name of *Marie Leguay* should be noted as one of the things to plant next autumn. A group of white Lilacs would be a beautiful one in the pleasure ground.

Flowers from Tottenham.—Mr. T. S. Ware has sent us a gathering of Poppies. The varieties of *Papaver nudicaule*, or the Iceland Poppy, are charming for their elegance and beauty. The

orange-scarlet variety is especially rich. A magnificent series of the Oriental Poppy also comes from Mr. Ware; *Pink Beauty*, salmon; *Queen*, bright salmon; and *bracteata multiflora*, rich crimson, are the most striking. These open up quite a new view of the Oriental Poppy.

Butterfly Orchis (*Habenaria*).—I send a few spikes of this lovely British Orchid, *Habenaria chlorantha*. It is plentiful in some of the Sussex woods, and anything more beautiful can scarcely be imagined than strong colonies nestling against the underwood "stubs" in dense shade. I found the best spikes in the densest shade; in fact, it was necessary to look closely, or they might easily have been passed by. They last long in a cut state and have a delicate Vanda-like perfume.—A. H.

White Lilacs.—Mr. W. E. Gumbleton sends specimens of common white Lilac, and also the comparatively new variety *Marie Leguay*, to show its great superiority in beauty and size of pip. A bush of it, now covered with bloom, is a fine object. He also sends specimens of *Syringa Emodi* fol. var., which is considered a good and distinct variegated form. It makes a pretty contrast in the centre of a group of other Lilacs. The flowers are, unfortunately, insignificant and worthless.

A note from Laxenburg.—A few days ago I made an excursion to the forest, and in the most stony parts where no Grass could exist, I found the *Chimney Bellflower* (*Campanula pyramidalis*) growing freely, associated with a few low bushes of the Smoke Tree (*Rhus Cotinus*). Lower down near the sea the rocks are quite aglow with the Rush Broom (*Spartium junceum*). A fortnight ago Banksian Roses and the Tea Rose *Safrano*, associated with *Wistaria*, were beautiful on the pergolas in the gardens here.—LOUIS KROPATSCH, *Laxenburg*.

A fine Tulip tree.—When staying at Ashby St. Ledgers, near Rugby, the residence of Mr. H. P. Senhouse, I was much struck by a magnificent Tulip tree on the lawn in front of the drawing-room windows. I measured it carefully and found the following to be its dimensions: Girth at 4 feet from the ground, 16 feet 3 inches; just above this it breaks into three forks with girths of 8 feet 2 inches, 7 feet 7 inches, and 7 feet 6 inches; its greatest spread of branch from north to south is 88 feet, and from east to west 78 feet; its height is 77 feet. It is, indeed, a noble specimen, and I should be curious to know if any of your readers are aware of the existence in the British Isles of a finer tree of its kind.—J. M. WILSON.

German Asparagus.—Herr Philippe Reis, of Mayence, has sent us a sample of *Asparagus* as grown in his country. It is of medium size, regular, of an ivory white throughout, and of excellent flavour. It seems grown in quite a different way from either the English or the French, and is completely blanched. Eaten fresh, we should say it must be very delicate. Those who object to the French because it is partially blanched would naturally have much greater objection to this, but people who know something of the different sides of the question and have tasted the blanched *Asparagus* fresh on the spot will know that the prejudice against it is an ignorant one. No *Asparagus* which is allowed to get green and to open its points in the sun is ever equal to the partially blanched shoots.

The Rockwood Lily in Ireland.—It may interest you to learn that a plant of *Ranunculus Lyalli* has just flowered at Glasnevin. This, so far as I can gather, is the first occasion on which it has flowered in Ireland. I send you a photograph which only imperfectly conveys an idea of what a fine, striking object it was when in full bloom, with seven expanded flowers. The cultural details are of the simplest nature. For six years it has been grown in a cold frame facing north, potted in good stiff loam. Each season it produced two leaves, these being very thick and leathery, until this spring when it not only produced a fine inflorescence, but also two extra leaves, which I trust I may accept as an intimation that the plant intends to get stronger and to flower regularly.—F. MOORE.

*** A coloured plate of this beautiful flower was given in THE GARDEN of December 31, 1887.

THE TREE DAHLIA.

(D. IMPERIALIS.)

THIS is a truly grand plant, but one which, from its gigantic proportions and time of flowering, has never become popular in English gardens. The accompanying illustration from a photograph taken in the famous garden of Mons. Dognin, Villa Valetta, Cannes, shows the plant in all its vigour and stateliness, and the form, size, and beauty of the flowers are well shown in the figure in the *Botanical Magazine*, t. 5813 (1870).

The stem is stout, erect, and from 12 feet to 20 feet high; the leaves are on long stalks, the blade being divided into numerous leaflets,

overcome by grafting *D. imperialis* on to a tuber of a Liliputian Dahlia, handsome pyramids 6 feet or 7 feet high and well flowered having in this way been obtained by Mr. Salter, Hammersmith, in 1870. The flowers are developed in November and December, otherwise it would be possible to grow this species out of doors even in England. At Kew, where it is grown and flowered annually, the method of culture is as follows: The tuberous roots of the old plants are wintered in a cold frame till April and then started in a little heat, so that cuttings may be obtained; or the old plants may be used again, by simply removing all the new growths except one. In June the plants are plunged in a shallow bed of fresh straw manure, and there

A second species, similar in habit to *D. imperialis*, is known as *D. excelsa*, *D. arborea*, and *D. Maximiliana*, the first name being the right one. Bates, the traveller who collected this plant in Mexico in 1834, states that it grows to a height of 30 feet, and that it has the singular habit of producing what are termed single and double flowers on the same plant. The late Mr. Green proved Bates' statement true by flowering and exhibiting this species in 1879, some of the flowers having a single row of ray florets surrounding a disc of small yellow florets, whilst others had the disc florets developed into long tubes, so that the flowers looked like what are known as Anemone-flowered Chrysanthemums. In this species the flowers are 5 inches across, pale rose-purple in colour, and they expand in December. It is said to be hardier than *D. imperialis*, but, like all other Dahlias, it will not stand frost, and it must therefore be removed into a greenhouse to flower.

These two species form a section of the genus which is said to comprise only five species in all, the other three being *D. variabilis*, *D. coccinea* and *D. Mercki*. These three are the progenitors of the hosts of forms of Dahlias known in gardens. The question which naturally occurs to one here is, if so much has been got out of the three last named species by cultivation, selection, &c., cannot something be done to render these two arboreal species available for gardens generally?

Growers seem able to get Dahlias of any height from 1 foot to 7 feet. Is it not possible for the height of these giants to be reduced by crossing them with dwarf kinds? A Dahlia as graceful and beautiful in flower as *D. imperialis*, but no higher than 5 feet or 6 feet, and flowering at Christmas time, is surely worth striving for, and it certainly does not seem an impossibility.

W. W.

** This engraving is from a photo taken in the very remarkable garden of the Villa Valetta at Cannes, which we had the pleasure of visiting in the spring of the present year. Its specimens of Palms and tropical vegetation in the open air are wonderful to see, but we doubt if anything more beautiful is borne by such things than the graceful inflorescence shown in the illustration.—Ed.

FLOWER GARDEN.

GARDEN MIMULUS.

WE might, with a little trouble, give a respectable list of beautiful flowers that are often written about, but completely hidden in some botanic establishment or in the garden of an enthusiastic amateur, and unknown to those who would find in them priceless treasures. It would be in the nature of a reproach to the gardener to place the *Mimulus* or Monkey Flower, as "Fancy" calls it, in such a selection as this; but it may be truthfully said that it can be numbered amongst those useful plants that, although possessing splendid capabilities for the garden, have never received rightful recognition. This is hackneyed language, but it bears repetition in reference to the gay, free-flowering, and easily grown Monkey Flower. There are several objections, often urged against the *Mimulus*, one of which is that it is of a straggling, untidy growth, and another that it is fastidious in its requirements as to soil and position. The first of these objections is overcome now by the excellent strains given us by the florist, who by careful selection has raised a race of flowers as brilliant, diversified and telling



The Tree Dahlia (*Dahlia imperialis*) in M. Dognin's garden, Villa Valetta, Cannes. Engraved for THE GARDEN.

forming an irregular triangle a yard through; the flowers are in long, loose panicle branches near the top, and each flower is 7 inches in diameter. There are seven ray florets or petals arranged regularly round the disc, each one being ovate with a long narrow point, the length 3 inches, the width 1 inch, and the colour white tinged with lilac, and streaked at the base with blood-red; the disc is small, 1 inch across, and composed of a closely-packed cluster of short yellow tubular florets. The height of the plant renders it unsuitable for all except tall conservatories. This objection has, however, been

they remain till the approach of frosty weather renders their removal indoors necessary. If the treatment has been liberal, i.e., pots 18 inches deep, soil a well-manured loam, plenty of water, with liquid manure in the autumn, the stems will be 12 feet to 15 feet high by the beginning of October. They are placed in the large temperate house at the south end, where they flower, as already stated. This year plants are being treated in the manner which Mr. Salter found successful; others have been planted in the beds in the temperate house, where they will remain all summer.

as those of the Gloxinia, and has improved the habit by judicious cross-breeding. In respect to the other objection, it is true that the *Mimulus* will not grow anywhere; but the same may be said of the Pansy and many another hardy garden flower. The *Mimulus* and the Pansy, indeed, have something in common. Both like a cool moist position and a deep holding loamy soil, and neither object to the sunshine if they are well provided for in these particulars. Mr. Dean has an excellent strain of *Mimulus* in his seed grounds at Bedfont, and a glance at these suggests the question that it is only a matter of time for this flower to become comparatively common. There are now several strains of great merit in this country, and that of Mr. Dean is the result of crossing the older spotted varieties of *M. maculosus* with the brilliant, but far too fleeting *M. cupreus*. By careful selection for several years, a strain of bushy, dwarf varieties has been secured, the flowers exhibiting a surprising range of colouring, from the most brilliant velvety crimson to mottled, blotched, and spotted forms of all shades and depths of hue, while the seed-pods are small, a point of no small importance. Those varieties that have yellow grounds overlaid with blotches of crimson, are very telling, and we noticed also, with satisfaction, that "size" is not aimed at, as we much prefer those flowers that are of medium proportions and have plenty of substance, as these best resist rains, heat, and drought, and at the same time have a more delicate beauty. Mr. Dean also had, a few days ago, in full bloom, a bed of a variety called Self Brilliant. The flowers are of average size, and of the most dazzling reddish crimson, that varies a little in depth, but is always vivid and remarkably so in the bright sunlight. In this batch many of the flowers showed decided tendency to doubling, and it is hoped that by careful selection a race of double-flowered *Mimulus* will be promoted.

Although the cultivation of the Monkey Flower presents no difficulties, there are certain points that should be observed if we wish for the greatest success. The practice with Mr. Dean—and it may likewise be followed with advantage by others—is to sow the seed, not in the spring, as is usually the case, but in the autumn, about November, and keep the plants in a cool house. When of sufficient size dibble them out, and treat, as is usual, with things of this character. This treatment is advocated, as by it the plants have all the winter to grow, and the result is a bushy, vigorous specimen with plenty of strong side shoots; whereas this is not the case with those that have only had a comparatively short time to make growth. There is another advantage in the *Mimulus*, and that is, it is not tender, like many of the plants used for bedding. It is quite safe to put them out the first week in April, and those that are not planted in the garden may be potted on and grown for the enrichment of the greenhouse and conservatory. Monkey Flowers, when in full health and flower, make excellent pot plants if given only ordinary attention.

From what has been written, it will be seen that the *Mimulus* is entitled to rank as a useful bedding plant. There is many a cool, moist corner in the garden given up to weeds or rubbish of some sort that might be converted into a brilliant flower bed with the help of the shade and moist-loving Monkey Flower. It requires no skill to grow it to perfection; the flowers offer a great variety of bright colours, and when planted in suitable soil and position the flowering season often extends over the

whole summer more or less, and is, therefore, not so fleeting as one might suppose from the fragile expression of the blooms.

NOTES ON HARDY PLANTS.

Primula Clusiana.—It is not only interesting, but useful, by way of learning something of the requirements of certain plants, to take note of their root habit when in full vigour. I have just lifted some of this brilliant and free-flowering Primrose for dividing, and the plants, which have been in deep and rich vegetable mould, have roots quite a foot long. In taking offsets I find it better to shorten by 2 inches all such roots by a clean cut. Some plants of the white Alpine Crowfoot (*Ranunculus alpestris*) and *Androsace sarmentosa*, grown in pots 18 inches deep, had both rooted through the bottom. We should surely be doing the right thing if we gave greater depth of light and rich soil to many of our alpine plants.

Anemone narcissiflora.—I find that it is not merely climate which causes this to often die out in gardens where once it flourished grandly, as from north and south alike it is complained of. If strong stools are examined they will be found to have their roots literally decayed and splitting into pieces like thin strips of bark. Besides, the root is often infested with insects of the wireworm and centipede types. My remedy for keeping the stock in health, and otherwise increasing a most desirable Windflower now evidently very scarce, at least with the trade, is to grow it on the single crown principle, or nearly so. This necessitates frequent division of the roots, and the plant certainly enjoys a biennial change of soil and position. Spring—when the shoots are just visible—is the best time to divide. All the parts should have a crown, and the roots should be kept as long as possible. After this operation growth goes on with rapidity, and I need hardly say that not only do the roots soon become strong, but also for a while they are free from the pests referred to.

Rock Jasmine (*Androsace Chamæjasme*) does best here in gritty stuff, like road-scrappings, which can hardly ever become dried up, like soil of a free texture, and this I consider to be a most important condition to attain. A dressing of fine humus, however, is beneficial, and if given in spring, the active roots about the collar, and those which issue from the half-stem and stolon-like parts, soon appropriate the rich food. Once you get this rare alpine plant well established, it is not easily killed, for every bit of rootlet will bristle with living points in the spring, and soon "show up" in nice tufts, *i.e.*, if the grubs of weevils and daddy-longlegs do not infest the roots, as is too often the case. I may add, however, that these pests are not so frequent in the gritty stuff mentioned.

Double blue Hepatica.—I am not aware that there are two forms of this with light and deep blue flowers. I believe that the normal hue, if we may call it such, of the double flower is a dark blue, but I do not deny that very often the flowers are pale, and even dingy, or slaty-blue. The causes for such dim colour, however, are local and various, and without going into these I can safely state that where plants are well established and in a flourishing condition, the colour will always be found to be a deep and unchanging blue, and I believe that were the plants of the supposed pale sort taken and placed in similar conditions in time, the colour would become the same deep blue. I have also known this charming old flower to resent disturbance, or a change it did not like, by producing washed-out flowers, practically single, not true single flowers with the seed organs, but with merely the guard sepals and a dot like a turquoise in the middle. The plant loves moisture and a deep sweet soil of a friable texture. I have still plants in flower which began to bloom in the last week of February.

J. Wood.
Woodville, Kirkcaldy.

Old Dahlia plants.—Old Dahlia plants are better than young ones for supplying cut flowers. Young plants by the time they are hardened off and

fit for planting in the open air are not large, even by the end of May, and if put in rich soil the season is far advanced before many blooms appear. But for the last few seasons I have relied for our early supply of blooms upon old roots that are lifted in autumn and stored in boxes of soil in a cold house. In spring, through the warmer weather, and giving water when required, they start into growth slowly, but very strongly. The first shoots are saved on the plants, and when the latter are about 6 inches high they are set out of doors in the shelter of a wall and covered with mats put over them at night as long as there is any danger from frost. In May they are finally planted out, generally with buds already showing on them, and a few evergreen branches are put round them to break the wind, that is generally very trying to tender plants during that month. As soon as summer weather comes I do not have to wait long for Dahlia flowers. The sorts we find most useful are the white and red Cactus and the small fancy and pompon varieties, also the singles. I think many who complain of the lateness of their Cactus Dahlias blooming would find this plan answer.—J. G., *Hants.*

Globe Flowers (*Trollius*).—Amongst the many flowers now in full beauty in the hardy garden we must include the Globe Flowers, that are wonderfully gay, free and brilliant in colour. There are several kinds, but a few of them differ very little from each other, and to all, except the critical plant-lover, are identical. A collection of them in the Tottenham Nursery showed this. The common *T. europæus* is one of our finest border perennials, the foliage tufted, and the flowers globular in shape and yellow in colour, but scarcely so striking as those of the Japanese *T. Fortunei* fl.-pl. This is of tall growth, the flowers large, abundant and of a showy orange-scarlet; they are borne freely throughout the summer months. *T. Loddigesianus* is of very free growth, making plenty of leaves and producing a great number of flowers, which are of similar colour to those of the common *T. europæus*. *T. Ledebouri* is very similar, and we can say the same of *caucasicus*, *altaicus*, and *medius*, but one known as *giganteus* is of compacter habit than the majority, with the foliage of a deeper green, and the yellow flowers are borne on taller stems. Those who take an interest in the Globe Flowers will not forget *T. asiaticus*.

Paris Daisies in the flower garden.—These look best when dotted in a groundwork of some low-growing plants, the Daisies being planted at rather wide intervals, so as not altogether to spoil the effect of the carpet. A pretty bed of this kind I noted last year. The Daisies were the common white kind, and planted 4 feet apart, the intervals being filled up with Purple King Verbenas, closely pegged down. Round the outer edge of the bed, which was a circle some 14 feet or 15 feet in diameter, there was a band of Crystal Palace Gem Pelargoniums—three rows of about 2 feet wide. These Daisies are very nice, when well grown, to plunge about in the amateur's garden in pots. In this way they may be made to do double duty—flower in the garden all summer, and in the greenhouse during the greater part of the winter. There has been a large plant of the small-flowered white Daisy plunged out in the forecourt of a house near where I am writing from the first week in May. I saw the gardener bring the plant out, and stand it in the corner against a background of *Pyracantha*, with which the wall was covered. The wind was rather fresh, and blew it over. Then he fetched a stick and some matting; but that was not a success. Then the thought seemed to dawn upon him to dig a hole and set the pot in it, and the idea was immediately acted on. And now, as a little sparkling picture, the thing is perfect, and I have no doubt (as the garden abuts against a public street) that many will see and imitate; and so the formal square of gravel in many forecourts will be improved by dropping in here and there well-grown plants of various kinds to give variety.—E.

A note on Snapdragons.—This old-fashioned border plant never pleases so much as when it has grown into large bushy clumps, the result of two years' growth, and in the case of the striped varieties, which many prize so much for the vivid and variously

coloured flowers, are frequently in the first year self-coloured, developing their true character the second season. It is also the second year plants that flower the strongest and from which the greatest crop of seed can be obtained, a point of importance where seed-saving is a consideration. Mr. Dean, in his Bedford ground, has a batch of two-year-old Snapdragons that were pushing into vigorous growth, having lived through the past treacherous winter safely. It often happens, however, that the Antirrhinum is killed outright in a severe season, especially when the soil is cold and damp.

THE HARDY FLOWER BORDER.

THERE is probably more work to be done amongst hardy border flowers in the months of May and June than at any other time during the year. In the case of old-established borders, many herbaceous plants will be growing vigorously, and if the soil is suitable for the plants, many of them will produce a larger number of flower-stems than ought to remain. This is particularly the case with such vigorous-growing things as the Phlox, double and single Delphiniums, perennial Lupines, Michaelmas Daisies, and others of similar character. It is desirable that all this class of plants should be gone over at once, and where it is seen that the flower-stems are too numerous, to cut out the weakly ones close down to the soil. Those that are left will make a stronger growth and produce larger heads of flowers. But this thinning out requires to be carefully done, and as far as possible every plant should be allowed to assume its natural character. Nothing disfigures herbaceous plants so much as to cut away all the outside stems and leave a few tied up in bundles in the middle.

The diversity of form in which the various subjects grow is a point that should receive attention. The Delphiniums, for instance, do not grow far away from the crown, but send up a great number of flower-spikes, and there are many others which grow in the same way. The proper plan of dealing with them is to cut out those in the middle and leave the outside stems, selecting, of course, the strongest to remain. The tall-growing Phloxes are in many cases allowed to carry more stems than their roots can support, and in consequence the heads of flowers are small. The effect would be much finer if a strong plant were only allowed to carry four or five spikes of bloom, because they would be much larger. Next to a judicious thinning out of the crowded shoots is that of tying up those which require support. In a strong soil the growth will be so vigorous that it is impossible to do without sticks and ties altogether, if the border is to be kept in good condition. But a too free use of stakes will make the aspect of the place formal. The plan of gathering up a large armful of growth and tying it up in a bundle with a stake in the middle must be condemned. Where the flower-stems grow any distance from the centre of the plant, two or more stakes should be used; but in every case the growth should, as much as possible, be allowed to retain its natural character. It is too much the practice to overcrowd these borders. Variety is all very well; but it is the fairly large masses that create an effect. A number of small bits may be interesting to the specialist; but a mixed border of hardy flowers should contain masses of flowers.

The foliage of the bulbs that occupy the border should be preserved, and this is a very important point. The old flower-stems on such bulbs as Tulips and Daffodils may be cut off with advantage, but not a green leaf should be injured or the bulbs will be weakened. I have seen many instances when plants and bulbs of many kinds that have recently gone out of flower have been recklessly bereft of every green leaf for the sake of neatness. Such a thoughtless act is thwarting Nature in a way that she is sure to resent—for whether it is a plant or a bulb such treatment is sure to end in a few weak flowers the next year; and if continued for two or three seasons, the existence of the plant is threatened. In the case of bulbs not a leaf should be injured or removed until it is quite yellow, for until they have arrived at that condition, the process of maturation is not complete. With regard to watering, the

plants in these borders do not get the attention they deserve. The tall-growing Phlox and the double and single Pyrethrums delight in having plenty of root moisture, and they, in common with many plants of similar growth, cannot be grown well without it.—J. C. C., in *Field*.

OLD DOUBLE DAFFODILS FROM IRELAND.

IN answer to "J. C. B." in THE GARDEN (p. 481), I wish to note that this theory of double solid trunks to common Daffodils puzzled me for years; but the memorable dry cold spring of 1888 and the previous dry summer of 1887 fully elucidate the mystery. I have been a cultivator of the bulbs procured from all climates for years, and have found that collected bulbs of *Telamonius plenus* always have had solid trunks when procured from the flat swamps and rich meadows in the counties of Limerick and Tipperary, particularly in the rich Grass and butter-producing districts of the Golden Vein, and more so as we go north to Templemore and the great Bog of Allen. The conclusion drawn from this experience is, that in such districts last summer's sun, with all its heat in the soil, did not reach the bulbs planted probably in Grass and at a good depth, as I believe that extreme heat in the earth and a very warm June and July will naturally run the flower the ensuing year to a rose formation. All the common Daffodils in the counties of Cork and Kerry, which are tillage counties and light of surface, were produced in a broken state this year, and numbers of these quite green, caused, no doubt, by the lack of moisture and excess of easterly wind in February, preceded by a very mild January, and prematurely encouraged above the soil, as Shakespeare has it, to be afterwards as their "greatness is a-ripening to be nipped in the bud." To make my remarks fully understood, I flowered double Daffodils this present year that were gathered last July on the swamps by the rivers Barrow, Suir and Shannon, and they were solid trunked, while the same supplies gathered in same localities in 1886 were solid last year and very beautiful, but this year are rose formed. The soil at Temple Hill is rich, sandy, and loamy in nature, resting on solid layers of limestone, while the districts mentioned are low flats, and moist even in the driest summers. I am this year going to plant some rose formed bulbs in a shady, moist spot, and at a depth of 8 inches, and am certain after two seasons they will come solid trunked again. The inference is that when the bulbs are ripened slowly at a good depth and in cool soil, we shall have solid trumpets and *vice versa* with light plantings in warm soils, and in both cases very much depends on the warmth and heat of the previous months of June and July. That most beautiful of all double Daffodils (*capax*) was never so fully double as this season; the same with *odorus plenus* and *cernuus plenus*. The flowers of the latter, perfectly solid in 1887, were this year flat in shape and fully double, resembling a well-developed bloom of white Turban Ranunculus. I am anxious to hear what better authorities will say on the matter. W. B. HARTLAND.

Temple Hill, Cork.

Iris paradoxa.—I have sent off a flower of the rare and remarkable *Iris paradoxa*, one of the *Onocyclus* group, and if not the largest, it is certainly one of the most striking of that small section. It appears quite as hardy, and perhaps rather freer in growth than *I. iberica*, which it closely resembles in habit and foliage. As you will see, the standards are of a deep purplish black, with darker veins, the colour being somewhat paler in the claws. The

falls—though the word is quite inappropriate in the case of this species—are spreading, quite convex, rounded at the tip and almost entirely covered with a short black velvet-like pile, which should be examined with a half-inch lens. A narrow flesh-coloured naked band crosses the tip, and the margin all round is curiously mottled with a similar shade of colour. The petaloid stigmas contrast strongly by their greenish yellow ground speckled with purple spots. Apparently the spathe is but one-flowered.—W. THOMPSON, *Ipswich*.

**** A most interesting Iris.** The flowers very rich in colour. A coloured plate of it was given in THE GARDEN for December 24, 1887.—ED.

The Oriental Poppy (*Papaver orientale*) is commencing to flower vigorously. The striking foliage of this suggests its further use for wide herbaceous borders. The variety *bracteatum* is deeper in colour and less robust, if anything; but we scarcely want both in a garden. Mr. Ware, of Tottenham, has a pink variety called *Pink Beauty*.

Wallflowers at Brighton.—On the almost perpendicular banks of chalk forming the deep railway cuttings just outside Brighton station the Wallflowers are blooming in thousands. When I saw them late in May they were at their best, and I rejoiced to think they would long be beautiful, being quite inaccessible to any flower despoiler.—A. H.

Golden Thyme.—Although looked upon as a common plant, nothing so effective has been seen in the rock garden for the last four months as *Golden Thyme*. Nestling at the foot of a rock or in nooks or corners is the proper position for *Golden Thyme*. Dividing the roots when young or propagating, by inserting cuttings in a cold frame during October, are the best means of increasing the young stock.

The Buck Bean (*Menyanthes trifoliata*).—There is a quaint and singular beauty about this that should place it foremost among British aquatic plants. When the spikes rise up from the water the buds are of a beautiful pink, but the flower expands in pearly whiteness, every petal being covered with little white filaments, giving the whole flower a fringed appearance. I met with a poolful of it a few days ago and picked some of the finest spikes.—A. H.

Saxifraga granulata fl.-pl. is largely grown in some cottage gardens in this neighbourhood, and a grand border plant it is, as it flowers so freely at this season. Given a good depth of soil, which need not be over-rich, it will grow well. We have it in a sunny spot on the rockery, but being rather dry at times, it does not succeed so well as in the borders where it has a deeper root-run.—SOUTH HANTS.

Tulipa Greigi I saw very fine in Messrs. Cannell's nursery at Swanley lately. In the full sun it displays its brilliant colour and the dark blotches in the centre of the flower. Its foliage is showy, being heavily veined with purple. In the same nursery beside *Greigi* was planted *Tulipa cruenta*, which is a novel variety with its long, twisted, narrow petals of a peculiar colour. Those wishing for variety in the garden in the way of Tulips should plant these two.—A.

Self Pansies.—A self blue Pansy that seems to be the best of its colour yet raised is the variety known as *Archie Grant*. It is like *Holyrood*, but this is blotched, while the other is not. An excellent yellow Pansy, as useful for the garden as for the exhibition, is *George Rudd*; it is clear bright yellow, very free, robust and neat. Both these are likely to become market Pansies, and there is now considerable demand for the first of the two named.

Alyssum saxatile compactum.—When planted in bold masses on the rockery this *Alyssum* produces an effect which must be seen to be realised at this season of the year. The older the plants the better they flower if liberally treated with some manure at the roots now and again. After flowering cut off the old flower-spikes, both for appearance sake and for the benefit of the plants themselves, as upon the free growth made after flowering depends the next season's crop of bloom. Any soil will suit it, and the sunnier the spot the better as long as the plants are supplied with sufficient moisture at the roots.—B.

Epimedium pinnatum is much valued for its beautifully bronzy veined leaves on a light green ground at this time of the year. Its pale yellow flowers are rather insignificant when compared with the foliage, which is very lasting in a cut state, and associates well with almost any kind of cut flowers. By the margins of lakes, in nooks and corners of the rockery, in bold

masses or in the herbaceous borders, it flourishes equally well. Division of the roots is a ready means of increasing the stock.—E.

ALPINE AURICULAS.

IN decrying, as you appear to do, on page 428, alpine Auriculas that "show any pale shadings, lacings, or washy marginal edges," I think you are unjust to some of the prettiest members of the family. We have an abundance of "rich crimson and purple-maroon selfs;" so many, indeed, that there is but little difference among many of them. It could be observed at the recent exhibition of the National Auricula Society at South Kensington that pretty shaded pale-coloured varieties were very few indeed, while those of darker shades were quite abundant. Occasionally, ladies come and inspect my collection of alpine Auriculas, and I invariably find they prefer all the laced varieties and shaded flowers of pale blue, mauve, violet, and lilac shades to the more striking, and to you more pleasing, deep-coloured flowers. Many of these pretty light flowers you would term "washy," a kind of floral adjective that is launched against many pale-coloured flowers that to some are charming in the extreme. Now in the case of exhibition alpine Auriculas there are two classes, one with golden and one with white centres, though under the head of white centres are included some that are creamy, and even primrose-white. Our best light flowers are those that, like George Lightbody, Tenniel, conspicua, and a few others, are shaded with varying tints of mauve or violet. Some of these flowers open with a rare beauty of expression; but as the pips age they deepen in colour, the shadings are less distinct, and they take on a blurred and confused appearance. Even that beautiful white-centred variety, Mr. Harry Turner, shown by Mr. Turner, of Slough, at a recent meeting of the Royal Horticultural Society, has this fault; the delicate shading which was so much admired becomes dark and less attractive with age. The white-centred flowers are weak in another respect. The white centre decays before the marginal character, and takes on a pallid cold hue, which has a forbidding expression. And especially is this the case when white or pale sulphur centres are associated with dark marginal colours, as the contrast appears the more objectionable. Some flowers that are admissible as white centres—Diadem, for instance—open with a pale sulphur centre, which becomes white with age, and thus flowers with centres of two different colours can be found upon the same plant. I noticed this confusion in the case of one or two of Mr. Turner's seedling alpine varieties shown at a recent meeting of the Royal Horticultural Society.

I think it will be found that the best and truest white-centred flowers are those that have delicate violet and mauve marginal colours—tints that I am afraid you would be disposed to term "washy." There is a chasteness and appropriateness of harmony between the white centre and the delicate marginal tints. There is no violent contrast, as between white and dark violet-purple or crimson. It is this beautiful and delicate, chaste and tender shading that I want to see in association with the white centre. Mr. Turner will admit that we have very few white-centred flowers of high quality, and he states that but few come among his seedlings. It is this class of flower that our raisers should seek to improve. I have been attempting it in a small way, and the variety named Hetty Dean, to which the floral committee of the Royal Horticultural Society recently gave a unanimous certificate of merit, proves I have not been altogether unsuccessful. We require a white centre that will remain white, and not die quickly to a dull ivory-white. We want marginal colours of mauve, violet, and blue, with more delicate shadings that will stand, and not become blurred and darkened, mingled and confused, and that will stand and die away without losing much of their beauty. These qualities must be in association with good-sized, stout, and well-formed pips, flat and smooth, the zones of colour being also approximately harmonious in point of equality of dimensions. Such flowers as Susie Matthews, conspicua, Mauve Queen, Tenniel, and a few others

would give an appropriate ancestry to commence with, and I am sure that a few generations of seedlings would supply something of a highly desirable character. I have been using Mauve Queen and conspicua crossed with one or two of the most delicate and correct laced varieties, and what I have bloomed during the past two years greatly encourages me to go further with the work.—R. DEAN.

—The remarks of "A. G." at p. 450 leave the impression that he has not sufficient knowledge of the Auricula family to be a teacher of others. Who introduces the "shadings, lacings, and edges that are perfectly unnatural to the flower?" Whatever they are, they are certainly natural productions, produced by saving seed of the best varieties, and the best judges of beauty in an Auricula have decided that the shaded edged alpine are the prettiest. The colours are bright and rich of the best varieties, and if "A. G." saw "washy" flowers they must have been inferior varieties; no good grower would cultivate them. Why a shaded alpine should be compared with the odour of an Allium or the green tint in the centre of a Hippeastrum, I do not know. "A. G." says his "conception of a typical alpine Auricula is a plant with a robust habit of growth, plenty of strong foliage, a sturdy stem, and a truss of bold flowers, with a good paste and rich self body colour." Will "A. G." kindly inform readers of THE GARDEN where such an alpine is to be seen? There is no such plant in Nature either in a wild or cultivated form. The typical alpine Auriculas, like the show Auriculas, have been in cultivation for 200 years at least. Clusius cultivated the typical alpine Auricula (*Primula pubescens*), and it would soon show distinct varieties of form from seeds; but from that date until now the flowers have not had any paste upon the centre. Gardeners have continued to reject those that have any traces of paste upon them; those which have a uniform self colour on the edge are also rejected. "A. G." quite mistakes the remarks of Mr. Horner. A self Auricula and an alpine Auricula are totally different from each other. They are from different typical species. A self Auricula has for its original parent *Primula Auricula*; this plant is found in its natural state with a coating of farina on the centre, and in the cultivated specimens this has been greatly developed, until in the best selfs it is found in a snow-white centre much more dense than in any natural form; the edge of this variety is not shaded. In the south, as in the north, a shaded edge on a self would be a disqualification. I know exactly what Mr. Horner or any other grower with a knowledge of the subject would say, that is, the alpine Auricula with *Primula pubescens* parentage should have a centre destitute of paste and a shaded edge. The self, green, grey or white-edged Auricula with *Primula Auricula* parentage should have the centre thickly coated with meal or paste, and in the case of the selfs an unshaded edge.—J. DOUGLAS.

—I was much pleased to see "A. G.'s" protest against moulding these into the type of what are called show varieties. Robustness of constitution, abundance of foliage, boldness of truss, and distinct and clear colouring are the chief charms of alpine Auriculas. Beauty in the mass rather than in minute detail should be the main object in these charming hardy plants. While not a few cultivators have doubtless done their best to spoil alpine Auriculas by intercrossing them with other strains, a good many of the washy hues and confusing shadings have resulted from accidental crossings. Bees are specially fond of Auriculas, especially early in the season when few other flowers are open; and, of course, their visits are paid to all sorts of Auriculas indiscriminately within reach, and hence, no doubt, a good deal of the deterioration so justly complained of by "A. G." Starting some years since a limited collection of pretty, pure alpine, all went well until we took to raising seedlings. These, instead of coming true, proved mostly inferior show varieties, with edgings of various shades and depth, as unlike the originals as could well be imagined. Neither was the cause of the diversity far to seek. Within distances of a quarter, half a mile, and a mile, as the bee flies,

were several collections of show Auriculas, and these had so marred the purity of strain of the alpine as to well nigh ruin them without lifting a single seedling up to the rank of a first-rate show Auricula.—HORTUS.

Delphinium trollifolium.—I send you a raceme of *Delphinium trollifolium* (A. Gray), a species first discovered and collected in Oregon by the late Elihu Hall, from whom I received seeds many years since. It is really a very desirable species in its best forms, its flowers being of a very deep indigo-blue, almost as large as in the well-known *D. formosum*, but in a looser raceme, its value being enhanced by their very early production. None of the ordinary perennial Larkspurs will be in flower here for some time. Needless to state that it is perfectly hardy, but it should have the advantage of a sheltered position, the foliage being long-stalked and succulent, and liable to injury from high winds. It would be difficult to send you one of the largest racemes, but I hope, with the aid of the imagination, you will be able to realise its ornamental value from the smaller specimens forwarded.—W. THOMPSON, Ipswich.

*. A beautiful Larkspur, the loose raceme bearing flowers of a rich deep purple, and approaching those of *D. formosum* in size. An elegant border plant, we should imagine.—ED.

Alyssum saxatile.—Golden Glory is the name given by cottagers here in Surrey to this bright hardy flower, and a better could hardly be found. Seen in the form of good established masses, it makes a glorious sheet of gold that is unequalled at this time of the year. I have been surprised to note how seldom one sees this yellow Alyssum, but I think it has in some soils a way of dying off suddenly. This seems to be caused by the combined action of wet and frost on the woody tissues of the stems, which, as is frequently the case with old Carnations, burst and then rot. Where this occurs, the best way is to put in a few cuttings every year, so as to have young plants coming on. For dry sunny banks there is no better plant than the Golden Glory, for it does not fear parching weather, making a good companion to the white *Arabis albidula*. It is also a capital plant for embellishing flower beds on the Grass, as it bears removal well and can be lifted in good time to make way for tender bedding plants.—J. C. B.

SHORT NOTES.—FLOWER.

Tulipa macrospeila is flowering on the bulb border at Kew. It has robust, broad leaves and flowers of a brilliant carmine shade.

Silene pendula compacta is charming in a mass. Its flowers are bright rose; the double variety is so inconstant as to be virtually useless.

Purple creeping Bugle (*Ajuga reptans rubra*)—A very rich variety both in leaf and flower. Excellent patches of it in bloom are on the Kew rockery.

White Musk Mallow (*Malva moschata alba*) is as worthy of note for the beauty of its finely-cut leaves as for its charming white flowers. It ought to be in every border.

Bedfont Yellow Wallflower has the advantage of a neat, compact habit, and flowers so freely that a mass of it is like a sheet of brilliant yellow. It is better than the Belvoir Yellow variety.

White Forget-me-not ought to become a great favourite. It is a variety of *Myosotis dissitiflora*, and like it, except that the flowers are quite white. A batch of it at Bedfont shows what a lovely thing it is.

Allium Ostrowskianum is an ugly name for a pretty flower. It is dull rose, and the glaucous grey leaves are robust. At Kew there are several plants of it on the rockery.

Pyrenean Vetch (*Vicia pyrenaica*) is a free-growing plant for the rockery, as it rambles over the stones and hides them with its cheerfully coloured leaves; the purple flowers are rich in colour and appear at this season.

Centaurea montana alba is an early flowering perennial Cornflower, and most useful for supplying cut flowers. A large stock of it may quickly be had by dividing the roots in the spring.—E. M.

Mimulus Cloth of Gold, recently noted in Mr. Dean's Bedfont seed grounds, is a very dwarf, neat, compact, and free flowering form, with large brilliant yellow flowers. It seems likely to become a useful Musk.

Double Marsh Marigold.—This is one of the showiest of hardy flowers at the present time, and has a wonderfully good effect in a mass on the border of a stream or piece of water of any kind. It will grow and flower very well in a rather damp border, but its

home is near the water, and wherever there is suitable accommodation it ought to be grown. There are many places where this and plants of a suitable kind could be established were it not for the ravenous plant collector, who would, of course, deem this a rare prize. In this neighbourhood we have scarcely a native Fern left.—B.

Lathyrus Drummondii.—I have an established plant of this in my garden 3 feet through and 4 feet in height. One excellent quality is its marvellous freedom of blooming, and in this respect it rivals even if it does not excel *L. grandifolius*. As it is a strong rooting perennial, and exhaustive of the soil, it should be well mulched in autumn or spring and have a weekly dose of liquid manure. When planted it should have ample space in which to grow. I find it a good plan to place some pea sticks around it, and even then it is necessary to tie in some of the outer growths. But then my garden is small, and I cannot allow the *Lathyrus* to monopolise the space. It is, perhaps, the earliest to flower of the Everlasting Peas.—R. D.

MAY FLOWER.

(*EPIGÆA REPENS*.)

THIS most charming and attractive North American plant well deserves the trouble needed for its successful establishment. Its firm-textured, neat leaves look well all the year round, and the clusters of delicate flesh-coloured flowers of sweetest scent are a yearly surprise and delight. It has a bad reputation as a most difficult plant to grow, but anyone having the needful conditions, namely, a cool, damp space of peat in shade, should do well with it.

The double white Iberis sempervirens.—After three years' trial in pots and in the open ground, I am compelled to write this down as an impostor. It is our common perennial Candytuft spoiled by becoming double-flowered. It was sent out from the Continent a few years ago with a great flourish of trumpets, and an engraving was forwarded which made it appear to be a highly desirable novelty in the eyes of English lovers of hardy plants. During the past three years it has been exhibited but once only to my knowledge, and then in what was regarded as an indifferent character. I now think we saw it at its best, and a sorry floral spectacle it presented to view. I shall be glad to hear if anyone has been more successful with it than I have. At the very best in which I have been able to produce it, it does not in any way equal the single form, and it is a long way behind what I regard as the very best of the perennial Candytufts.—R. D.

Aubrietia violacea.—A lady wrote to me some two months or so ago to say that all the plants she had of this variety raised from some seed I had sent her were dead. I could quite understand her coming to this conclusion judging from the appearance of my own plants at the time, for they looked wretched in the extreme. They occupy the south front of a slightly raised border on which I grow some *Auriculas*; the *Aubrietias* are planted upon the top of a sloping bank, and they fall down over a layer of stones. At the beginning of March they looked as if they were hopelessly dead; scarcely the vestige of a leaf was upon them. I attributed this to the fogs of winter, but as *Aubrietias* in parts of the country where they suffer much less from fog were similarly affected, I am not quite sure on this point. I comforted my correspondent by telling her that my plants were as bad as her own, but I still hoped they would recover, and I advised her to be hopeful. The result in her case, as well as my own, is that the plants, despite their forlorn appearance, have become completely covered with foliage and are flowering abundantly. It is not easily killed, although it apparently suffers greatly during winter,

but there is stored up within it so much energy that there is no need for alarm, as time is certain to redeem all the imperfections of the winter season.—R. D.

FLOWER GARDEN NOTES.

MIXED BEDDING.—I have many times had occasion to remark that some of the best effects in bedding out I ever made have been the result of accident; as, for instance, the desired quantity of a given plant for certain arrangements running short, recourse to what are called "makeshift" arrangements become necessary, and these makeshifts have in every instance turned out as good, and most of them better, than would have been the case had the desired arrangement been carried out. A case in point has just now happened. A couple of beds intended to be planted in rows of colour with various kinds of *Pelargoniums*, fine-foliaged and flowering, and there being only half the number of plants required of the former (*Sophia Dumaesque*), the arrangement had to be abandoned, and instead we have just completed the planting of the beds with, not three colours of flowers and foliage, as was originally intended, but with at least a score of various kinds of plants. The edgings were of variegated Thyme, and the second line of *Iresine*. The beds are circular, and the plants had, therefore, to be planted in regular form as to colours; that is, dispersed in regular form all over the beds. Variegated *Abutilons* are employed as standards, and the mix-

easy it is to overcome the difficulty of being short of the desired plants.

ORNAMENTAL PLANTS FOR NATURALISING ON TURF.—*FERULA COMMUNIS*.—The grand effect produced by a large clump of this giant Fennel we have here on the turf in the sub-tropical garden suggests the thought that we do not make sufficient use of such plants for planting in sheltered nooks on the turf, near the margins of ponds, brooklets, rivers, and in the bog garden, and particularly on turf in the sub-tropical garden. Here in association with other plants of graceful foliage, that for the most part are only suitable for planting in beds, it appropriately furnishes breaks—wide spaces of turf that might otherwise be spoiled by a bed. Our plants are from seeds, and have taken four years to attain their present grandeur, and though from the first year they have been effective, the present year's growth eclipses all, some of the leaves being 4 feet long, and several flower-stems (the first that have shown) are already 6 feet in height and proportionately stout. They are growing in a light loam, which when first prepared had a heavy dressing of farmyard manure, and all the attention they have required since was a soaking or two of water during the drought of last summer. The plant is perfectly hardy, and has but one fault, and that is, it dies down before summer has ended, but by way of a set off, the foliage decays off a beautiful lemon-yellow, in which state it remains a considerable time.

COMMON BEAR'S BREECH (*Acanthus mollis*).—This is another hardy perennial, and of a totally different character to the preceding, and though not nearly so graceful it is in some respects quite its equal as a lawn plant. It has broad, massive bronzy green foliage that in good ground frequently attains a height of from 2 feet to 3 feet, and the entire plant in tuft form to near upon 4 feet. There is no more suitable plant than this for planting in wide recesses at the foot of a rock garden, nor for the same positions in front of shrubby clumps to break formal outlines that in such a connection are always objectionable to a true garden artist. Our plants were raised from seeds. We have tried propagation by division, but the plant resents all disturbance at the roots. The whole culture may be summed up in the words, Plant in good soil, and ever after leave it to take care of itself.

NEW ZEALAND FLAX (*Phormium*).—These I alluded to in a note a few weeks ago, and only mention them again in this connection to remind readers that they also are most impatient of removal, and as they are not hardy in all parts of the kingdom, the stations for these should be selected in view of this fact, that is sheltered from north and east and on thoroughly well drained land. The plants increase readily by division, but are so long before they get re-established that propagation by seed is recommended.

BOCCONIA CORDATA.—This is a plant of a totally different character to any of the preceding, and is one of the very few flowering plants that grow well when isolated on the turf after the manner indicated for the foregoing. The plant is perfectly hardy in any position. It takes a long time to get thoroughly established, which fact also means that transplanting and division should not be done unless really necessary. The roots strike so deep, that if offsets are needed the best way to secure them is to dig out the soil deeply on one side of the plant only (that which has the greatest number of offsets), sever the suckers from the parent plant with a sharp knife, and at once replace the soil, pressing it firmly into the old stool. The suckers thus secured should have their long tap roots shortened and be temporarily planted in sandy soil in the nursery garden, and the following year be planted in a permanent position, this being any conspicuous spot in the garden that would be improved if brightened with long panicles of loose feathery flowers, that



The May Flower (*Epigaea repens*). Engraved for THE GARDEN.

ture of plants used ranges in number from three to twelve of each variety, and consists of scarlet herbaceous *Lobelias*, *Zinnias*, *Pentstemons*, *Heliotropes*, white and blue *Violas*, *Mimulus Brilliant*, *Harrison's Musk*, *Fuchsias*, *Dianthus Heddwigi*, *Marguerites* (yellow, white, and blue), fancy *Pansies*, variegated *Pelargonium Manglesi* and *Lady Plymouth*, &c., gaps near the outer edge being filled in with variegated *Mesembryanthemums* and dwarf *Phlox Drummondii*. The beds are raised considerably above the turf and rise in slight pyramidal form to the centre, and, consequently, display their beauty more effectively, and from a greater distance than would be the case if the soil was level. In respect of what is termed "carpet bedding," the lack of numbers of the desired varieties of plants some years since led me to use certain plants as substitutes, that proved so effective, that ever since the practice has been followed. A case in point is that of *Alternantheras*, there being only sufficient to plant the arrangements set out much thinner than they would be likely to fill, and the only course open was to spread the plants over the desired space, which was done, and the spaces between filled in with dwarf *Sedums*, such as *glaucum*, *corsicum*, and *acre elegans variegata*, and thus unexpectedly was produced a unique piece of colouring. Other examples might be quoted, but these will suffice to show how

continue for weeks in excellent condition. There are several other species of equal merit for planting in groups on turf, but as they are better known I need only give their names as reminders to those in search of suitable hardy plants for lawn decoration of the foliage, sub-tropical garden, and fernery. They consist of all the varieties of Funkias, several Yuccas and Bamboos, Arundo donax and A. conspicua, Melianthus major, Aralia Sieboldi, the variegated Acer Negundo, several Japanese Maples and Sumachs.

GENERAL WORK.—Clearing up after bedding out. Tying up of all plants that require it, those most needing this attention being Pinks, Carnations, Pyrethrums, Delphiniums, and Paeonies. Make other plantings of East Lothian Stocks, Asters, Zinnias, and, if need be, sow more Sweet Peas and Mignonette, as it is hardly possible to have an over-supply of either.

W. WILDSMITH.

FRUIT GARDEN.

THE CULTURE OF MELONS.

IN most gardens Melons are in great request during the summer and autumn months, but more particularly during the months of June, July, and August, although in our own case we endeavour to be able to cut ripe Melons as early and as late in the year as we can, the supply extending from the end of April to the middle of December. Melon seeds should be sown singly in 3-inch pots half filled with fine loam and leaf-mould, covered lightly with some of the same mixture, and then plunged in sawdust in a box 6 inches deep and big enough to take the necessary number of pots, placing it over the front hot-water pipes in a Cucumber or forcing house, covering the box with glass until the seedlings appear, when they should be placed on a shelf near the glass to prevent them making a weakly growth. When the plants have made a couple of inches of growth top-dress them with slightly warmed soil, care being taken not to injure the stems, which at this stage of growth are liable to sustain injury from the slightest pressure of the hand. Meanwhile, the bed in which the plants are intended to be fruited should be put in readiness. For the production of early Melons there is no better structure than a well-glazed and liberally heated pit, running east and west, and having an angle of about 30°, and a series of troughs or long boxes at about 1 foot wide and the same depth running along the entire length of the pit, and resting on strips of inch board laid across the front hot-water pipes at intervals of 3 feet. In order to ensure good drainage in the boxes the bottoms might consist of strips of inch board fixed longitudinally at half an inch from one another. Place thereon between 2 inches and 3 inches thick of crocks, filling in the chinks with pieces that have been passed through a half-inch sieve, following these with a sprinkling of leaves and 6 inches thick of a compost consisting of rich fibry loam and sifted lime rubble. On this form, at from 2 feet to 3 feet apart, mounds, the apex of which should be nearly on a level with the top sides of the box after the plants have been set therein. They should be planted before the roots become matted, disturbing the soil and roots as little as possible, planting and making the soil quite firm about the roots, afterwards giving tepid water to settle the soil. The plants should be quite moist at the roots when being planted. A stick should be put to each plant for support, and be secured to the first wire of the trellis, which should be fixed to the rafters at least 15 inches from the glass. Shade the plants from bright sunshine for a few days after planting, discontinuing it as soon as the roots have taken to the fresh soil. Damp the plants overhead and the walls and paths generally morning and afternoon on bright days to promote a growing atmosphere in the house, and at the same time to keep the plants free from the attacks of red spider. Ventilate freely during favourable weather to secure a short-jointed, consolidated growth in the plants. As the roots protrude through the sides of the mounds add a couple of inches thick of the same mixture as that in which the plants are growing,

and continue to make such additions until the intervening space is filled to within 1½ inches of the top of the box, thereby preventing the possibility of the stems of the individual plants and the soil immediately surrounding them getting too damp by the lodgment of water.

TRAINING THE PLANTS.—Do not stop the leading shoots until they have nearly reached the top wire of the trellis, the object being to secure an equal set and distribution of the fruit over the plants. This can be easily done by pinching out the first flowers that show on the laterals proceeding from the base of each plant and afterwards trained to the first set of wires. Plants so treated will produce side shoots from the base of every leaf-stalk the entire length of the stem, and in the production of which the latter thicken considerably, thereby forming a large rapid channel of communication between root and leaf—a fact the value of which cannot well be over-estimated. Superfluous shoots should, however, be pinched at one joint from the main stem, training the shoots forming the plants at about 15 inches from each other on either side angle-wise, and when they have made two or three joints of growth stop them. When five or six flowers are open on a plant impregnate them in the ordinary way when the pollen is dry. The fruit-bearing shoots should be stopped at one joint beyond the fruit, and when it can be seen which fruits are likely to swell, remove all superfluous ones from the plants, leaving from four to six—according to the size which the variety grown attains to and the strength of the plants—of the most even and best placed fruits on each plant for a crop. After this keep all superfluous growths persistently pinched out in order to prevent the shoots getting crowded, as well as to direct all the energies of the plants to the swelling and ripening of their crops.

The syringing of the plants should be discontinued when they are in flower, as well as when the fruit is nearing maturity, and during both these stages of growth the atmosphere should be kept rather dry and airy. Plants thus grown—having the roots confined to a more than usually limited space and in close proximity to the hot-water pipes, with extra good drainage—should have liberal and frequent supplies of tepid liquid manure given at the roots, especially when the plants are swelling their fruits. Aim at a night temperature of 70°, 75° by day, with fire-heat, running it up to 85° or 90° with sun-heat and plenty of atmospheric moisture at closing time when the plants are swelling their crops. The time of shutting up the house, like that of putting on air, should be determined by the season and the condition of the weather at the time. Air, however, should be given when the thermometer registers 80° in the morning and taken off in the afternoon when the temperature has declined to 85°. Should aphids get the mastery of the syringe, fumigate lightly with tobacco paper two evenings in succession, and ventilate more freely than usual the following day, weather permitting.

A suitable house for growing Melons in generally is a low span-roofed structure, also running east and west, and having narrow borders, about 18 inches wide and the same depth, with two hot-water pipes underneath for supplying bottom-heat, as well as three on either side for top-heat—one flow in front and nearly on a level with the wall-plate, and two return pipes resting on piers the passage side of the borders, and having screw valves for regulating the heat. Over the pipes place 6 inches thick of wood, following this with thin turves, Grass-side down, and the formation of the necessary number of mounds in the manner already described. If brickbats are more easily obtained than wood, they may be used in its stead as drainage, but the latter is preferable, as the heat percolates through it more freely. In order to maintain a regular succession of ripe Melons throughout the season, seed should be sown, as advised, at intervals of three weeks from the first sowing to the middle of July.

I have three houses such as I have just described, and to which air is admitted through the front sashes, in addition to several pits, in which I grow Melons. By having plants from 15 inches to

2 feet high grown in 8-inch pots, ready to plant in each house as soon as the fruit is cleared off each batch of plants, I therefore manage to crop more out of the three houses in the season than I could otherwise secure. The glass and woodwork are washed after each crop of Melons is ripened, and the surface soil removed from the beds, a few shovelfuls of soil, forming the old mounds, being at the same time removed and replaced with fresh, and in this the plants, having been turned carefully out of the pots, planted and watered, and heavily shaded from sunshine until the roots have taken to the soil, are afterwards treated as set forth above.

H. W. W.

STALL TRELLISES FOR PEACHES.

WILL some of your fruit-growing readers who may have cross trellises for summer-ripened Peach trees in houses say if they can candidly recommend the plan as giving more fruit from the same sized house than when the trees are trained in the usual way up the roof? I am requested to try it in a lean-to house 40 feet long by 14 feet wide, 5 feet in height at front, and 12 feet at back. Before doing this, I should like to hear the opinions of practical men who may have tried this system of training.

INQUIRER.

* * Some years have elapsed since this imaginary method of gaining a maximum of training space out of a given area covered by glass was introduced, but, judging from the fact that a very small number of practical fruit growers have adopted it, we may readily imagine that the small gain in one way is more than counterbalanced in others. As "Inquirer," who evidently is not quite satisfied with the plan, asks for other gardeners' opinions, I will tell him where I think the system, such as it is, may be adopted and why I do not approve of it. In very large and lofty span-roofed houses running east and west, with paths along each side, or, in the case of an extra wide lean-to, with one path along the back or front, it may be adopted, but the only gain which must be obtained from the back wall in the lean-to, that is in superficial area, as compared with the cheaper flat strained trellis 14 inches from the glass, will be found very trifling. The trees, in the first place, will require incessant root-pruning to keep them within bounds, and no matter how closely they are tied in, the fruit and foliage before and after meridian will be more or less shaded. These, however, are not the only defects, as everyone knows that Peaches of full size and flavour and perfect in colour must have an abundance of sun and light, and these elements, it is hardly necessary to say, become considerably weakened as they travel downward from the glass to the fruit and foliage near the surface of the border. Quality then being the true test of merit, the equi-distant trellis, in my opinion, is the best, but quantity being the end sought, a few figures will show that the light gained from the cross trellises is not worth the candle. In a lean-to house 40 feet in length, 14 feet in width, 12 feet high at back, and 5 feet in front, eight trellises a fraction under 6 feet apart may be introduced, and each of these, after taking out the openings for allowing free passage along the path, will contain about 95 feet of training space, say 800 feet in all, and that in a form which will render the maintenance of an even balance in the trees a most difficult matter. The equi-distant trellis, allowing 4 feet opposite the front lights and 16 feet from the front plate to the back wall, will give 20 feet by 40 feet of training space, or 800 feet in all, exactly the same area, but then the back wall, which may be made to produce some mediocre fruit under the stall system, will be sacrificed, as every part of it in due time will be shaded. The stall trellises will cost 100 per cent. more than the equi-distant trellis, and they will require eight trees to furnish them, whilst three trees on the most moderate extension principle will cover the latter. Allowing one Peach to each square foot of trellis, the produce from either system will be about the same—that is, assuming that the stall trees so frequently root-pruned can be induced to give full crops of full-sized fruit annually. So far good, but

what about the commercial value of the fruit grown under the two systems? Large size, colour, and flavour, which can be secured from the equi-distant trellis when set *pro contra* to comparatively small, pale, vapid fruit from the stalls, will be worth say 10s. a dozen, where the latter will go begging at half the price, and the modicum of another twenty dozen from the partially shaded back wall will fall far short of making up the difference in total value. According to these figures, the house which costs most in trellising, planting, and management will yield the poorest return and least credit to the gardener. But variety being the object, why not put in a quadrant trellis terminating parallel with the side of the back path and 8 feet at the highest part above it? Upon this plant and train three distinct late varieties, and cover the back wall with three 5-feet standards. The shade from the quadrant or saddle trellis will affect the lowest third of the back wall, but the upper two-thirds fully exposed to sun and light by a judicious selection of early sorts will give the first picking of excellent fruit, whilst the later sorts on the trellis will come in for succession.—W. C.

MILDEW ON STRAWBERRIES.

Is Mr. Muir quite certain that two days will effect a cure when sulphur is applied to infested plants? If such be the case, then I am mistaken, for I came some time ago to the conclusion that quite ten days is necessary to thoroughly rid plants of this scourge. If the undersides of the leaves are dusted and the sulphur is allowed to remain on for the above period, the fungus will be so completely exterminated that the fruit will come off without injury. I always like to dress the plants just as the berries are thinned, partly because at that time the foliage is harder, and, therefore, not so likely to burn, which, when it is tender, is apt to be the case if hot sun immediately follows the application of the sulphur, but principally because the good effects of the dusting last long enough to keep off another attack until the crop is gathered. I should be very glad if two days would suffice for effecting a complete cure, but my experience points to the reverse. I have on various occasions syringed the sulphur off in less than a week after its application, with the invariable result that the mildew returned in the course of a week. Experience has taught me that a bad attack of mildew can always be warded off, in the first place, by good attention to watering and ventilation, and also to taking it in time. A dry condition of the soil, or rather not quite enough moisture therein, will surely invite its approach, and if this is accompanied by a saturated atmosphere the plague spots are almost sure to appear.

In the mild, moist nights that we sometimes get in April and May it is a good plan to leave on a chink of air at night; indeed I have good reason to believe that perpetual ventilation is an almost certain preventive against mildew. I have some frames in which I grow my latest fruit that are constructed so that they cannot be closed. They have as much air as they need in the daytime, and this remains on at night, the glass being covered with scrim canvas so that there is a filtration of air into the plants.

During a period of ten years or more I have never known the plants in these frames to get mildewed, except where they were too crowded. In close frames and houses, even with the best of care, mildew will often make its appearance, but it should be remembered that it always comes in isolated spots, and if these are at once dressed no perceptible damage will be done. I now make a point of keeping a careful watch, and the moment I see the smallest trace of mildew I apply sulphur. In this way the necessity for dressing the whole of the plants can frequently be dispensed with. Only let these few spots of fungus remain for a week, and not a leaf will escape. When I do get a bad attack of mildew, and have a large quantity of plants affected, I use soft soap at the rate of 1 oz. to the gallon of water, putting a good teaspoonful of sulphur made into paste with it. The whole of the plants are then syringed, getting the mixture well

to the under side of the foliage. If the sun comes out hot I dew the plants over with the syringe at the hottest portion of the day, and in ten days well wash the plants with clean water. J. C. B.

FRUITS UNDER GLASS.

VINES.

WORK in this department still is heavy, and will continue so until all thinning in the latest houses is brought to a close. Taking the different sections in rotation, the early house is the first to claim our notice, and justly so, as the Grapes in many places will have been cut and the preservation of the premier foliage through what may yet prove a hot, dry summer will necessitate the greatest care and attention. As the Grapes are cleared from the Vines the latter must be repeatedly syringed, not only to cleanse them from filth and spider, but also to encourage a free growth of fresh laterals. When quite clear, the house, as a matter of course, will require an abundance of fresh air, but the old-fashioned method of throwing all the lights open and allowing them to remain so by night and day must not be thought of until the present month has passed away. Water in a tepid state, pure or in a stimulating form, is indispensable, and must be plied very freely, as keeping the roots progressing, the foliage clean and healthy, is a simple impossibility where this element does not find its way into every particle of the border. Houses less forward, but in which the Grapes are approaching ripeness, will require an abundance of fresh air through the early part of the day, also a chink back and front by night, otherwise perfect colour and dense bloom can hardly be expected. Then to ensure size of berry, all stems, bare spaces, walls and floors must be well syringed about 3.30 on bright afternoons, or perhaps a little earlier, when shutting close is not likely to lead to condensation of atmospheric moisture upon the berries. When this stage is reached the last watering, which should keep the internal roots right until all the Grapes are cut, may be given and mulched in with some non-conducting material, a moist, even condition of the soil being one of the most important factors in the maintenance of a plump and perfect condition of the berries for any length of time after the Grapes are quite ripe. Black Grapes, it should be borne in mind, always colour best under a good spread of foliage, through which light, warmth and air, to a certain extent, can penetrate, and not, as some few imagine, under the barbarous practice of thinning the main leaves above the bunches. White Grapes, on the other hand, require light, and, provided the house is carefully and properly ventilated, will stand full exposure to the sun, but this end must be attained by cutting away overshadowing laterals and tying aside the main leaves when they change for ripening. A free growth of laterals, however, being so essential to a good finish and the best of all indications that the Vines are not over-cropped, I do not advocate a general clearance, but simply shortening, thinning and tying aside immediately over the Grapes, and full extension in every other part of the house. By this means the roots are kept in action, the berries attain their largest size, and cracking, to which Foster's Seedling and some of the Sweetwaters are subject, is prevented. These remarks apply also to

Early Muscats so soon as they show signs of becoming transparent, not that they are likely to crack or healthy Vines to finish their work imperfectly, but the better to secure early maturity—the one great end sought where this, the king of white Grapes, is appreciated. Here, as in the early Hamburgh house, early closing for three or four hours with sun-heat and moisture is imperative, but a little night air should always be admitted, and the whole of the roots being confined to internal borders, the supply of liquid food, followed by good non-conducting mulching, must be liberal. The best Muscat for early forcing is the Bowood variety, an assertion in which I may be contradicted by those who insist that it is nothing more than a sport or seedling. Be this as it may, having the old Muscat of Alexandria and the Bowood growing side by side in my early and late houses, I have proved

over and over again that the Bowood is first in flower, first in fruit, rounder in the berry, and first to ripen. Moreover, it sets well in a lower temperature, and for this reason is preferable for pot culture or for planting at the warmest end of the mixed or Hamburgh vinery.

Late Muscats.—The weather of late having been bright and dry, the proper degree of heat, at least through the day, has been maintained without the aid of hard firing; consequently the largest bunches appear to have set well, and will require much thinning. It will not, however, be wise to over-thin at first, as the imperfectly fertilised berries do not always fall behind until some time after the flowering stage in the latest part of the house is over. Where Black Morocco, Mrs. Pince, Lady Downe's, and Gros Colman are grown with the Muscats, a system of cross-fertilisation should be carried on during the time they are in flower. The best of all pollen for this purpose is obtained from the Hamburgh, a variety not usually met with in this company. This, however, makes but little difference, as pollen shaken from the Hamburgh bunches into a dry box can be conveyed any distance, and it will keep fertile for some time in a dry, warm house. Black Morocco, sometimes called Kempsey Alicante, a most excellent winter Grape, owing to the secretion of glutinous matter upon the pistil of the flower, rarely sets well, if at all, when left alone, but by the removal of this matter with one brush and fertilisation with another, it sets as freely as any other, not even excepting the Hamburgh. Mrs. Pince is sometimes met with in good condition in ordinary vineries, but the others I have just named always ripen best, attain their highest flavour, and keep best when grown with the Muscats or under Muscat treatment. Gros Colman, although only third rate, owing to its immense size and imposing appearance, is one of the most popular and profitable Grapes in cultivation, and yet, thanks to the mistaken idea that it can be started and finished with Hamburghs, we rarely meet with it as good as it might be. To do it well, it should be grown, as I have just stated, with Muscats, or certainly where it can have a long period for the completion of its growth, and in a house that can be kept warm and dry for some weeks after the leaves fall. In this position not only will the disagreeable earthy flavour disappear, but not unfrequently, so long as a rusty leaf hangs, the colour will improve, two qualities which greatly enhance its value for bottling. Being so subject to rot and mould when cut and bottled in its ordinarily met-with condition, the berries should be almost ruinously thinned in the spring, and the driest and warmest part of the Grape room should be selected for its winter quarters.

Late Hamburghs.—Where a continuous supply of first-class Grapes must be maintained for home consumption, I question if there is anything to beat a good house of late Hamburghs. By late I mean Grapes that will be found fresh, plump, free from mould, and vinous up to Christmas. The most suitable house for these is a light, airy, well-heated and ventilated lean-to in preference to a span-roof, which is apt to fluctuate and condense moisture when fire-heat in November becomes necessary. Small or medium-sized bunches colour and keep best, and these even should be extra well-thinned to ensure a free circulation of air amongst the berries when the leaves are falling in the autumn. When this stage approaches, every bit of lateral may be cut out quite down to the axils of the main leaves, first, to plump up the buds for another year; second, to check root action; and last, but not least important, to prevent the possibility of stagnant moisture hanging about the bunches.

PEACHES.

Houses in which the fruit is now ripe or ripening will require more air and less moisture, but as soon as the crop is taken from the earliest trees the foliage will require good syringing to cleanse it from spider, and, in the face of a long summer, to prevent premature ripening. As many now superfluous growths will have been retained for the production and benefit of the crop, these may be shortened back or cut out to make room for the full development of the foliage and young shoots of the

current year. The roots of each individual tree, too, as it is cleared of the fruit, may be carefully and moderately watered to keep them in activity until such time as the whole of the border can be thoroughly moistened quite down to the drainage. Everything in fact essential to the formation of perfect flower-buds and the preservation of the leaves must be taken in hand the moment each tree becomes free, and when the last has been cleared the house may be regularly syringed twice a day, liberally ventilated, mulched and fed with liquid should heavy cropping render mild stimulants necessary. This, however, is a matter which taxes the judgment, as healthy trees rather quickly relieved of their load often break into strong growth; therefore, the better to avoid this unsatisfactory rush into wood, it is best to err on the side of moderation. Many Peach growers years ago stripped their early houses, but the advantages gained where the water supply and ventilation were perfect did not amount to much, especially in cold, wet, and sunless seasons. Under any circumstances the wood and foliage should be thoroughly matured before the lights are taken off, and then a month's exposure to autumn rains, whilst letting in an even soaking of refreshing soft water, favours their removal to the shop for painting and repairs.

Succession houses.—The trees in these now swelling up full crops of fruit will require the most generous treatment, both as regards feeding and syringing, especially where the roots are confined to well-drained internal borders. When the fruit upon large, fully-developed trees has passed the stoning stage and is fairly on the move, it is a good plan to check the flow of sap, and in this way increase its size by pinching the points of shoots that will have to be cut away immediately after the crop is gathered. Also every pendent Peach, if possible, should be elevated and supported in its exposed position by short lengths of label lath placed upon the wires of the trellis. A pale Peach may be just as good as one that is well coloured, but, admitting that fancy goes a long way, it is hard to believe that perfect colour and high flavour do not run together. Fresh air as well as full exposure to the sun is a very important element, for, colour as we may, a Peach that is ripened in a close, moist hothouse is sure to be watery and rapid; whilst another of the same kind, ripened in a lower temperature against a good brick wall, will be found fit to place before the most fastidious epicure. To secure these good points—colour and flavour—night air, if only to let out surplus vapour, is imperative. Then, to swell the fruit, the house may be kept close from syringing time to seven o'clock in the evening. Next, and last, as to temperature; it is only fair to say some are handicapped by being compelled to force against time, whilst others allow their houses to range high from choice; but the best hothouse Peaches are obtained from houses in which the temperature averages 60° to 65° by night with air, 70° to 75° by day, and 80° for a short time under a clear sky after closing.

FIGS.

When the first crop of fruit has been cleared from the early forced trees, they should be copiously syringed twice a day to free the foliage from red spider, and at the same time to help the second crop forward. Conjointly with this work, a general thinning out of all weak spray and useless wood should be carried on to make room for tying down the second breaks, which must have plenty of light and air to ensure short joints and perfect maturity. As few varieties like Brown Turkey and White Marseilles show as many young figlets as leaves, and the second crop is never so fine as the first, liberal thinning is of great importance. When commencing this operation, force of habit leads one to leave all the finest fruit and take the smallest, a method which may answer where several compartments, or small houses, are devoted to Figs, and follow each other in rapid succession, but assuming that one only is so occupied, and this second crop is to lead up to fruit from open walls, then a fair percentage of each size, from the largest to the smallest, should be left for succession. By adopting this plan, and allowing the principal shoots to extend, a continuous

supply of good fruit can be secured until the time arrives for letting the trees down to rest in autumn. Water in abundance, of course, must be given to the roots, the quality being regulated by the vigour or weakness of the trees. It does not often happen that well-managed forced trees are too weak, but should this be the case, accompanied by a tendency to rust or spider, the old mulching may be removed, and replaced or replenished with a good mixture of light rich turf, horse droppings or bone dust, and old lime rubble, in due course to be washed in with warm diluted liquid or soot water.

Succession houses.—Where large established trees are trained on the long shoot, or extension principle, constant removal to a single bud of all the side shoots and weak spray will be advantageous, not only to the swelling crop, but also to the smaller fruit which must be kept progressing. Trees of this description require very little, if any, stopping, as all shoots or bare branches so soon as the season is over are cut out to make room for others closely following them to the extremity of the trellis. Sunlight and air being so essential to colour and good flavour, shoots over every part of the house, if at all crowded, may be stopped or shortened back to secure a regular relay of fruiting wood for another season, but this process must not be continued after the end of June, and then the second growths should be allowed to grow upward to the glass, otherwise the points will not get thoroughly ripened.

Pot trees intended for next year's forcing may be kept in the fermenting beds in which the heat will now be rapidly declining, but once they have completed their growth they must be raised to the surface, as roots as well as wood will require ripening. In this position, the nearer the glass and light the better; with plenty of air by day they may remain so long as the house is not wanted for other purposes. Having filled their pots with roots, these must be kept properly moistened with weak diluted liquid, and clarified soot water, a most excellent insecticide and stimulant, may be used two or three times a week for syringing purposes. An even spread of short, spur-like pieces of wood the reverse of crowded, being the aim, pinching must be confined to the strongest growths, and this must be discontinued in time for latent breaks to get thoroughly ripened before the autumn. Younger plants from eyes or cuttings may be pinched as they grow up to the end of July, and express speed being the aim, they may yet have another shift, care being taken that they become thoroughly pot-bound before the autumn. Over-potting, on the other hand, must be avoided, as a stiff tree in a medium sized pot well filled with roots is preferable to one that has made a few gross shoots which require a much longer time to ripen. The best form for a pot Fig is the clean, single-stemmed pyramid, as it takes up least room, can be grown to any height, and presents the greatest surface to the influence of light and sun-heat. By pinching the leader as soon as it has made 10 inches of growth, a tree 3 feet in length can be formed in one season.

W. C.

SHORT NOTES.—FRUIT.

American Pomological Society.—We have received the Proceedings of this admirably useful society.

Liquid manure for fruit trees in bloom.—Having once been told of the efficacy of liquid manure water as applied to fruit trees when in bloom, I determined this year to try the experiment on Pear trees growing on south and west walls. The result is a set of fruit—now swelling rapidly—far beyond what the trees will be allowed to carry; about a half in some cases will have to be thinned off. Such varieties as Doyenné du Comice, Easter Beurré, Duchesse d'Angoulême, Beurré Bosc, and Flemish Beauty, which have hitherto proved to be shy setters, have responded to the experiment in a highly satisfactory manner.—J. G. M. G.

Blister on Peach trees.—I note this season that outdoor Peach trees are suffering from an unusual amount of blister on the leaves and shoots of the current year's growth. Trees in all aspects and positions are very much affected here, owing, I presume, to the long-continued cold winds at the time the trees were unfolding their leaves. No doubt the soil in this district, being of a close, heavy nature, is favourable

to this defect in the foliage. The practice here is to pick off the affected parts, and I hope in due time that the trees will recover their wonted health and vigour and be able to swell off a crop of fruit.—S.

The Damson Prune.—For all-round purposes this is the best I have met with, and I strongly advise the planting of this variety largely; in fact, too many cannot be grown, especially in any corners of land not of much use. Steep slopes, banks of dykes, or strong land on hillsides which is not of much value may be planted successfully with Prune Damsons, and in course of years they will yield splendid returns. A friend of mine who owns a large tract of Damsons has sold the fruit often for £1 a tree. Let me advise all planters upon exposed situations not to plant old trees. Good stout two-year-old or not more than three-year-old trees are most suitable. Within this last fortnight I have had several opportunities of witnessing how English fruit growers are beginning to realise the best way of meeting in fair competition the foreign fruit grower. I am pleased to see that some at least of our fruit growers are now making it a special study to learn which are the best varieties to plant for our markets and not to buy trees at an auction.—H. MERRYWEATHER, *Southwell Nurseries, Notts.*

GARDEN FLORA.

PLATE 652.

STANHOPEA PLATYCERAS.*

THIS is a large genus of beautiful-flowered Orchids, and derives its name from the Earl of Stanhope, who was for a long time president of the Medico-Botanical Society of London. The varieties are all natives of the Western Hemisphere. Stanhopeas have for a long time been despised in English gardens, and the number of species now grown in this country is considerably less than was the case thirty years ago. The reasons assigned for discarding their cultivation were chiefly the fugacious character of their flowers and their strong perfume. Both of these causes of complaint have, however, been considerably decreased since we have learned to ventilate our Orchid houses. Notwithstanding this, the fact still remains that Stanhopea flowers are short-lived, but yet as they are generally profuse bloomers, a sufficiency of blooms remains to maintain a continuous supply. The various species and varieties are again being eagerly sought after, and as they have been more admired in Continental gardens than in our own, a supply of many kinds has been drawn from those quarters. There are still, however, many species which are absent from our plant stoves which would well repay re-introduction.

The flowers of Stanhopeas are somewhat remarkable in their structure, the lip being thick and fleshy in texture and divided into three parts, the basal portion, called the hypochil, being usually saccate; the front portion, which is movable, called the epichil; whilst between the two is the mesochil, a portion which is usually furnished with a pair of short horns, and from the conformation of the lip the chief specific distinction is derived, for in the other portions of the flower the various kinds are singularly alike, as they are also in their growth, which may be described as a fleshy conical pseudo-bulb, which becomes much wrinkled with age, and bears a large, petiolate, and much-plaited leaf of a deep green hue. The scape is produced from the base of the pseudo-bulb, and takes a downward course, bearing a pendent few-flowered raceme of large showy blooms.

In consequence of the habit of this genus the plants should always be grown in hanging

* Drawn for THE GARDEN at Burford Lodge, Dorking, February 10, 1888, by H. G. Moon, and lithographed and printed by G. Severeys.



STANHOPEA PLATYCERAS

baskets with wide openings, otherwise many of the spikes may be lost by being unable to get free. The soil I have found Stanhopeas to thrive well in is a mixture of fibrous peat, Sphagnum Moss, and some nodules of charcoal; the whole should be drained well, as the plants flower most freely when root-bound. Stanhopeas, when growing, enjoy a liberal supply of water, and a good amount of shade, and the temperature of the intermediate house, but during the winter months they should be removed to the cool house and be kept quite dry. If kept dry during the growing season they are apt to suffer from attacks of red spider, which disfigure the foliage and weaken the growth. This pest may, however, be kept away by charging the atmosphere with moisture, and by frequent syringings overhead with tepid water. The following are a few of the best from amongst the numerous kinds:—

S. PLATYCERAS, the subject of our illustration, is a somewhat rare species. It was recently flowered in the choice collection of Sir Trevor Lawrence at Burford Lodge, Dorking. Our plate shows the beauty of the flowers, and conveys a better idea than any word description. It is a native of New Grenada.

S. GRANDIFLORA is a handsome, large-flowered kind, which is very fragrant; the whole of the flower is pure white, saving a few scattered crimson dots on the base and middle portion of the lip. It comes from the island of Trinidad.

S. MARTIANA.—This is a bold and handsome kind, but usually only two-flowered; sepals broad, creamy yellow, spotted with reddish brown; petals much smaller, white, blotched and spotted with crimson, and having a large similarly coloured blotch at the base; lip white; column speckled with crimson. An autumn flowering plant from Mexico.

S. TIGRINA.—A magnificent species; the flowers are very strongly scented, and measure from 6 inches to 8 inches across; the sepals and petals are rich deep yellow, heavily blotched and barred with purplish brown; lip orange-yellow, spotted with crimson, the column broadly winged and spotted with vinous red. It blooms during the late summer and autumn months, and is a native of Mexico.

S. SHUTTLEWORTHII.—This is a superb and rare species from the U.S. of Columbia; the sepals and petals are apricot colour, blotched with purple; the lip is yellowish white in front, and blotched with dark purple at the base.

S. BUCEPHALUS.—The raceme of this species bears from four to five handsome flowers, which are perfumed with a strong aromatic odour; the whole of the flower is of a rich yellow, somewhat distantly spotted and blotched with purplish blood colour. It blooms during the autumn months, and comes from Ecuador.

S. OCULATA.—Raceme many-flowered; the sepals are much broader than the petals, ground colour pale citron-yellow, the former profusely and regularly spotted with lilac, the latter narrow, more sparingly marked with larger spots; lip white, marked on each side near the base with a large eye-like spot of dark brownish purple. It is a variable and free-flowering plant, strongly perfumed. It comes from Mexico.

S. ORNATISSIMA.—Sepals and petals rich orange-yellow, marked with numerous irregularly shaped spots of red, and heavily blotched at the base with reddish brown; lip whitish dotted with rose colour, yellow in front, column broadly winged, dotted with rose. Native of Peru.

S. DEVONIENSIS.—The flowers of this species are delicately perfumed; sepals and petals cream colour, irregularly, but profusely spotted and dotted with purplish crimson; lip creamy white, spotted with purple. It blooms during the late summer months. Native of Guatemala.

S. EBUENEA.—Sepals and petals ivory white, the lip dull purple. The flowers are produced during

the summer months, and are sweetly scented. Native of Brazil.

S. FLORIDA.—Sepals and petals white, spotted with purple; lip also white, but profusely dotted with deep purple, and marked on either side with a dark purple blotch. Native of Mexico.

S. WARDI.—This is a beautiful and very fragrant species; sepals and petals rich golden yellow, the former regularly and much spotted with purple, the latter more deeply coloured, and more sparingly marked with larger spots of purple; lip pale yellow, spotted in front with purple, the cavity at the base blotched with deep purple. It blooms in the autumn. Native of Guatemala. W. H. G.

ORCHIDS.

W. H. GOWER.

THE MEXICAN TULIP.

(*CATTLEYA CITRINA*.)

The plant, an illustration of which is here given, has always been looked upon by gar-



The Mexican Tulip (*Cattleya citrina*).

deners as a most unsatisfactory subject, and formerly used to live but a short time under cultivation, and seldom flowered. During the last few years, however, and this year in particular, I have seen it growing well and flowering profusely, so that it is to be hoped its requirements have become thoroughly understood, as the lovely blossoms, combined with their delicious fragrance, render it a welcome addition to every plant house. I hope to be able to recommend it to those who delight in beautiful flowers, but who have no glass structure in which to accommodate their pets. I have grown a plant of this *Cattleya* in the window of a sitting room for twelve months, during which time it has made two bulbs, and I hope to be able to flower it next season.

This plant is the only *Cattleya* found in Mexico, where it grows at an altitude of 7500 feet above the sea level, and consequently does not require much heat under cultivation. It must, however, have a large amount of light with an abundance of air. It should be securely and firmly fastened to a block of wood in the inverted manner shown in the illustration, for in no other position can it be induced to grow. Neither Sphagnum nor mould of any kind should be attached with it, as in this manner I have had more success with it than when even a small portion only of such material has been applied. I am not certain which kind of wood is the best for this purpose, but I prefer the wood of Willow to any other for all Orchids. During the winter months this species bears drought with impunity, when its flowers show themselves, and during its growing season, it should have, yet not excessive supply of water. Its flowers, produced singly from the apex of the bulb, are thick and waxy in texture, and rich crimson yellow with a paler margin, and yield an exquisite, yet delicate perfume. Its flowering season extends from March to the end of May, and the blooms last a month in perfection.

Cypripedium Godefroyæ is a superb plant having much in common with *C. niveum*, yet being perfectly distinct from that plant when in flower. The foliage is somewhat larger than that of *C. niveum*, but similarly marked; it is a freer growing and flowering plant, and the blooms are heavily spotted and blotched with dark purplish brown on a pure white ground. This species was recently flowering in Mr. Tautz's collection at Shepherd's Bush, and, judging by the immense masses recently introduced by Mr. Sander, of St. Albans, it appears to grow upon limestone rocks. It is a native of Cochín China, a country where French travellers, during the past few years, have been singularly fortunate in obtaining good new Orchids.—W. H. G.

Orchids from Arddarroch.—Mr. R. B. White, Arddarroch, Gareloch Head, has sent an excellent spike of the now plentiful *Laelia purpurata*, representing a good form, with the sepals and petals white and the lip deep purple-crimson. The white *C. Mendeli* was past its best, but sufficient to show that the flower was of good form and of the purest white, except the sulphur colouring in the throat. A brilliant flower was the variety of *C. Mendeli*, which, Mr. White mentions, "reminds me of Mr. Sander's Duke of Marlborough or Rothschildiana." It is not quite so bright as

those varieties, but a richly coloured and beautiful flower, the sepals and petals delicate lilac, the lip large, vivid purple, frilled, and pure white at the upper portion, intensified by the yellow suffusion at the throat.

The Mexican May Flower (*Laelia majalis*).—I have observed this species flowering in one or two collections during the past month, thus maintaining its vernacular name, "Flor de Mayo." It is an old and well-known species, yet up to the present day it remains one of the most difficult Orchids to bloom in this country, or even to keep alive for any length of time under cultivation. The plant is dwarf in habit, and produces a single large flower, some 6 inches or more across; the sepals and petals of a uniform rosy lilac, the large flat lip being of the same colour round the border, but white in the centre, and streaked with dotted lines of rosy lilac.

The treatment under which I have observed it to flower is to keep it warm and fully exposed to the sun during the day, and at night to allow the temperature to become quite cool and the atmosphere moist. During the winter the plants should be kept quite cool and dry.—W. H. G.

THE ORCHID EXHIBITION AT HOLLOWAY.

I HAVE never seen Orchids here so numerous and so fine before, and there is much artistic skill shown in the grouping of colours. Proficiency in this art should receive the serious attention of gardeners, it being second only to good cultivation, and the two combined lead to happy results. Mr. Williams' exhibition is not this season held in the large Palm house, as the constant removal of the Palms for the decoration of balls, &c., renders the presence of the Orchids extremely inconvenient, whilst the removal of the plants entailed a considerable expenditure of time and labour; moreover, this practice robbed the other houses of flowers, and thus passing out of the exhibition house, the nursery had a somewhat dull and uninteresting appearance. Now, however, every house is resplendent with bloom, and the plants are to be seen in the positions in which they are grown, which, after all, is the true and proper place to see them; whilst as the cool system of cultivation is well carried out here, the atmosphere does not become oppressive to the most delicate. I shall only be able to enumerate the principal of the kinds now flowering here, so great is their numbers, but would advise all interested in these plants to see for themselves. Amongst the coolest growing kinds may be mentioned

ODONTOGLOSSUMS. Here there are hundreds of spikes of the popular *O. Alexandræ*, intermixed with hosts of *O. Pescatorei*, *O. polyanthum*, excellent varieties; the beautiful *O. triumphans*, *O. cordatum*, and a favourite species of mine when established and well grown, *O. constrictum*, which I would commend to the attention of those who have hitherto despised it. Handsome forms of *O. sceptum*, *O. Halli*, and *O. luteo-purpureum* in variety were also to be seen; numerous specimens of *O. citrosum* lent an additional charm with graceful, pendent spikes, laden with delicate and deliciously fragrant flowers. Many other species of this genus are also intermixed with the above kinds, and these are enlivened by the bright flowers of

MASDEVALLIAS, which are produced in great quantities. This show should indeed lead to a restoration of this genus to popularity, for not only do Masdevallias produce the most brilliant flowers in the Order, thus forming a beautiful contrast to the white blooms of such *Odontoglossums* as *O. Alexandræ* and *O. Pescatorei*, but they may be grown with cool-house Ferns with but little or no heat almost all the year round; indeed, the majority of Masdevallias are the coolest of the cool Orchids. Conspicuous amongst them here is *M. Veitchi grandiflora*, some single specimens bearing as many as eighteen of its large and brilliant flowers; also many forms of the beautiful, but variable *M. Harryana*; many of the more recently imported masses are producing flowers of exceptional size and brilliancy, thus proving that the good varieties are by no means exhausted. *M. lilacina* is a very charming species, and one that is more rarely seen; its flowers are large and thick in texture, not lilac in colour, as might be supposed by its name, but of a charming brilliant rose colour with a white tube; it belongs to the Harryana section; the distinct and pretty *M. rosea*, *M. ignea* in variety, and *M. Lindeni*, although smaller than *M. Harryana*, are extremely beautiful and effective. Passing from the coolest to the secondary or intermediate house,

LELIA PURPURATA in vast numbers meet the eye, amongst which most notable is the true *L. Russelliana*. With these are associated hundreds of blooms of

CATLEYAS in great variety, *C. Mendeli*, the grand *C. Warneri*, *C. Mossiæ* in great variety, including the rare white form, *C. Wagneri*, and the old, but pretty *C. intermedia*. In company with the Catleyas are a grand lot of *Odontoglossum vexil-*

larium in excellent health and bearing hundreds of spikes, but the flowers require a few more days to expand and be at their best, when they will form an exhibition alone worth a visit. In this same house were grand specimens of *Cymbidium Lowianum*, *Calanthe Sanderiana*, showing how useful this kind is for late blooming, the beautiful *Oncidium Jonesianum* and *Oncidium sarcodes*, one spike bearing upwards of 200 flowers, *O. Marshallianum*, which is certainly the finest of the crispum section.

In the East Indian house, which is not kept so hot as in many places, were numerous

VANDAS, which again I may remark have been Mr. Williams' favourites for years. A fine collection of them exists here in large examples; flowering now is the superb form known as *V. suavis Hrubyana*, which is a grand variety; the fine form of *V. tricolor*, called *Patersoni*, a figure of which was given in THE GARDEN, Feb. 10, 1883; and another exquisite form of *V. tricolor* (The Glen variety); of *V. teres Andersoni* numerous examples were blooming, flowers being produced on some plants about 18 inches high. This lovely free-flowering variety is deserving attention from lovers of East Indian Orchids; it is grown in a moist heat, fully exposed to the sun, and never shaded. Under this treatment it flowers annually.

DENDROBIUMS of the *Dendrocoryne* group are also here in quantity; there are numbers of fine examples of *D. thyrsoiflorum*, its trusses large and dense, the pure white sepals and petals contrasting well with its yolk-of-egg coloured lip; *D. Farmeri*, *D. densiflorum*, *D. chrysotoxum*, and the beautiful *D. suavisissimum*, with its large truss of yellow flowers, which are marked at the base of the lip in the best varieties with a large blotch of velvety purplish black. Of the *Eudendrobium* set, there were grand examples of *D. Devonianum*, *D. Falconeri*, and *D. lituiflorum*, and perhaps a prettier combination than these three plants it would be difficult to find. Among other *Dendrobes* conspicuous was a large specimen, well flowered, of a very dwarf form of *D. Dalhousianum*, the plant standing only about 18 inches, or 2 feet high, so that its flowers were well within the range of vision; *D. Dearei*, with its pure white flowers, which last some three months, was also in bloom, which appeared to me to be early for this plant; it appears to enjoy strong heat and moisture when growing, but it requires a thorough rest.

THE SLIPPER ORCHIDS (*Cypripediums*) were represented by great numbers of kinds. They are grown for the most part in the East Indian house, although Mr. Williams has introduced a set of hybrids which thrive best in the cool house, and will therefore be grand acquisitions. Examples of this set are *C. Amesianum* and *C. Measuresianum*, both of which, I believe, have been obtained between *C. villosum* and *C. venustum*, and both are very distinct.

PHALÆNOPSIS (the Moth Orchids) were represented by *P. Sanderiana*, *P. Schilleriana*, which is blooming very late, *P. Luddemanniana* and *P. rosea*.

THE EVERGREEN CALANTHES are very fine, the numerous spikes of bloom of the pure white *C. veratrifolia* being very conspicuous; the mauve-coloured *C. Dominiana*, or *C. Mylami*, and the strong spikes of *C. masuca grandiflora* bid fair to produce a grand display into the autumn months.

AERIDES were not numerous, but there are fine examples of the Fox-brush, *A. Fieldingi*, also of *A. crispum* and *A. Warneri*; these, with the lovely little erect spiked *Saccolabium ampullaceum*, comprised this set of distichous-leaved plants.

MISCELLANEOUS PLANTS which cannot be grouped are numerous. Amongst those deserving of notice is *Brassia Keiliana*, a plant of striking interest with its long spike of bloom; the flowers are conspicuous; the sepals and petals lengthened out into long tails, and rich chocolate-brown in colour; lip large, rounded, and tailed in front, creamy yellow, bearing a brownish blotch on the disc, and a blotch of black at the base of the column. *Burlingtonia venusta* is another small-growing Brazilian Orchid not often seen. The pendent spikes of white flowers are exceedingly

handsome. *Anguloa Clowesi* and *A. Ruckeriana* are two old varieties, whose flowers are ever welcome, and last a long time in perfection. *Cœlogyne Massangeana* is another beautiful free-flowering basket plant, its long, graceful spikes of bloom hanging down to a distance of from some 2 feet to 3 feet. *Maxillaria grandiflora* is one of the best of the genus, and, moreover, it may be grown with *Odontoglossums*; its flowers are pure white, saving a stain of yellow on the lip. This plant is often confounded with *M. venusta*. Both are beautiful, but whilst the flowers of *grandiflora* are erect, those of *venusta* are nodding. Amongst *Oncidiums*, I must not omit the grand lot of *O. concolor* and *O. macranthum*, both grown in the cold house; nor grand examples of *Cœlogyne pandurata* with its black and green flowers, and *C. asperata* with dense spikes of creamy white and orange blooms.

W. H. G.

Vanda Amesiana.—This plant was introduced by the Messrs. Low, of Clapton, some two or three years ago, and last year the only plant that the Messrs. Low had produced its beautiful flowers. It is a somewhat small-growing plant, producing erect spikes of flowers, which are white, flushed with flesh colour, and deliciously fragrant, the lip being rich rosy magenta. I recently noted a small importation of this species at the Clapton Nurseries rooting freely. It appears to be a free, yet not rapid grower, whilst the old flower-spikes upon the plants testify to its free-flowering qualities. The collector has sent home a plant (dead, unfortunately) which he saw bearing 185 flowers. Should this plant become as free-flowering under cultivation, it will be one of the glories of our plant-houses.—W. H. G.

Cypripedium bellatulum.—This charming Lady's Slipper Orchid, recently introduced by the Messrs. Low, of Clapton, is now flowering in their nurseries. The blooms, which are the opened buds which formed on the plants in the cases on their journey home and cannot be looked upon as a fair example of what they may become when the plants are fairly established, are truly beautiful. The leaves, from 10 inches to a foot long and 3 inches across, are beautifully tessellated and marbled like those of *Phalænopsis Schilleriana*, the flowers of great size, sepals and petals very broad, pure white, heavily spotted with large spots of brownish crimson, lip small and conical, white, also heavily spotted with the same colour as the petals. It belongs to the *niveum* group, but, judging from the progress which the plant has made in several establishments in the short time it has been in this country, it is likely to prove a free grower, which is not the case with any other of this section with which I am acquainted. It appears to enjoy strong heat. The exact locality from whence it was obtained has not yet been disclosed.—W. H. G.

SHORT NOTES.—ORCHIDS.

Disa racemosa is one of the best Orchids in flower at Kew. Its rose purple flowers, borne in *Gladulus*-like spikes, are bright and pleasing. It is a useful *Disa*.

Epidendrum vitellinum majus brightens the Orchid house now with its orange-scarlet flowers. It is a thoroughly useful Orchid and not hard to grow.

Dendrobium chrysotoxum is one of the showiest *Dendrobes* in bloom now. It is rich gold-yellow, with a beautifully fringed and ciliated lip, coloured at the base with deep orange.

Angraecum arcuatum is a rare *Angraecum* flowering now at Kew. The short raceme of ivory white flowers comes from the axils of the two-year-old leaves. It is more interesting than beautiful.

Leptotes bicolor.—This lovely little Orchid is in bloom at Kew. It has white sepals and petals and a white lip, which in the front lobe is streaked with purple. A small potful of it, with the flowers clustering about the terete leaves, is charming.

The Moccasin Flower (*Cypripedium spectabile*).—A fine lot of this beautiful North American Slipper Orchid is now flowering in Mr. Bonny's nursery at Swanley, the foliage being good and the flowers highly coloured. The plants have been grown in the cool house during the winter—a circumstance which has brought them along earlier than would have been the case had they remained in the open border all the winter. Coupled with its great beauty, this Lady's

Slipper is one of the easiest plants in the world to grow, and no garden in the country should lack this charming species.—W. H. G.

PROPAGATING.

COMBRETUM PURPUREUM.—This beautiful stove climbing plant is not met with so frequently as one would expect, probably owing, to a certain extent, to the fact that it is by no means an easy plant to propagate, as cuttings can but seldom be induced to root; therefore other means for its increase have to be resorted to. The principal method employed for its propagation is to graft the young growing shoots on to pieces of the roots, as the operation is a very simple one, and with reasonable care and attention a good measure of success may be anticipated. For the stocks stout roots should be chosen with, if possible, a few fibres attached to them. To obtain suitable roots it is necessary to take them from a large established specimen, either in a pot or planted out. The scion should be formed of a current season's shoot, but, as with the cuttings of most plants, the very stoutest ones are not the best, therefore attention should be directed towards obtaining the weaker, yet sturdy and short-jointed shoots for the purpose. The scion having been made in the form of a wedge and the stock split for its reception, the parts should be fitted together as closely as possible and tied securely in position. Special care must be taken that during the tying operation the graft does not slip from its position, and also that it is not bruised in any way. After this is done the grafted plant must be potted in a small pot. The plant must be at such a depth in the soil that the point of union is completely covered, as by so doing the air is excluded from the mutilated portion, and consequently grafting clay, wax, or any of these air-tight substances are dispensed with. After this the plants should be plunged in a gentle bottom heat in a close propagating case, where they must be closely watched in the matter of shading, watering when necessary, and such matters. It will be requisite to leave a little air on the case occasionally to dry up any superabundant moisture; indeed a good plan is to take off the lights every morning for a little while.

TRUMPET FLOWER (Tecoma radicans).—This is one of the easiest of outdoor shrubs to propagate by cuttings of the large fleshy roots, as if taken off, cut up into lengths of 3 inches or 4 inches, and dibbled into a sheltered border they quickly push up shoots above the surface of the soil. Indeed, so readily does nearly every bit of root grow, that in the case of an established specimen which I transplanted several of whose roots were broken during the operation, quite a crop of young plants made their appearance there the following season. Another shrub readily propagated by root cuttings had this peculiarity brought under my notice in the same way as the Tecoma, viz., by seeing the number of young plants that sprung up after the removal of an established specimen. I allude to the autumn flowering Japanese shrub, *Clerodendron trichotomum*, most of whose tender relatives can be increased in the same way.

ACACIAS.—During the spring months the beautiful golden flowers of these Australian plants attract a considerable amount of attention, and the chances of increasing them are often discussed. Provided seeds can be obtained, most of them are easily propagated by this means, as the seeds generally retain their vitality well during the voyage, and do not take long to come up when sown. Acacias also grow well, the most critical time with them being just as the first leaf makes its appearance, as the cotyledons are generally borne on long naked stems, and if the atmosphere is at all close they are somewhat liable to decay. Should any signs of this be noticed, the young plants must be either potted off or pricked into other pots, and in either case the stem should be buried at such a depth that the cotyledons are just clear of the soil, as by so doing the decay will be usually arrested. In the case of imported seeds, which are generally very hard, a good plan is to soak them in slightly warmed water for about twenty-four hours before sowing, as ger-

mination will be assisted thereby. If this is done, especial care must be taken that they do not suffer from want of water after, as if allowed to get dry when germination has once commenced, the chances are that it will prove fatal to many of them. Though plants raised from seeds grow more rapidly during their earlier stages than those propagated by means of cuttings, this last is the method generally adopted, especially if they are required to bloom in a small state, as plants from cuttings are naturally more free-flowering when small than seedlings are. The time at which the cuttings are taken will depend upon the conditions under which the plants have been grown, but, generally speaking, the present is a very suitable time, for by this time the young season's growth will have lost a little of its succulent character, and become slightly woody. The best cuttings are furnished by the minor side shoots, as the strong and vigorous ones are far more liable to decay. The cuttings must, when inserted, be either covered with a bell-glass or kept in a close propagating case, but whichever way is followed, the pots prepared for their reception should be perfectly clean and filled to within a couple of inches or a little more from the top with broken crocks. Where there is a quantity of crocks the smaller ones should be put by themselves to form the upper layer, as this prevents the fine soil which is necessary for the cuttings finding its way among the crocks, which it would do if only coarse ones were used. A very good soil for the cuttings consists of equal parts of peat and sand, with a dash of loam, the whole being passed through a sieve with a quarter of an inch mesh. The pots having been filled with soil, the latter must be pressed down pretty firmly, leaving just space enough for a thin layer of sand on the top. Water the soil slightly through a fine rose when all is ready for the reception of the cuttings. They should be taken off at a length of 2 inches to 4 inches according to the vigour of the variety, the first-mentioned size being quite large enough for some of the fine needle-leaved kinds, while the more vigorous kinds, such as *dealbata*, *affinis*, and that class, may sometimes be with advantage even longer than the extreme length mentioned above. The cuttings must be taken off clean at a joint, and the bottom leaves removed with a sharp knife or pair of scissors as far as is necessary for the purpose of insertion. In dibbling them in care must be taken to see that the soil is well closed around the base of the cutting, and also that while space is economised as far as possible, overcrowding must be guarded against. When a pot is filled it must have a thorough watering always through a fine rose, as this will settle everything in its place, and after being allowed a little while to drain the glasses may be put on or the pots removed to the case prepared for their reception. The cuttings must not be kept too warm, the best place for them being in a greenhouse temperature for a little while, and when the base of the cutting is calloused or healed over they may be removed into a gentle heat, when most of them will soon root. This is shown by the cuttings commencing to grow, when more air must be given, and as soon as they are completely inured to the atmosphere of the house the young plants must be potted off. A quiet, rather moist spot is better for the cuttings than a draughty one, as in this latter, even if protected by bell-glasses, the frequent waterings rendered necessary will tend to promote decay.

PRIMULA JAPONICA.—Seed of this if sown directly it is ripe germinates very readily, while if allowed to remain for a month or two it will germinate in a very irregular manner. Indeed, all the *Primulas* are more satisfactory if sown as soon as possible after the seed is ripe.

HARDY SHRUBS.—Given the protection of a frame, a good many hardy shrubs can be struck from cuttings of the young growing shoots taken during the summer, and though a great number may be struck if put in a sheltered border without any glass appliances whatever in the autumn, yet by striking them in summer the greater part of a season is gained. What is often of much importance is that under glass the cuttings may be made a good deal smaller, and in the case of a new or slow-growing

shrub this is a great consideration. Whether put in pots, or a layer of soil be placed in the frame for their reception, select as cuttings the shoots that are past their most succulent stage, but before they become at all hard and woody. In a general way the very vigorous shoots do not strike root nearly so well as the weaker ones, the best being those of a sturdy, short-jointed character. They should be cut off cleanly at a joint and be without delay dibbled in rather firmly. It will be found a great advantage not to allow the cuttings to flag before insertion, as if they once droop it will take some time in the case of many subjects for them to recover. When the frame is filled the lights must be put on and kept quite close and shaded from bright sunshine where in a sunny spot; this can be done by means of mats or some other shading material. Instead of this it is far better if possible to select a position for the frame that though open to the light and free from the drip of trees, is yet shaded from the direct rays of the sun. The lights should be taken off every morning for a little while to allow any superabundant moisture to evaporate, and at the same time it will admit of the removal of any decaying foliage or the watering of any cuttings that need it. In a month or six weeks most things will be well rooted, and they may then be potted off into small pots, wintered in the frame, and in spring planted out. Should there be a large quantity and pot room is not available, they may either remain in their cutting pots until spring, or be planted in a prepared bed, but the better way is to allow them to pass their first winter in small pots. The shrubs for which such a mode of increase is available include among their number the *Euonymus*, *Lilacs*, *Philadelphus*, *Deutzias*, *Andromeda japonica*, *Hydrangeas*, *Escallonias*, *Choisya ternata*, *Ampelopsis*, and many others. T.

PLOVERS AND GULLS IN GARDENS.

It is perhaps little known how easily different kinds of plovers and waders may be kept in a walled garden with a certain amount of watchfulness and care. The green plover very often succumbs to the rigours of English winters when deprived of its power of flight; for this species is one that is usually caught when young and pinioned, sometimes for ornamental, sometimes for useful purposes, in order to keep down destructive slugs and other garden pests. But as yet (I write in the middle of February) I have succeeded in keeping alive and well all through the winter three green plovers and two grey ones, besides a curlew and four black-headed gulls, sent me from Scoulton Mere in June of last year, when still in nestling down and the flight feathers half grown. These are now in splendid plumage and general condition, having lost nearly all the brown feathers of the first plumage, whilst the bills and legs are assuming a reddish hue. One of the green plovers, evidently a male bird from the length of the crest and the brilliancy of the back, I have had since May of last year, when it was brought to me as a small fluffy bird of about three weeks old. The other two were purchased as full-grown birds of the year (1887) in London. I had three grey plovers, but unfortunately the finest of them drowned himself in a deep pan (since removed). The other two amply made up for the loss by their tameness and interesting ways. During hard frost all these birds would run to me when I made my appearance with the dish of bullock's liver chopped fairly small. The grey plovers would be the first to arrive, nimbly tripping across the lawn, and snatching a piece before the black-headed gulls, screaming impatiently in the background, could come up; when they did arrive on the scene of their breakfast, they fully made up for lost time by nearly choking themselves in swallowing six or seven large morsels in as many seconds. The lapwings are the timid ones; they always wait until I have retired a few paces, and their appetites are more easily

satisfied than those of the grey plovers. But I feel confident that had I not taken great care to throw the liver to them morning and afternoon I should not now have the pleasure of seeing them running over the beds of the kitchen garden, and out on the lawn, for the apparently inexhaustible supply of worms, which are so adroitly extracted from their holes before one would imagine they could quite realise whether they are "on their head or their heels," as the saying goes. The curlew (a male bird) has quite lost the timidity that he displayed on first arriving, and will run quickly with a suppressed whistle towards me for the liver which he swallows down with gusto. It will be interesting to watch the grey plover's assumption of summer plumage, and also to see whether any of the three different kinds (*i.e.*, the gulls, the green and the grey plovers) will show any inclination to incubate in a garden where many a quiet nook may be found. They all delight in their ablutions; indeed, the plovers of both sorts are most pugilistic amongst each other

generally ends in a harmless tussle.—HUBERT D. ASTLEY, *The Rectory, Henley-on-Thames*, in the *Zoologist*.

TREES AND SHRUBS.

THE MAGNOLIAS.

OF recent years there has been an unparalleled demand for Magnolias; all of our landscape gardeners are using them extensively. Give them good, well-drained soil and a sheltered position, and they will grow and flower freely. The following comprise a good selection:—

M. STELLATA (Halleana).—A Japanese species of small stature and bushy habit, and the earliest of all to bloom. Flowers white, open, reflexed, starry in appearance, fragrant and very profuse, even on plants little over a foot high. Began blooming this year April 23, was at its best May 3, and over about May 8, and before any leaves had appeared.

M. THURBERI (Kobus).—From Japan. Our specimen is 7 feet high and bushy from the ground

good bloom. It usually has a few scattered flowers throughout the summer.

M. OBOVATA.—The typical Japanese early-blooming, deciduous Magnolia, and perhaps the most common in cultivation. It begins to bloom about the end of April, and, according to the variety, continues in flower till the middle or end of May. We have several marked forms in bloom now, but the more I know of them, the less able I find myself to distinguish the varieties; while some are marked enough, others have got too many names.

M. PARVIFLORA.—A rare species from Japan and one of the sweetest flowers in existence. The flower-buds appear with the leaves early in May, but do not open till toward the end of the month. The flowers are globular, creamy-white, and extremely fragrant when they first open. After a day or two the fragrance becomes less, and with age the flowers open wide, till at the end of the fifth or last day they are saucer-shaped. The plants bloom when quite small. Our specimen is again well set with flower-buds.

M. HYPOLEUCA.—Another rare Japanese species. Although our specimen is about 8 feet high, it has not yet bloomed. In wood, habit of growth and foliage it somewhat resembles our *M. umbrellata*. It has the reputation of being a magnificent species, but our plant is rather ungainly in form.

M. UMBRELLA (tripetala).—From the South. The large-leaved one, common in cultivation in the North. Forms a small tree of open habit, begins blooming when small. The flowers, which are white, very large and somewhat fragrant, appear about the end of May and last into June.

M. MACROPHYLLA.—A Southern species, which is a little tender in the North. We have no blooming plant of it, but at Prospect Park, Brooklyn, there is a large specimen. It has larger foliage and flowers than any other species in cultivation, and blooms later than *M. umbrellata*.

M. GLAUCA.—Our native Sweet Bay, and at the same time a choice and desirable garden plant, for it grows and blooms well in cultivation. The flowers are white, globular, small, but very fragrant, and appear about the end of June.

M. FRASERI (auriculata).—A small tree, a native of the South, but hardy as far north as Boston; worth growing for its distinctly auriculed foliage. Has large, yellowish-white, open fragrant flowers, that appear with the leaves about the middle or 18th of May.

M. CORDATA.—From the Southern Alleghenies. Rare; perfectly hardy here. Although a small tree, it blooms when quite small. The flowers, yellow, not showy nor fragrant, are produced during the latter part of May and first of June; also, now and again, all through the summer.

M. GRANDIFLORA.—One of the most magnificent of all American trees, indigenous to the South, where it attains large proportions. Not hardy here, but at the same time we occasionally meet with good specimens grown out of doors in the vicinity of New York. Mr. S. L. M. Barlow, a couple of miles from here, has, in a well sheltered part of his grounds, a specimen of this Magnolia some 10 feet or more high, over 30 years old, and which does fairly well, and blooms nicely every year. In former years he protected it in winter; of recent years he has not, and it seems to get along all right. Still, north of Washington I should not consider it a hardy tree.

M. FUSCATA is the Banana shrub of our gardens. It is not at all hardy in the North, but in the South it is one of the choicest of little evergreen shrubs grown in gardens. In the North we treat it as a greenhouse plant. Native of China. — W. FALCONER, in *Country Gentleman*.

Coronilla glauca.—This Coronilla is at the present time ablaze with its brilliant yellow flowers here (South Hants), where it has the advantage of a southern sunny aspect. Plants growing in such a position appear to have been benefited by the extreme heat of last summer, inasmuch as the wood got thoroughly ripened, and the growth being very short-jointed, the flowers are produced very



Magnolia grandiflora.

when the time arrives for perhaps three individuals to have a bath in one pan; however, if their cries are too loudly remonstrative, all their washing is put a stop to by the arrival of the gulls, who quickly settle the question by turning them out and plunging in themselves. I had a female curlew, but I gave her away to a friend who was about to purchase a male; unfortunately, he bought another female as well, which bird simply murdered, first, the one of her own sex in a furious fit of jealousy, for she transfixed her through the neck with her long bill, and then her mate, for what she apparently regarded as bigamy; and never rested until the two corpses were left in a mangled condition upon the Grass. Of the three lapwings, two are males, and these also are most pugnacious; screaming at each other, with distended wings and crests erected, in a most menacing manner—a demonstration, however, which

up. The flowers are white, not large, and do not open wide and are only slightly fragrant. It is next to *M. stellata* in point of earliness in blooming. The first flowers opened this year April 27, at their best May 4, over May 8, and before the leaves appeared.

M. CONSPICUA (Yulan).—The largest and handsomest of the deciduous Magnolias, from China; flowers very large, pure white, do not open wide, fragrant, of brief duration and easily tarnished by handling or rain. The plants become massive shrubs or broad small trees. The flowers opened this year April 28, at their best May 3, all over May 8.

M. C. SOULANGEANA.—A supposed hybrid between *M. conspicua* and *M. obovata*. It is of vigorous growth, producing freely its flowers, which last a long time in perfection. Flowers large, white and deeply purple-tinted outside, do not open wide, and are faintly fragrant. Began blooming this year April 29, at best May 8, and now (May 14) still in

freely on short flower-stalks. We tried some plants which did not receive so much sun during the time growth was being made last year, and these, owing to the unripened state of the branches, have been killed by the late winter, although they were protected in the same way as the others by a mat placed over them during the sharpest frosts, while those plants favoured as to position have scarcely lost a branch.—E. M.

THE DOUBLE-FLOWERED FURZE.

"H. P." in THE GARDEN, May 26 (p. 492), considers this plant quite hardy. In speaking of its gorgeous appearance when in full bloom, as well as that of Darwin's Barberry, he says: "An additional merit possessed by the Furze is its thorough hardiness, and it will grow and flower well on dry banks where but little else will thrive." This is perfectly correct as regards soil, as all the varieties of the Whin tribe will grow on poor, thin ground chiefly composed of inorganic matter. With regard to hardiness, however, I have had the Whin killed by frost at an elevation of about 1000 feet above the sea level. The hardiness of the Whin, either double or single-flowered, therefore cannot be reckoned on with any certainty at a higher elevation than that indicated. Although Darwin's Barberry is not hardy, yet I have used it as a covert plant on moderately sheltered situations with perfect success. It should never be planted on stiff clay soils, but on soft pliable soil, and even in a mass it thrives admirably, producing excellent crops of berries which the birds are very fond of. It reproduces itself quite freely in many cases. It is a great favourite with amateurs, and deservedly so, as it can be grown as a specimen plant, mixed up with others to form a group, or trained on a wall or wooden fence when desired to form a screen, and in some cases it is used as an ornamental hedge with the most happy results. When the berries are ripe the seed should be at once sown, not too thickly, otherwise the young plants are apt to become weakly and drawn. In preparing the plants for covert I have found it a good plan to cut them

account for the neglect of such a free-growing, beautiful tree as the Snowy Mespilus, laden at this season with a mass of white flowers that present a picture of beauty when backed with green-leaved trees, such as I noticed at Feltham. In this quaint village the Snowy Mespilus is grown somewhat

"According to my experience, the two hardiest Evergreens are the green Holly and Yew. . . . The green Box is perhaps second to none in regard to its hardiness." I may, however, remark that I have found the common Juniper (*Juniperus communis*) at a higher elevation than the common



Magnolia umbrellata (tripetala).

largely, and it is astonishing what a graceful and elegant character it gives to the gardens.—X.

Mahonia nepalensis.—"W. H. G." in THE GARDEN, May 26 (p. 492), says, "This is a noble species, but I am not acquainted with its adaptability for general cultivation throughout the country." This fine form can only be planted with safety in cosy spots in favoured localities; at all events, I

Holly. The highest elevation at which I have ever found the Holly was on the flank of the hill between the shore of Loch Minck and the base of Lochnagar at an elevation of over 1400 feet above sea level. The Holly is by no means common at such an elevation, as I could only find one dwarf plant that had never been able to raise its head much above the Heather. The Chinese Juniper (*J. chinensis*) may likewise be added to the list of hardy Evergreens. I have found it capable of weathering the blast in situations where a great many trees and shrubs perished. The Spurge Laurel (*Daphne Laureola*) is a native hardy evergreen plant of great merit. Like the Holly, it is quite at home when planted under the shade and close by the stems of trees, and in such positions reproduces itself quite freely.—J. B. W.

SHORT NOTES.—TREES AND SHRUBS.

The Siberian Crab is just now a gorgeous object where not interfered with by bullfinches, which seem to be partial to the buds of this Crab just when they are ready to burst into leaf.—P.

Akebia quinata.—This peculiarly formed, as well as strangely coloured, flower is again unfolding its blossoms, which give off a peculiar aroma, particularly in the evening; its branches, too, when allowed to grow during the summer in a careless manner enhance its appearance.—S.

The double-flowering Cherry is a grand subject for the mixed shrubbery where space can be given it to develop its growth in a free, unrestricted manner. This method of treating it is much better than constant cutting and spurring into compact heads. As a specimen standing on the Grass flowering at this season it finds many admirers.—P.

Ledum latifolium globosum.—This spreading Heathwort is just now one of the most showy things on the Kew rockery, where a specimen of it is a mass of white flowers, which are borne in globose heads on the twiggly dark-foliaged branches. It is when in good condition a charming flower for the rougher parts of the rockery, and is one of those plants that may be planted with excellent effect on such formations as a rootery.

Coral-flowered Apple.—*Pyrus floribundus* is just now very attractive in the shrubbery borders. Every little twig of last year's growth is bristling with either buds or expanded blossoms, which are bright with colour. Never was a plant more correctly named, as it is very free flowering. The character of this hardy shrub as it is seen in the shrubbery de-



Magnolia macrophylla.

over about a couple of inches above the surface of the ground, by which means they were induced to produce several strong stems and branches from the collar, thus forming a close, stocky covert plant, a matter of much importance when used for such a purpose. J. B. W.

The Snowy Mespilus (*Amelanchier botryapium*) is a beautiful tree that we seldom see, although the variegated *Acer Negundo* and other things are planted everywhere, whether the position is suitable or otherwise. It is certainly hard to

have had it killed by frost when planted in a sheltered situation in Ireland at an elevation of about 70 feet above sea level. At the same time and place, a fine young tree, some 8 feet or 10 feet high, of the Tasmanian Beech (*Fagus Cunninghamii*) was killed. These plants can only therefore be grown under exceptional circumstances as regards the climate of the locality.—J. B. W.

Which are the hardiest Evergreens?—Under this heading "J. C. C." in THE GARDEN, May 26 (491), makes some interesting remarks. He says

monstrates in the clearest way possible how very attractive other trees of a like character, such as Apples and Pears, would be if they were planted in similar positions for the sake of their blossoms.

Wistaria sinensis.—We can well draw attention to the Wistaria now, as at this season its Grape-like clusters of lilac flowers hang in the greatest profusion on many an old-fashioned house, and occasionally the more pretentious modern villa. There are few places, perhaps, where it is such a marked feature as on Kew Green, where many of the houses are adorned with huge specimens, in perfect keeping with the solid architecture. In the Royal Gardens also the Wistaria is one of the finest sights in the open, and nothing could present a more massive, yet beautiful, picture than the specimen on one of the museums, where at one corner the white-flowered Mountain Clematis has been allowed its own way and grown amongst the Wistaria, producing a charming contrast of colour. The trained specimen in front of the greenhouse is also extremely handsome when seen at its best; but we prefer to see the Wistaria growing more naturally, although it can be pruned and trained with impunity. Such a free-growing climber as the Wistaria should be planted more often than it is, as almost any soil and position suit it.

STOVE AND GREENHOUSE.

IVY-LEAVED PELARGONIUMS.

It is obvious to those who observe the changes in gardening that the Pelargonium, from the show type to the common scarlet zonal, has ceased to exist as a fashionable flower. But we may perhaps make an exception in regard to the Ivy-leaved varieties, which are still cared for in the quiet way they always have been, and this is due in a great measure to their freedom of growth, extreme elegance, and natural appearance—a decided set-off against the brilliant, but formal show or fancy varieties. There are so many uses for the Ivy-leaved Pelargonium, that it is sure to retain its hold upon the affections of the flower-loving public. It is one of the best window-box or basket plants we have, as it is free both in growth and flower, the trailing, well-foliaged stems dangling over the ledges of the window and making a fringe of greenery throughout the summer, and it is also when neatly, though informally, trained a charming plant for the conservatory or greenhouse during the early summer months before the gay Begonias and other true summer flowers commence their season. A few notes on the Ivy-leaved Pelargonium are opportune now, as those who have an interest in it will find a collection of sixty varieties in flower in the gardens of the Royal Horticultural Society at Chiswick. The plants are arranged in the house known as the Paxton house, a span-roofed, light, airy structure, in which such gay things as Pelargoniums can be seen without difficulty. It can be realised at a glance what a free-flowering, useful race of plants we have in this section of Pelargonium. The habit, in most instances, is neat, but free, trailing, and in perfect keeping with the elegance of the flowers, borne in large trusses at the end of tall, slender stems. In this collection it will be found that a large number are from the nursery of M. Lemoine, of Nancy, a Continental grower to whom we owe much for the present high perfection of the plant, and in bestowing our praise we must not forget that the well-directed energies of Mr. Cannell in the improvement of this flower have been fraught with the best results.

Some of the specimens are from cuttings struck last year, and some are of two years' growth. We may note that the cuttings are struck in the autumn in a little heat to promote

quick rooting and then potted off. They are put into 4½-inch pots in the spring, then into 6-inch pots, and in the case of old plants into 8½-inch pots, while a light position is given throughout; also a soil composed chiefly of loam, leaf-mould, and sand. The most striking are the two-year-old specimens of the popular variety Mme. Crousse. This is one of the freest, most vigorous, and useful varieties we have, whether for the garden or the market, as the flowers, of the richest rose-pink and borne in full, large trusses, are always admired. There is one labelled rosea plena, which we may regard as synonymous; the only difference, if such a trifling point can constitute a difference, is the more apparent stripes on the upper petals. It has the same free, spreading, and rambling habit. It would occupy too much space to enumerate all the fine forms that are in flower now. Amongst the double-flowered varieties is the old Gloire d'Orleans, which is far eclipsed by the numerous varieties that have been raised since it was first sent out, but still it remains a useful, desirable kind, as the crimson-magenta flowers are very bright, and the habit of the plant is dwarf.

As useful apparently as the favourite Madame Crousse is the double-flowered Massanet, which, as shown by the several specimens of it at Chiswick, is a bright rose-purple-coloured variety, free, useful, and of characteristic habit. A good kind, owing to the delicate blush tint of the double flowers, is Candeur; and a contrast to this is the bright, shining, rose-pink-flowered Le Printemps. It is noticeable how many of the varieties have flowers of various shades of pink or crimson, while there are few more decided colours. It would be a great gain if we could get a double white of the same character as Massanet or Mme. Crousse, as such a pure flower seems to be wanting. A brilliant glowing carmine is Gloire de Nancy; and one labelled Hofgartner Escheler, a name that might be changed with advantage, is desirable for the rich scarlet colouring of the semi-double blooms. A break from the vivid carmines is the lilac-flowered variety A. F. Barron, one of the best of all. Mme. Thuvenin carries flowers of a rich rose tint, and this is a kind that deserves to be largely grown, for it may rank with Massanet. Of the other double-flowered kinds that should not be passed by are Mme. Cochon, semi-double and lilac; General Briere de l'Isle (a name far too long), rich red; Abel Carrière, similar to Massanet, but more of a rosy hue; Madame Thibaut, deep rose; Alice Crousse, of magenta shade; Isidore Feral, double pink; and Emilie Lemoine, bright scarlet.

Although double and semi-double-flowered varieties are in the majority, the single-flowered Ivy-leaved Pelargoniums are well worth noting, as the flowers are more pleasing to those who admire a simpler type of beauty. Masterpiece is well named; it is of a bright shade of magenta, the truss large and dense. The variety called Mrs. H. Cannell is a single-flowered lilac variety, compact in growth and free flowering; and another just as desirable in its way is Mme. Boringe, which has a bold, fine magenta-crimson flower. Dr. Crevaux, scarlet, large; Le Vésuve, bright crimson-carmine; and Gem, blush-white, crimson spotted on the upper petals, make a useful selection of single Ivy-leaved Pelargoniums. X.

Vitis heterophylla variegata.—Apart from other uses to which it may be put, this slender-growing Vine forms handsome little specimens in pots 5 inches or 6 inches in diameter if grown in a warm greenhouse temperature, as then the colouring of the leaves is brighter than if the plants

are grown in a cooler structure. This Vine is, like most of its class, deciduous in character, and consequently it passes through the winter in a dormant condition, but if introduced into a gentle heat in spring, the young shoots are pushed out very freely. The shoots thus produced strike very readily if taken as cuttings, and grow away freely as soon as rooted. If the young plants have their tops pinched out once or twice and are secured to a single stick, they naturally assume somewhat of a pyramidal habit, and when from 18 inches to 2 feet high, they are extremely useful for decoration, as many of the leaves are most beautifully marked. In this latter particular, a considerable amount of variation exists, as some leaves are nearly green, but the majority are mottled and marked in various ways with white, while many of the younger shoots have leaves almost entirely of that hue, against which the purplish pink of the young bark stands out very conspicuously. Besides this method of culture, this Vine is sometimes employed for bedding out during the summer, and if favourably situated, should the weather be hot, it becomes brightly coloured, but in wet seasons it is generally not very effective.—H. P.

Cyrtoceras reflexum.—This near ally of the Hoyas, with which genus it is indeed classed by some authorities, is very pretty when in flower, the blossoms being borne in partially drooping umbels, as in the old and well-known Hoya carnea. The individual flowers are creamy-white, tipped with yellow, and of a peculiar silky character inside. Like the Hoyas, this needs a good open soil, otherwise it soon becomes sickly. We have also the beautiful Hoya bella in flower grown in a suspended basket, which is, perhaps, the most suitable mode of culture for it, as the long and slender shoots hang down for a considerable distance, and bear freely their pretty white wax-like flowers, which have a ruby-coloured centre. They are disposed in small umbels the same as in the others, and with care will remain in beauty a considerable time. As a climber, too, the old Hoya carnea is well worthy of a place, yet it is generally seen in a sadly neglected condition. A good open compost with a liberal amount of brick rubbish mixed with the soil will suit it perfectly.—T.

Azalea mollis in pots.—Here, where we employ this Azalea to a considerable extent for flowering under glass during the spring, it has been the custom to turn the plants out after flowering and allow them a season in which to recoup themselves, other specimens being lifted the following autumn and after being potted and flowered were treated in the same way. Last season I resolved to try the effect of keeping them in their pots, and consequently when the flowers were over, the plants were put in a frame to harden off, and then plunged in the open ground. The place chosen was where greenhouse plants were put out during the summer months, and while the base of the pots rested on a bed of coal-ashes, the plunging material employed was Cocoa-nut refuse. In this way the roots were always cool and moist, and being well watered and syringed during the summer, the plants made good growth, their shoots bristling with flower-buds. As the result when planted out was about the same, it may be thought that, after all, it was the best way, but as a set-off I find that established plants can be forced with less trouble than those that are lifted and potted during the autumn or winter, while another advantage with those that remain in their pots is the fact that the blossoms borne by them retain their beauty for a longer period than those produced by plants that have just been potted up for the occasion. Where this Azalea is kept in pots all the year round a little stimulant during the growing season is of service. For this purpose weak soot water is as good as anything. Considering the grand display yielded by this Azalea and the great range of colour that now exists among the different varieties of it, one would expect to see it far more extensively cultivated than it is at present, but somehow the impression seems to be that a peaty soil is necessary for the culture of the different hardy Azaleas, which it certainly is not, for they will grow well in nearly all soils, except those of a limestone or chalky nature. The principal consideration is, that they do not get

dried up during the summer, but even where unfavourably situated in this respect, a good deal may be done by liberal mulchings during the dry season.—H. P.

WORK IN PLANT HOUSES.

GREENHOUSE.—AZALEAS.—Where Azaleas are to be kept in a vigorous condition, it is necessary to keep the plants in a genial growing temperature whilst they are making growth. A moist, warm, somewhat confined atmosphere is requisite for this, especially in the case of any that have bloomed late, and which consequently are proportionately late in growing. Now, when the sun is approaching its full power, fire-heat is not necessary, provided a house can be devoted to the plants where, by admitting only a limited amount of air in the day and regularly closing the lights early in the afternoons, artificial heat is rendered unnecessary. The plants should be syringed freely at the time the house is shut up, getting the water well to the underside of the leaves on all sides of the specimens. If this is carried out regularly it will do much to keep down thrips, which so persistently attack Azaleas, and to lessen the need for fumigating or washing with insecticide. Water should also be used freely on the floor of the house whilst the growth is being made, and up to the time that the flower-buds are set and have attained the size of Apple-pips. To give strength and substance to the young wood and leaves the plants must be kept well up to the light, and not be crowded together in a way that will prevent its reaching the lower branches as well as the tops of the specimens. Even in bright weather only a thin shade should be used. A moderate surface-dressing of Standen's manure should be given several times whilst the young growth is in course of formation. Plants that were forced so as to have them in bloom early in the year will now have set their flower-buds, and as soon as these are sufficiently advanced the plants may be turned out of doors if the room they occupy is required for other things; if not, the lights and ventilators may be thrown open night and day, which will keep the buds from coming on too fast. Even in the case of those that have completed their growth early the use of the syringe should be continued daily, and if this is not sufficient to keep down thrips, fumigation or washing must be resorted to, as if the foliage is allowed to suffer from the attacks of this pest, it is useless to expect the plants to keep up the necessary vigour. Any that are yet unpotted and that need more room should at once have a shift. This especially applies to young, free-growing specimens; for although Azaleas can be kept in free growth with less root-room than most things where the object is to get the plants up to a useful size with as little delay as possible, it is a mistake to cram them too much in their early stages.

CAMELLIAS.—Plants that flowered during the late spring months will now be full of young soft growth, which must be kept sufficiently shaded to prevent the tender leaves being injured. Frequent syringing and a moist condition of the atmosphere do much to help the plants to withstand the drying influence of the external air, which at this season requires to be admitted so as to keep the temperature from rising too high. See that the roots are kept sufficiently moist. Large specimens that are in boxes or big pots frequently get so dry below the surface of the ball in winter when little water is given, that even when it is applied more freely later on, the lower portion of the ball where most of the active feeding fibres exist remains in a half dry state, the result of which is seen by the plants making little growth, and that of a weak description. When there are any doubts of this condition existing it is best to plunge the pots or boxes for twenty-four hours in a large tub of water, before which the soil should be pierced in ten or twelve places down to the drainage with a strong sharp pointed piece of wire. It frequently happens that Camellias get into the state described and remain so for years, but if the above remedy is resorted to before they have got too much enfeebled they soon begin to improve. Plants that having flowered in the latter months of the past year and afterwards

were encouraged to grow will now have their flower-buds in a forward state, and will require forethought so as to regulate the time of their blooming. If the buds are so far advanced that there is danger of their opening too soon, the plants must be at once turned out of doors; if, on the other hand, the object is to have them in flower earlier than they have hitherto been, this can easily be effected by allowing the plants to remain longer in a temperature that will keep the buds moving. By following the latter course there is no difficulty in getting the plants to bloom six or eight weeks earlier than they have previously done. In the case of those that are as forward as desired, they should be put under the shade of a wall, or near trees that will keep the sun from them. With the sun kept from them in this way, there will be no danger of the buds swelling too fast. Any that have made their growth later, and that want more root room, will now be in condition for potting. The best time for potting Camellias is when the young shoots have ceased to extend and the flower-buds are perceptible at the extremities. At no time do they receive so little check from potting as when they are in the above state. When the growth is about to push, the young roots—which in Camellias always precede top growth—are so tender and brittle that they suffer in repotting to an extent that interferes with the growth of the shoots.

LIFTING CAMELLIAS.—When Camellias are planted out they usually grow rapidly, and not unfrequently become so crowded that the whole get injured. The best way to remedy this is by thinning out the plants, and either replanting them in some other place or putting them in pots, as when the growth is in the condition described, if taken up now with ordinary care in preserving the roots, they will get established in pots or tubs before autumn, so that their flowering during the ensuing season will not be interfered with. After potting, the plants should be kept somewhat close, with additional shade and sufficient moisture in the atmosphere to help the roots to take hold of the new soil.

STOVE.—ARDISIAS.—Small plants of the red and the white varieties of *A. crenulata* that have been raised from seed sown during the early months of the year will now be large enough for potting. There is little difference in the appearance of the two forms of the plant, except in the colour of their berries; both are slow growers, and do not require so much pot room as many things. Put them singly in small pots, which must be well drained; peat passed through a fine sieve with some sand added is the best material to grow them in. After potting give them a place on a shelf or stage, where they will be near the glass, and with the pots stood on some moisture-holding material, which will help the growth much better than if the pots are on a dry bottom. The plants should be kept through the summer in a cool stove temperature with enough moisture in the atmosphere as well as at the roots. Syringe overhead once a day. Shade must be given when the sun is bright. No attempt should be made at stopping, as single-stemmed examples look the best. Older plants that are strong enough to flower must be encouraged to make growth by keeping them in a warm growing temperature. Except in the case of large specimens that after bearing a crop of berries have been headed down, it is best to confine the stock to pots not more than 6 inches or 7 inches in diameter, as when used for room decoration the pots often have to be plunged in vases or ornamental pots, in which case the smaller they are the better. Manure water should be given regularly during the growing season; this will make up for the somewhat restricted condition of the roots.

OLD PLANTS OF ARDISIA, such as already alluded to, that have started into growth after cutting back should be turned out of the pots and have a portion of the exhausted soil shaken away, giving them new in its place. They should have pots 1 inch or 2 inches larger than those they have hitherto occupied. Cut-back stools of this description may be confined to a single stem, or two or three growths may be let to go on. They will make more progress than younger stock, soon attaining a size that will make

them effective for the decoration of a warm plant house.

PALMS.—The raising of Palms from seed is a somewhat uncertain proceeding, as the seeds of some kinds take much longer to germinate than others, but in all cases the young plants should not be allowed to remain too long in the pans or pots in which they were sown. If this occurs, the straight tap root which descends into the soil is liable to be injured, and when this happens the plants do not start well for some time after. To avoid this mishap it is best to pot them off as soon as they have attained sufficient size; $2\frac{1}{2}$ -inch or 3-inch pots will be large enough at first for the smaller growing plants. Palms are not very particular in the matter of soil, but when good rich yellow loam, such as is procurable in most parts of Kent, is to be had, I should give it the preference. A little sand should be added; pot firm, and keep the plants in a brisk growing temperature. Shade is necessary to prevent the sun scorching them. Stand on a moist bottom and do not crowd them too closely together. It is better to keep the greenhouse kinds as well as those that want more heat in warm quarters until they have attained some size, as by this means time is saved. Larger plants that require more root-room should be potted without delay, as they will then have time to get well established before the end of the growing season. Medium and large-sized specimens that are already in pots as big as it is desirable to give them may be assisted with manure water. This will not only help to keep the young leaves up to the required size, but it will give them a better colour. When the roots are too much confined and the soil is exhausted, the leaves generally have a sickly appearance. T. B.

Fuchsia Dominiana.—This Fuchsia does not appear to be much grown now, but it is so bright and distinct and blooms so freely in winter and early spring, as to render it worthy of more attention than it gets. The flowers are bright red tipped with green, and more resemble those of a *Correa* than of the ordinary kinds of Fuchsia. Although this Fuchsia is of rather a straggling habit, it may be grown into neat, compact-habited specimens. For this purpose I have found two-year-old plants best. Young plants should be grown along freely, the first year stopping them to make them bushy. The following season they should go out in the open in a sunny place. Early in August prune them in, and as soon as they break into growth, shake them out of the old soil and repot in good compost. Keep them in the open until the middle of September, and they will then commence to bloom freely. In a warm, light house they will bloom all the winter; in a cool greenhouse they will commence to flower in March, when plants in 6-inch pots will carry fifty or more expanded blossoms.—J. C. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

The variegated Reed (*Arundo donax variegata*) is one of the brightest of variegated plants. It is especially useful for the greenhouse; the leaves are almost wholly creamy white, but with a few stripes of green.

Carnation Miss Joliffe, although an old variety, still retains its hold as one of our best market varieties. It will have to be a very good variety to eclipse the lovely flesh-pink colour of this flower.

Asparagus plumosus nanus is quite a picture of luxuriant growth in a house in Mr. May's nursery at Edmonton. It is trained up the roof, and supplies plenty of material for cutting. *A. tenuis-sinus* is like a cloud of lovely sea-green, and one of the best varieties for pots.

Climbing plants failing.—My house (a new red brick and stone one) I want to cover with various creepers, and have had galvanised iron wire netting placed round the bottom. I find that most of the creepers have, in a large measure, died where they come in contact with the iron, and yet are all right in other parts. Can you explain this? and if the iron is the cause, can I stop it with painting?—A. W. H.

Double-flowered Ivy-leaved Pelargoniums.—The flowers of Ivy-leaved Pelargoniums are very useful when cut, as they last longer than those of the single varieties, and a selection of a dozen sorts will furnish quite a variety of colours, ranging from almost pure white to red, lilac, and magenta. The dwarf forms are also suitable for growing in pots, as they flower so freely that plants well grown and nicely tied out make very attractive objects in pots 6 inches

in diameter. As window plants they are unequalled, as, if the foliage is kept clean, the plants will take no harm from the dry air of heated rooms.—J.

A NATURALLY GROWN AZALEA.

THE accompanying illustration teaches a useful lesson. It shows the Azalea in another character to what we are accustomed to view it—that of an artificially moulded specimen, as formal and ugly as many of the pictures of the handiwork of the astute Japanese. Such a charming

charm in themselves for those who admire beauty untouched by the knife. All the training that is indeed requisite is to carefully stop the shoots when the plants are young, and as growth progresses stake and tie the main branches to prevent an undue raggedness of habit. By this simple means, specimens of the character represented can be obtained, and much valuable time and labour expended in moulding trained plants saved, while the pleasure derived is ten times as great—at any rate to those who appreciate beauty in its truest form. From such

with gardeners who have much indoor plant decoration to do, while as cut flowers they are very valuable. The individual blooms may be picked and wired, and work in remarkably well for bouquets, or the sprays may be cut for vases. Many people complain of the Cinerarias being so much infested with green or black fly, but since I have grown them without any fire-heat I have had no occasion to fumigate them. The seed is simply sown in pots or pans in cold frames, where the plants are grown until they flower, unless any are required to bloom during the darkest and dampest days of midwinter when the frames are too damp for the blooms. For all those that are being grown on for spring and early summer flowering, I find that cold pits with a good external covering is the way to get clean, healthy plants not only of these, but of herbaceous Calceolarias as well. If the frost is very intense and gets through the covering, keep the frames covered up some days after the thaw sets in, and admit the light cautiously. By this plan the finest and most healthy lots of plants I have ever seen have been safely carried through the severest winters. Those who contemplate trying this plan should have some sunken pits with the sides packed with turf, and they may safely defy the frost and get healthier plants than any grown where hot-water pipes are used.—J. G., *Gosport*.

Cape Lead-wort (*Plumbago capensis*).—Covering the back wall, which is 12 feet high, of the Muscatinery here are two plants of the former, which at the present time make a grand show. They are trained loosely, and upon the point of each branch is a truss of pale lavender-coloured flowers. At the base of the wall stands a row of plants in 5-inch pots from 2 feet to 4 feet in height of *Begonia odorata*, which bears numerous large trusses of pure white flowers, which contrast admirably with the lavender-coloured flowers and green foliage of the *Plumbago*.—E. M.

Ixias for the greenhouse.—It is in few gardens that either the *Babiana*, *Ixia*, or *Sparaxis* are grown, yet there are not many things of such elegance and freedom of flowering that may be grown so easily. *Ixias* are just now a feature in the greenhouse at Kew, and a few varieties that we noted as especially bright and useful were, *Model*, buff-yellow; *Marvellous*, yellow, purple centre; *Diana*, white, with rich purple centre; *Mars*, curious shade of orange-yellow, very free; *Victoria*, white; *Golden Drop*, golden nodding flowers; and *Lady Slade*, rich carmine. A few of such flowers as these, intermixed with Ferns or light-foliaged plants, would make an excellent and showy, but not gaudy, group.

Striking cuttings of the scarlet Spurge (*Euphorbia jacquiniæflora*).—I have seen cuttings of this scarlet Spurge rooted freely in small pots (2½ inch), placing one cutting in the centre of each pot, which was only half filled with compost composed of old mortar finely broken up, peat, and silver sand. As cuttings of this plant are liable to damp off, owing to the moisture contained in ordinary soil, the extra quantity of old mortar and shallow depth of soil prevent to some extent damping off taking place. The cuttings should have a brisk bottom heat, be enclosed in a propagating case and shaded from sun, admitting air the morning of each day to dry up superfluous moisture. Several cuttings placed singly in small pots plunged in a larger pot, and a square of glass placed over the whole to keep all close, will do well if given some bottom heat.—S.

Crassula jasminea.—This plant is a good illustration of the fact that when a suitable subject gets into the hands of the market growers it is generally



"A white Azalea, naturally grown.

engraving as here given is a reproof to those who severely train the Azalea, and it is a source of satisfaction that the interest in such artificially made plants is decidedly flagging, as they are now very seldom seen even at the great London exhibitions—a significant fact. The plant, unfortunately, does not suffer greatly from this ill-treatment, and a mass of flowers always pleases some, though all admit the monotony of such productions, even though they may have a brilliant character. The irregular outline and naturally disposed masses of flower seen in the specimen represented by the engraving have a

plants, also, an immense quantity of flowers can be obtained, which are always welcome for the table or house.

Double Cinerarias.—Although double flowers are by no means so popular as single ones, there is much to be said in favour of the double forms of many flowers on account of their greater stability and being able to withstand a good rough shaking without falling to pieces. Double-flowered Cinerarias are no exception to the rule, and they certainly last much longer than the single-flowered varieties, and now that they are so easily raised from seed, there is no doubt but that they will become very popular

handled in such a manner that the points in its favour are displayed to the greatest possible advantage. This *Crassula*, though occasionally seen up to a few years ago, seldom presented an attractive appearance, while directly it was taken up by the growers for market, it was met with even on the costermonger's barrow, in the shape of little bushy specimens, the upper parts of which were quite a mass of its white Jasmine-like blossoms. For the embellishment of the greenhouse during the summer, it is very useful, as it is of easy culture, the principal consideration being to see that it does not get too wet during the winter, as from its succulent character it is rather impatient of too much moisture. A good spot to winter it is on a dry shelf, but with the return of spring, more liberal treatment may be accorded it.—T.

HARDY PLANTS IN POTS AT MANCHESTER.

THOSE in the habit of attending the great Whitsun exhibition in the Botanical Gardens, Manchester, know that hardy plants in pots are always a great feature. In order to have them in bloom by May 18, it is necessary to bring them into flower under glass; and when this is judiciously done, and care taken that they are not too much drawn, they make singularly effective exhibition specimens. When massed upon the sloping banks of the new corridor or entrance nave to the recent exhibition they are seen to the best advantage. With the exception of Mr. R. P. Gill, no amateur appeared as a competitor, but the excellence of his group of thirty plants atoned in some measure for the lack of competition in the amateurs' division. The gems of Mr. Gill's collection were *Spiræa Aruncus*, *S. astilboides*, and *S. palmata alba*; *Lilium Harrisii*, a fine piece of *Primula obconica*, *Trollius europæus flore-pleno*, a good orange form grown about Manchester; *Carnation Mrs. Reynolds Hole*, a fine deep amber-coloured clove; *Ajuga genevensis*, with a number of spikes of pleasing blue flowers, and a fine pot of an *Aquilegia* of the *cærulea* type.

In the nurserymen's division was a class for an unlimited collection of hardy herbaceous and bulbous and alpine plants, duplicates being admitted. A collection from Messrs. James Dickson and Son, Upton Nurseries, Chester, included five examples of *Lilium Harrisii*, of great value because so easily forced, *L. Szovitzianum*, and other *Lilies*; *Spiræa Aruncus*, a fine specimen of *Dielytra spectabilis*, which makes an excellent exhibition plant; the Himalayan May Apple, *Podophyllum Emodi*, extra fine; *Iris susiana*; *Tulipa retroflexa* and *T. cornuta*, fine pots of each; large pans of the Hoop-petticoat *Narciss*; *Primula Sieboldi* in variety, *P. japonica alba*, and *Saxifraga peltata*. In another class, in which sixty plants were exhibited, there was a very fine collection, including *Aruno donax variegata*, in excellent character; *Hemerocallis Kwanso variegata*, nearly a dozen species and varieties of *Lilies*, *Polemonium Richardsonii*, *Tulipa fulgens variegata*, *Narcissus Tazetta orientalis*, *Doronicum plantagineum excelsior*, *Campanula persicifolia*, *Funkia Sieboldi*, *Delphiniums* in variety.

Alpine plants, in or out of flower, did not appear to the same advantage as seen on previous occasions. Some had a drawn appearance, as if they had been brought on under glass, at least such as were in flower. Mossy *Saxifrages* predominated, and however interesting they may be on rockwork, they are scarcely seen to advantage on the exhibition table. Messrs. Paul and Son, Old Nurseries, Cheshunt, had the best lot, having in bloom *Primula farinosa*, *Phlox frondosa*, a small piece of *Myosotis rupicola*, *Anemone alpina sulphurea*, *Gentiana acaulis*, *Arnebia echinoides*, *Polygala Chamæbuxus purpurea*, *Thalictrum anemonoides*, and *Pulmonaria dahurica*; mossy *Saxifrages* and *Sedums* making up the remainder in large part. In Messrs. James Dickson and Son's collection were *Cypripedium Calceolus*, *Silene virginica*, *Gentiana acaulis*, *G. virginica*, *Myosotis dissitiflora*, *Ramondia pyrenaica*, *Saponaria ocymoides*, *Cypripedium spectabile*, *Lithospermum prostratum*, *Antemiss Aizoon*, and *Iberis gibraltarica*, with mossy *Saxifrages* making up most of the remainder. In the classes for amateurs appeared

some singular alpine plants, such as *Saxifraga granulata* and *Silene pendula compacta*, and in some *Primula Sieboldi* was to be found.

I think it would be well if a larger number of the alpine plants were required to be in flower. Two-thirds, at least, should be in bloom, as there is a tendency to overload the collections with plants out of flower. In the class for twelve plants it is not too much to require that all shall be in bloom. A little sharper supervision is required by the judges as to the inclusion of plants of questionable character as alpine. Perhaps the term has not been as fully defined as it should be in competitions of this character. These classes are designed to encourage the culture of alpine plants, and it is necessary that they be of a character answering to the requirements of the schedule. R. D.

FLOWERS IN EAST LONDON.

ON the first day of June a show of flowers was opened in the People's Palace at the East End of London. It could not be called a success, if we criticised it merely as an exhibition, but it is obviously unfair to find fault when there are so many difficulties to surmount. It is an attempt to create an interest in flowers in one of our poorest and most populous centres of the metropolis, and deserves to succeed, although success may be slow in coming. But after a time when it is seen how well flowers can be grown even surrounded with dirt, fog, and smoke, the People's Palace will have a name doubtless, not only for its amusements, but also for its flower shows, in which the East Londoners themselves are the exhibitors, and where they are stimulated to great efforts by a keen competition. The ball has been set rolling, and it is not the fault of the promoters of these exhibitions if those for whose good they are intended do not also show a hearty appreciation of the work promoted. The exhibition of *Chrysanthemums* seems the most popular of the whole course, the reason being possibly that the *Chrysanthemum* is easily grown and is essentially the "People's Flower." On this occasion it was the "trade" that made the show. In the centre of the building Messrs. J. Laing, of Forest Hill, had an arrangement of *Palms*, *Lilies*, cut *Begonias*, &c.; and some excellent *Roses* for the season came from Mr. W. Rumsey, Waltham Cross, *Maréchal Niel* being amongst the best. Messrs. Barr and Son, of Covent Garden, had an exceedingly interesting display, which included *Iris florentina*, single *Pæonies*, the *Quamash* (*Camassia esculenta*), *Ixiolirion Pallasii*, large rich purple-blue flowers, the orange-yellow *Hemerocallis Middendorffiana*, *Allium karataviense*, which has a large head of dull red flowers and broad foliage, and *Ixia crateroides*, brilliant carmine. Mr. Cross, nurseryman, Leytonstone, showed well-grown pots of the useful *Rhodanthé*; and Mr. Wilkinson, nurseryman, Mile End Road, also contributed to the exhibition. One of the prettiest features was that of Messrs. Hooper and Co., Covent Garden, who had a number of fancy baskets filled with *Ixias* and double white *Poet's Daffodil* arranged with Grass. The colours were distributed with the best taste.

Wasps.—Fruit growers will find it needful to keep a sharp look out for breeder wasps; they have been unusually plentiful during the past few weeks, and especially since the advent of warmer weather. I have succeeded in killing a score at least, and that, too, in a locality in which wasps are seldom plentiful in the autumn, because they find less cover on which to make nests than is found in rural districts. These breeder wasps specially frequent glass-houses, the greater warmth found in them no doubt proving attractive. When so far trapped, it is well to see that they do not leave the houses alive, as in such case one nest the less, which means some thousands of wasps less, will there be to prey upon our fruit in the autumn. Some practical information with respect to the winter habits of wasps would be of interest to readers, as it would be well to learn where these breeders lie ensconced for the cold season, and what opportunity may be offered of finding

them during that period. Do these links in wasp life remain in the nests which have not been destroyed all the winter? and, if so, what becomes of all the other denizens of the nest? Then, do these breeder wasps manufacture their own curious nests, or do they first produce a colony of workers which make nests in which later on the insects which prey so freely upon our fruit are bred? Information of this kind would, of course, be of no great value in helping us to get rid of these pests, but gardeners, as a rule, like to be well posted up in that kind of entomology which relates to garden insects.—A. D.

FLORAL FETE IN COVENT GARDEN.

THE happy idea of holding a fête in aid of the Gardeners' Orphan Fund was realised on Wednesday evening last, when the great hall, known as the Flower Market, lying between Covent Garden proper and Wellington Street, was thronged by those who had invitations to witness the great London flower market as it is seen early in the morning three times a week before the sales commence. It was a magnificent floral exhibition, and though the crowd was too great to render a promenade possible, yet there were thousands present to whom the novel and unique sight of the great masses of flowers arranged tier upon tier must have been one not soon forgotten. Even those who are accustomed to floral exhibitions and had not before seen Covent Garden in the height of the flower season must have felt surprise at the immense display, mostly of pot plants, and showing what class of flowers finds its way to the shops and costermongers' barrows. One of the finest stands was that of Mr. Beckwith, and the leading flowers throughout were *Chrysanthemum frutescens*, *Fuchsias*, pink-flowered *Hydrangea hortensis*, *Iris*, *Hydrangea paniculata*, scarlet *Pelargoniums*, crimson *Pæonies*, *Pansies*, and *Callas*. Mr. James Walker's cut flowers of the double *Poet's Narciss* were delightful; also the cut *Roses* of *Niphotos* of Messrs. Hawkins and Bennett. Mr. Poupart's *Lilies* of the Valley were excellent, and the self *Pansies* of Mr. H. Heath were striking for the deep colours of the flowers. The yellows and deep purples were very rich. Mr. T. S. Ware had a mass of *Iris*, crimson *Pæonies*, *Lilium colchicum*, and double *Pyrethrums*. The varieties of *Cattleya Mendeli* of Messrs. Page and Sons were rich in colour and of excellent form; there were also fine stands from Messrs. Hooper and Co., &c.

It is to be hoped that the Gardeners' Orphan Fund will receive material benefit from the fête of Wednesday, and we are glad to learn that it has resulted in the addition of £227 to the funds, including £100 from the Duke of Bedford. It will also give publicity to this deserving charity, and the energy of the promoters and the honorary secretary, Mr. A. F. Barron, ought certainly to receive the most substantial support. On another occasion we might suggest that it would be better to issue fewer tickets and charge a fixed price, so as to avoid a crush, as the space is comparatively very small, especially, as in this instance, when a special effort seems to have been made by the market growers to make a truly representative exhibition of popular flowers.

Robt. Harvey.—This often happens with *N. posticus*, and may be caused, first, by the bulbs not being thoroughly ripened; second, by poor soil. Take the bulbs up when the leaves die down, and give them a good roasting in the sun, replanting three weeks or so after.

Names of plants.—*W.*—1, *Ecochorda grandiflora*; 2, *Luzula glabrata*; 3, *Collinsia bicolor*? send when in flower.—*E. M. G.*—*Mespilus Smithii*.—*C. A. N.*—*Cistus corbariensis*.—*Dendrobium* with pseudo-bulb.—*Dendrobium superbum*.—*E. N. Thompson.*—*Tussilago farfara variegata*.—*Anon.*—A green-leaved form of *Arum maculatum*.—*F. E. S.*—1, *Snowy Mespilus* (*Amelanchier botryanthum*); 2, one of the shrubby *Spiræas*, but flowers withered.—*O. K.*—The yellow flower is the double *Kerria* (*K. japonica fl. pl.*); the white is *Staphylea pinnata*; the *Oncidium* is *O. Wentworthianum*, and the *Aceris* is *A. crispum*.—*A. Gardner.*—1, *Coronilla Emerus*; 2, not recognised; 3, *Judas Tree* (*Cercis siliquastrum*).—*E. F. L.*—1, apparently *Doutzia crenata*, much shrivelled; 2, *Lastrea* sp., too small to identify; 3, *Coccoloba platycladon*; 4, *Nipholobolus lingua*.—*Mrs. L.*—*Akebia quinata*.—*W. T. P.*—1, *Brassia verrucosa*; 2, *Cypripedium hirsutissimum*; 3, *Aceris virens*.—*W. Browning.*—*Odonoglossum cordatum*.—*E. W. N.*—*Sempervivum Tourneforti*. Others next week.

WOODS & FORESTS.

THINNING.

In the management of plantations for utility and profit it is very desirable that the culture be conducted in such a way as to give the best return to the proprietor in the shortest space of time and with the smallest outlay. In doing so it is a matter of great importance to conduct the thinning in such a way that the trees gradually and effectually prune themselves. In conducting the operation, however, of thinning, the planter requires to be on his guard, as although trees with fine clean stems are a step in the right direction, yet care must be taken that such have not been acquired at the expense of reducing the cubic contents of the trees. For example, if trees are allowed to grow in a crowded state for want of timely thinning, the side branches soon lose their vitality and fall to the ground, and the contour of the tree is that of a bare, lanky pole, and being deficient in roots, and minus the side branches, it never will attain the size of a heavy timber tree. This, then, is a very serious mistake, and one that should always be guarded against in the early career of the growth of the trees. Young plants require space to encourage the formation of roots and the extension of their side branches in order to become strong healthy timber trees. Every twig, branch, and leaf are necessary, particularly at this stage of the tree's growth, to draw up and elaborate the sap in the formation of woody tissue, in building up the plant and forming the foundation of a good specimen. Trees planted at a distance of from 3 feet to 4 feet apart require particular attention in this respect. When the thinning of such trees has been neglected they are always deficient in roots, and the consequence is that when thinning is commenced the bare drawn-up poles get bark-bound, and a great many of them run the risk of being uprooted by the wind. When thinning plantations of this class upon cold exposed situations for the first time, and in order to prevent the evils thus enumerated, I have occasionally found it necessary to stem-prune the plants to be removed, in place of cutting them out at once, by which means the trees to be left were allowed room to extend their side branches without the risk of checking their growth by too sudden exposure. This is a very safe system of tree culture on bare, exposed places at high elevations, and the pruned trees can be gradually removed when wanted for estate or other purposes. When young trees are managed in this way the roots extend in all directions, thus not only enabling them to gather food from all quarters, but likewise to anchor themselves in such a stable way as to defy the wind, and as they are thoroughly injured to the climate of the locality, the prospective value of such a plantation is all that can be desired. When the trees are thoroughly established in this way, the after-management should be carried out in such a manner that the trees gradually prune themselves, and in doing so the specimens on the spot will furnish unerring testimony as to the distance apart at which they should be left upon the ground to attain that end. In thinning plantations, it is not absolutely necessary that the trees be left upon the ground at the same distance apart, although this is desirable when it can be attained without sacrificing any of the best trees. As a general rule, it is better to cut out all inferior, puny trees as far as possible, and leave the finest and best for a crop, although some of the latter may not be in the exact spot that

could be wished for with respect to distance. Some of the largest and best self-pruned forest trees that I have ever seen were interspersed in a very irregular manner over the ground, and ranged from about 10 feet to 20 feet apart. This arose from the fact that all the inferior trees had been weeded out from time to time in the course of thinning, and the finest trees only allowed to remain for a matured crop. I believe such a practice to be founded upon sound principles, and have no hesitation in recommending it to others.

In thinning a mixed plantation of Larch, Scotch Fir, and Spruce, I had the latter two species gradually removed to allow space for the Larch as a permanent crop, and by the time the final thinning took place the Larches stood at a distance apart of from 10 feet to 14 feet. These trees presented fine clean shafts, free of branches for a distance of about three-fourths of the length of the stem. Trees of the same species, planted at a similar distance apart and which required no thinning, were furnished with branches and knots for a distance of fully one-half the length of the stem. The former class of timber being free of knots, was fit for boat-building, and readily sold at 1s. 2d. per cubic foot; while the latter was only fit for railway sleepers and other purposes where knots were of no moment, and only realised 10d. per cubic foot. This illustrates the utility of planting thickly and thinning early and gradually in order to turn the timber to the best account in favour of the owner.

J. B. WEBSTER.

THE BLACK AUSTRIAN PINE.

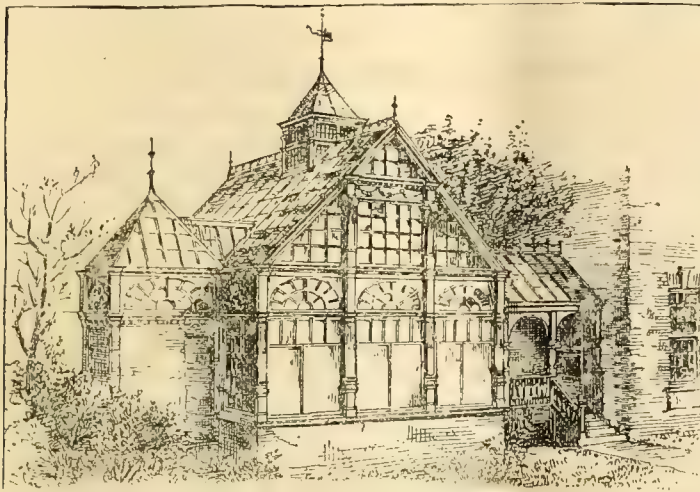
THIS fine hardy tree, introduced into Britain about the year 1835, has proved to be a great acquisition not only from an ornamental point of view, but also as a first-class timber tree. On the calcareous mountains of Lower Austria it attains an average height of about 100 feet when at maturity. There is no other species of Conifer with which I am acquainted capable of accommodating itself to a greater variety of soils and situations than this Pine; in fact I have planted it in Scotland with success in all positions from the seaboard up to some 1000 feet above that level, and in soil composed principally of poor gravel, resting upon both granite and limestone rock. In Armagh I have planted it extensively on deep peat bog, in which it thrives admirably, and if allowed plenty of room it retains its side branches, and is invaluable for cover, shelter, and general utility. At Loughgall, in the same county, it makes rapid progress on calcareous soil resting upon limestone; and in the Vale of Avoca and Glendellyn, in Wicklow, it is quite at home on poor inorganic fragments of clay slate containing but very little soil. It is admirably adapted for planting as a screen in out-of-the-way corners, and forming a background for trees and shrubs of different habits and shades of colour. It likewise makes a grand specimen tree when planted singly on a lawn, its finely-balanced conical top rendering it very effective; the large terminal buds of the side branches, too, get capped in spring with a white downy substance, which looks at a short distance off like burnished silver, contrasting strikingly with its beautiful, dark green, glossy foliage. When the trunk is cut up for use, the timber is found to be of a close, firm texture, full of resin and very durable. In cases, however, in which the trees have been grown for ornament and their side branches retained, the timber is rather knotty and coarse, but when planted and reared up as forest trees for utility, and the thinning regulated in such a way that the side branches die and fall to the ground of their own accord, they acquire fine clean stems comparatively free from knots, quite workable, and useful for all ordinary purposes. Young trees used in the round state for fencing purposes last as long as trees of the best Scotch and Irish Fir of the same age. Irish Fir is identical with the true Highland Pine

(*Pinus sylvestris*). Fine specimens of the Highland Pine grow in many parts of Ireland. I have propagated it from seed, as well as the true Highland Pine, in the natural forests of Braemar, and likewise cut up the trunks of both trees extensively for constructive purposes, and have not the least doubt that the two are identical.

PROPAGATION.—The Austrian Pine is propagated from seed, which should be sown in April on well pulverised soil, formed into beds about 4 feet wide. Should the soil be of a stiff character, I have found a dressing of lime to be beneficial; it renders the soil more friable and infuses activity into its dormant constituents, thus rendering it not only workable, but also capable of supporting and nourishing the young plants. Sow evenly over the surface, but not too thickly, as the plants under such circumstances get drawn up weakly from want of proper space in which to develop their side branches. When they attain a height of from 4 inches to 6 inches, they should be planted out in nursery lines at a distance of about 8 inches apart and about 14 inches asunder between the lines, thus affording room for weeding and keeping the ground in proper order. Care should be taken to spread the roots properly out, an operation on which much depends. The ground which I use for these nursery plantations is in an exposed locality at the base of a hill, and consists of three kinds of soil, viz., good strong loam, light sandy soil, and light peaty ground. It is protected from the inroads of cattle by a common wire fence constructed in the usual way, with a web of wire netting about 30 inches high stretched along the surface and fastened to posts; this prevents hares and rabbits from getting within the enclosure. Thus the young trees have no shelter whatever, and being inured to the blast from infancy, they receive no check as regards growth when planted out on exposed situations. On properties where extensive planting is contemplated it is a good plan to form a nursery for young plants as near the ground to be planted as possible. I have sometimes had four such nurseries at different places on the same estate, and have found them to be useful in every sense of the word. In selecting and enclosing ground for such nurseries preference should always be given to such as contain different kinds of soil, in order that the different species of young trees can be planted on the description of soil most suitable for their development.

J.

Staking newly-planted trees.—"C. D." in THE GARDEN, May 26 (p. 498), gives an excellent timely article on this head, for there can be no doubt that the neglect of staking newly-planted trees at this season is a serious mistake, and is often fraught with much loss and disappointment in after years to the owners. "C. D." says, "There are various methods of staking trees, but that which I have long practised has proved very effective. I find that strong Ash, Oak, or deal poles are the best; they should be straight, and long enough to go well up amongst the branches of the tree, as it is the head that requires supporting." In answer to this I would merely state, keep the root firm and the head will take care of itself. In staking young trees, say, from 8 feet to 10 feet high, I never use a stake more than from 18 inches to 24 inches above the ground, and this I find to be cheaper, neater, and more effective in keeping the tree in its proper position than in cases where the long stake is used. One great objection to the long stake is, that it exhibits a large surface to the force of the blast; consequently, we often see both tree and stake blown to one side after a gale. On the other hand, trees that are properly tied to the short stake are not only kept firm at the root, but the stem can oscillate in a natural way with the wind, so that the pressure by the wind on the top is less, to a large extent, than in cases where the tree is tied to a long, stiff, unyielding pole. Movement by the wind, in a natural way, is also beneficial in promoting the health, strength, and stamina of the tree in producing a uniform thickness of stem in proportion to its height. Should "C. D." be induced to try this plan, I think he would appreciate it. His other remarks are all that can be desired.—J. B. WEBSTER.



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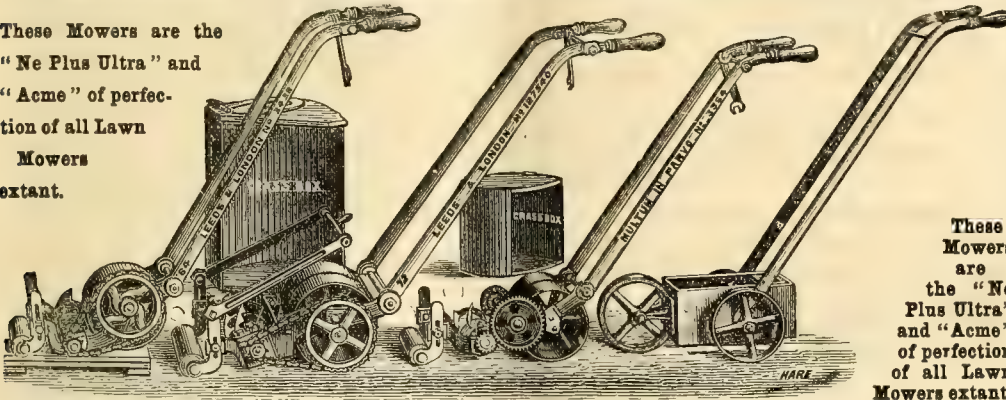


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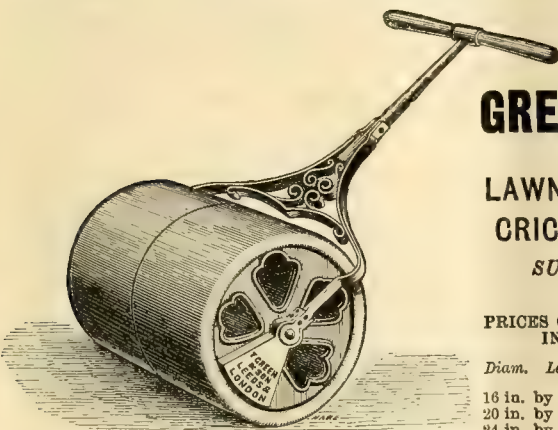
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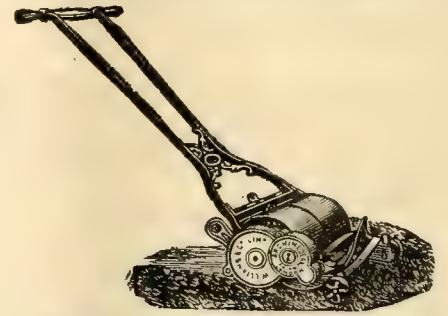
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No. 865. SATURDAY, June 16, 1888. Vol. XXXIII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

FRUIT GARDEN.

W. COLEMAN.

MILDEW ON FORCED STRAWBERRIES.

SINCE Mr. Muir's note upon the cure of mildew appeared in print, I have received a box of very fine, but badly affected fruit from a gentleman in East Anglia, and lately a slight touch of the parasite having appeared amongst our own late plants, I am inclined to think this pest is more than usually troublesome this season. This state of things is by no means surprising, as we know that Peas, the Brassica tribe, Roses, and the Strawberry itself in the open air, towards the close of long periods of heat and drought, are badly affected. Further, that a high, dry temperature, accompanied by dryness at the roots in imperfectly ventilated forcing houses; that a low, damp, stagnant atmosphere in confined pits cause it to spread rapidly, whilst conditions just the reverse must be produced as the groundwork of future operations in staying its progress. The past winter and dry, cold, sunless spring, unfavourable to liberal ventilation, no doubt have been highly favourable to the rapid development of mildew, the spores of which are always present, waiting, as it were, for conditions suitable to their spreading over the largest pit or house in a few hours, as Grape and Strawberry growers know but too well to their loss and annoyance. If myriads of these spores, then, are floating around us and ready to fasten upon their food at any moment, how are we to render them harmless? Why, simply by good cultivation, three very important factors being warmth, a free circulation of fresh air, and plenty of wholesome water, for, force or grow them as we will, plants, like animals, must have the proper elements of life, and not the least of these is plenty of fresh air. Prevention, we all know, is better than cure, and yet, notwithstanding the fact that a certain Grape grower battles with the Vine mildew (*Oidium Tuckeri*) by coating his rods year after year with sulphur—the best known preventive and remedy—it regularly puts in an appearance until suddenly a new manager takes charge, when the mildew as suddenly becomes harmless. It would be folly to suppose that all the spores have disappeared; nothing of the kind; they are still present, but change of management is the preventive. This being so, and I can give chapter and verse of instances of this agreeable change, the most important question practical gardeners have to decide is prevention. The Vine grower, as a matter of course, propagates from clean stock, and the Strawberry grower, if he is prudent, takes healthy runners from maiden plants which have been grown under a good system of culture, including plenty of water in dry weather. Such being the wise course, upon the principle that there is nothing like a good beginning, it may not be amiss to offer a few simple remarks to those who have suffered, and a few weeks hence will be off in search of young runners. Some people say, take runners from plants that have been forced, as they give an early supply. I say, do nothing of the kind, as these plants in nine instances out of ten are enervated by hard work, and carry with them the germs of future colonies of spider as well as mildew. Cast these

as they are taken out into the fire, scald and wash the pots and crocks, refill them when dry with new maiden loam enriched with bone-dust and old lime rubble in preference to manure, especially that of a leafy nature. Set them out in the open air where they can have full exposure to the elements and there leave them until the runners are ready. Meantime give attention to the stock plants, which should be runners of the previous year, put out in new loam and adjacent to water. Of this give them plenty early in the spring, mulch if necessary, pinch out all the flower-scapes as they appear, and peg down the runners when ready. Never let them feel the want of water, and when detached stand the young plants where they will be clear of shade from trees and buildings. Do not try to steal a march on the season by withholding water from early plants, as this premature check is a very common cause of sudden paralysis of the roots and ultimate incapacity to throw the scapes above the foliage. When growth ceases plunge in the open air where a light skeleton framework can be placed over them for carrying slight protection, more for the pots than the plants in severe weather. As good forcing gardeners cleanse every pit and house thoroughly, using quicklime, sulphur, and a pinch of soft soap for washing the walls, we may conclude that all will be right in this quarter. The heating apparatus and ventilators, too, will be satisfactory, and all the plants, with crowns as hard and brown as nuts, being good, the selection of the first batch will be a simple operation. Having drawn a sufficient number, wash the pots, remove dead leaves and loose matter from the surface of the ball, open the vents, and they will be ready for

DIPPING OR IMMERSION.—For this purpose sulphide of potassium, half an ounce to a gallon of water, is strongly recommended, as this in solution destroys worms as well as mildew; but so many mistakes having been made by chemists as well as by those who use this chemical, the amateur will do well to use plain flowers of sulphur. Of this he may reduce 2 pounds to a paste in the bottom of a vessel, add 9 gallons of soapsuds, stir well, and go to work by immersing pots and plants whilst the sulphur is in motion. When dipped, the plants should be laid on their sides to drain and dry, and they will be ready for starting. Plants that are forced very early generally escape attacks, but later in the spring, under greater vicissitudes of heat, air, and moisture, some varieties, notably President and Sir J. Paxton, frequently suffer, the mould spreading in a few hours from foliage to fruit, which soon loses its colour and flavour. Mr. Muir and "J. C. B." (p. 533), I see, recommend dry sulphur as an antidote, and this, wherever it touches, no doubt soon destroys the active parasite; but, unless the conditions favourable to its development are reversed, it will appear again and again, not only after two or seven days, the periods they name, but as long as the plants remain in the house or pit. Dredging with dry sulphur the moment the plague-spots appear may do good service, but as this labour is sometimes as inconvenient as it is detrimental, as the fruit hanging over the sides of the pots cannot be reached without changing their position, I would suggest light dredging first and syringing off with clear sulphur water a few days later. Indeed, upon the hypothesis that the spores are present, I always make a point of syringing the plants, pots, shelves, and walls from the time the fruit is set until it changes for ripening. As fruit at this season ripens up so quickly, the fungus after this stage is reached rarely does any harm; but should it

appear, a thorough syringing overnight followed by pure water next morning will not injure the fruit or render it unwholesome.

NOTES ON HARDY FRUITS.

APPLES will probably be under an average crop, for the bloom is very irregular and exceptionally late. There is one peculiarity which is particularly observable here, but I cannot say if it is general, viz., young trees are flowering freely, but the large orchard ones that usually make such a display in country scenery in May have this year, as far as I have seen, been anything but full of bloom. The Codlins, that hardly ever fail, have taken a rest, but why the hot, dry season of last year, that made nearly all wood ripen well and full of flower buds, should have left Apple trees so scantily furnished is a mystery. I hope it may only be local, for in this part, being close to the coast, we depend more on dwarf than on large trees.

PEARS are likely to be a wonderful crop, for not only have they bloomed, but they have set well. The trees are now bristling with bunches of fruit, this making three heavy Pear crops in succession. It is singular that Pears are not more largely grown in the south of England for market than they are at present, as nearly all kinds arrive at good size grown as bush or pyramid trees, and there is certainly plenty of room for home growers, while the enormous importations of foreign Pears find a ready sale. I do not refer to the old orchard kinds of the Swan's Egg class, that figure on costermongers' barrows, but to the fine Pears that are sold by the dozen, such as Williams' Bon Chrétien, Marie Louise, Beurré Bosc, and many of the later keeping kinds, that, if not so striking in appearance as those on walls, are certainly of better flavour. Speaking of handsome and profitable Pears, I must say that Pitmaston Duchess, as a pyramid, is about the most profitable kind I grow. I say nothing about the flavour, but it always sells well and generally crops well; in fact, for so large a fruit it does not require a great number to make a good crop for a tree, as we get them close on three-quarters of a pound each and the size sells them, when those of far better quality are left on hand.

PLUMS bloomed splendidly, but they are a very precarious crop with us, the cold winds that check the circulation of the sap in the trees causing the young fruits to turn yellow and drop off wholesale. I would never predict a good crop of Plums.

VINES (open air) look promising, although so late, but with fine summer weather now they will doubtless do well, for I do not think any fruit we cultivate so well repays attention in the matter of summer pruning as our open-air Vines. I have seen old and apparently worn-out Vines which, owing to neglect, had never produced anything but crops of leaves, unripe fruit, and wood, taken in hand and produce year after year splendid crops of fruit. If the simple details of culture are attended to, open-air Vines would soon rank higher than they do.

RED AND WHITE CURRANTS are very promising, and those who have not yet tried summer pruning, I would advise to do so without delay, as there can be no doubt of its beneficial effects; the energy of the bush is directed to swelling off the crop and plumping up a crowd of buds just where they are needed. There is no greater waste of force than allowing the shoots to extend a foot or more beyond where they are required, and then cutting them back in winter. Try the plan of pinching back now.

Gosport.

J. GROOM.

Renovating old Apple trees.—I have no doubt Mr. Coleman will give "A. D." (p. 519) all the information he seeks both on the budding of Apple trees as well as his reasons for leaving stock growths for a year, or possibly two, after grafting. I briefly intrude in the discussion to say that the practice is very generally followed with excellent results in many places besides the locality that Mr. Coleman writes from, and I should certainly adopt it myself if about to renovate old trees. I own that it looks very feasible that the grafts

will make more growth if left in sole possession of the supply of sap from the first than if rival shoots springing direct from the old stock are competing with them, but in practice this is not fully borne out, and a fair amount of leafage appears to be necessary to keep the roots actively at work pumping up supplies of sap. "A. D." says he is in favour of cutting hard back to a few stout shoots, and I suppose we should all agree with him if the object were to form symmetrical trees, but I can safely say that in dealing with old trees it is far better to cut at some distance from the bole of the tree, or where the shoots divide to about the size of a man's wrist, for old trees do not get over severe amputation so readily as younger and more vigorous ones, and if the young growths are not left to assist what one may term the feeble circulation of the tree, it is very possible that, in place of renovating, one would only be enfeebling the tree. In the neighbourhood of Maidstone one may see hundreds of trees grafted with that fine local sort, Loddington Seedling or Stone's Apple, and invariably treated as Mr. Coleman describes. When cleared of the stock growths the second year after grafting, the trees at once become very fruitful, and in few places in England is fruit culture better done than around Maidstone.—J. G., *Hants.*

PEACHES FAILING TO SET.

WILL you kindly give me your opinion upon the enclosed Peaches, which seemed to set quite well and then fall off, instead of swelling away? The trees have been planted two years, and have done very well—in fact, I thought too well, making 7 feet 6 inches of growth in one season. On this account I entirely lifted them the first autumn and partially last year. The trees were fumigated and suffered a little, but not sufficient to have hurt the trees to the effect of the fruit all coming off. The houses are 14 feet wide; border 3 feet deep, with 18 inches of drainage; the soil, loam of heavy texture, charcoal, mortar, and bones. The trees make good growth generally, somewhat coarse, but on the whole the lifting seemed to set matters right; and as to water, I do not think I have allowed them to want for that.

D. M. R.

* * The box containing shoots, leaves, and unfertilised fruit, the size of very small Peas, came safely to hand in good condition. The shoots are very green, elongated, weak, and apparently badly ripened, leading one to infer that they did not get sufficient air through the past growing season, and owing to the great heat and drought ripened up prematurely. This being the case, the imperfectly formed flowers deficient in pollen, no uncommon occurrence this year, could not possibly set their fruit. The foliage is very healthy, of a good colour, and shows that the trees are at home in the compost—by the way, rather too deep and possibly too plentiful, as, notwithstanding the fact that they have been twice root-pruned, some of the shoots they have made are over 7 feet in length. Here, then, is to be found the rock upon which your success for this year has gone to pieces—an extremely gross growth made too quickly and roasted off prematurely. Smoking, it is just possible, may have produced a slight check, but hardly sufficient to destroy the crop, otherwise A Bec Peach, "close to the early house and hot-water pipes" where the wood was better ripened, would have suffered with the others. It is now too late to recover spilt milk, but your gross young trees being thoroughly healthy, I see no reason why they should not be brought into subjection and stand earlier forcing next season. In the first place, see that your house, glazed with large squares 30 inches by 14 inches, is efficiently ventilated and capable of being kept below 80° on the hottest days in July and August. Keep the trees fresh and clean by copious syringing twice a day, and give them an abundance of pure water innocent of stimulants. Prevent the escape of moisture by covering the surface of the border with clean straw or the longest stable litter free from manure, and see that the wood they are now making is thoroughly ripe by October. When the foliage shows signs of changing for ripening and a few of the leaves begin to part from the lowest

parts of the shoots, repeat the root-lifting. Work well under the balls to catch all strong roots that may have gone down into the drainage, increase the latter to reduce the border to 2 feet or 2 feet 6 inches in depth, which is quite ample; shorten the strongest roots and relay in a horizontal position 9 inches from the surface. Avoid solid manure, but mix a little old lime rubble with the original compost, water well home, and keep the house moderately close and moist until the youngest leaves by their crisp appearance show that new rootlets are in course of formation. From this time forward keep the foliage clean by an occasional dash with the syringe, ventilate freely, let the trees down gradually to rest, and see that every part of the border is kept thoroughly moist through the winter. Your only fault is too high living. Keep the larder well stocked with plain wholesome food; let your trees extend to their utmost limits, giving the shoots plenty of room, and they will yet give unbounded satisfaction.—W. COLEMAN.

UNSATISFACTORY LADY DOWNE'S VINES.

WOULD you kindly state in your next issue of THE GARDEN the cause of our Vines being so bad? They are Lady Downe's, started in the usual way, and broke well, though weak, some spurs being much in advance of the others. After having been disbudged to one or more on the spur, they showed a very few small bunches. Then, when pinched two leaves beyond the bunch, they bled very much, and the half of the bunch turned black and shrivelled up. The Vines are eight or nine years old; our night heat at present is 65°.

N. D.

* * It is impossible to say with any degree of certainty what has contributed to the extreme weakness and irregularity amongst your Lady Downe's Vines. Judging from the appearance of the small bunch received in a dilapidated condition, coupled with the fact that half the shows turn black and shrivel upon the Vines, it is only reasonable to suppose that the principal roots have left the border, and are now working in the sub-soil, or some crude material, far away from the influence of solar heat and genial moisture; that these roots became unusually active after the late autumn rainfall, but being unripe the greater part of the feeders have perished. The wood, under these conditions, probably over-cropped and under-ripened, could not be expected to show good bunches, and these very small ones, even if they set, will hardly finish off good berries. Past treatment, apparently, has been unsatisfactory, but the Vines being young—seven years planted—they are not past restoration to health and vigour. As "N. D." does not say whether the roots have the run of internal and external borders, I assume that they are confined to one, and this requires renovating. Autumn, before the leaves fall, is the best time to carry out this work in early and midseason houses, but the latest of all from which the Grapes are not cut before Christmas are best left until the buds begin to swell in March or April. In this case, however, the sample sent leads me to infer that the crop will be of very little value; therefore, upon the principle that it is never too early to mend, I would advise "N. D." to lift the roots in October, correct the drainage, and relay them in fresh compost. Meantime he should treat the Vines precisely as though they were carrying the best of Grapes, and spare no pains in getting the wood properly ripened. It is unnecessary to devote space to details, as "N. D." can find the fullest information upon lifting, renovating, and replanting in past numbers of THE GARDEN.—W. COLEMAN.

Waltham Abbey Seedling Apple.—Mr. Douglas's objection to plant young trees of this with me most excellent Apple on the ground that they only fruit when advanced in years is a singularly odd one. If no young ones are planted, I fail to see how we can hope to have any old bearing trees. Upon the merits of the variety as an early fruiter, I know nothing, but on old trees it seems to be one of the most constant. My old tree has by far the best set of fruit to be seen on all the trees here. It

is not a stunted tree, but makes good growth every season. Oddly enough, one half of the tree fruits most heavily in alternate years, and the other half in the intermediate years. It is well for us that some have planted Apples for posterity.—A. D.

Pear bloom.—Some time ago it was suggested that it would be wise to thin out the too abundant Pear bloom. Nature invariably does these things so freely herself, that the proposal seemed to be uncalled for. Looking over my Pear trees of all kinds now, I find that the proportion of fruit set out of this abundant bloom is about one-fifth, ample, and meaning a good crop of fruit. But whilst Nature has set just one, two or three flowers on a truss of ten or twelve flowers with considerable regularity, it seems obvious that in our prior thinning, supposing it had been done, we might have removed the fruitful flowers and have left the barren ones, and thus a sad mishap would have resulted. If there are still cases in which the fruit is too abundant, thinning can be done in due course; but still it is certain that, in the process of swelling, Nature will do something more yet. Generally, and in spite of the fact that Pears, Plums and Cherries were in most cases perfect masses of bloom, I do not think that there is any excessive set of fruit, and as a rule it rarely happens that such is the case when the bloom is so very abundant. This great dropping of bloom may be entirely due to the abundance of it, but I think that on Pears it is as much due to the long-continued cold which held the bloom-buds in check so unduly as to any other reason. Apple bloom has been rather weak, and has not set very well. Generally, the trees want washing rains to cleanse them from caterpillars, which are very abundant this year.—A. D.

The German Prune.—Few persons will need to be told of the peculiar adaptability of this Plum for drying and preserving, for most of us have seen the dried Prunes of the grocers, and enjoyed the grateful sauce made by soaking them in water over night and stewing them slowly with sugar for about an hour. Preserved, this Plum is used by the peasants of Central Europe to spread upon the bread in place of butter, and dried, it is exported in large quantities, especially from Germany, Hungary, and Saxony; indeed, in that country it is considered the most valuable of all fruit trees. The German Prune reproduces itself from seed, and therefore has been largely propagated in this way. As a result, quite a number of variations have been obtained, and yet all the sub-varieties retain the general characteristics of the parent. It must not, however, be confused with the Italian Prune, or Fellenburg, which is a distinct kind. The common German Prune is thus described by Mr. Downing: Fruit oval, nearly 2 inches in length, peculiarly swollen on one side, and drawn out towards the stalk; suture distinctly marked; skin purple, with a thick blue bloom; stalk three-fourths of an inch long, slender, slightly inserted; flesh firm, green, sweet and pleasant, separates from the stone, which is flat, very long and a little curved. There is a variety grown about Collingwood which is known as Baker's German Prune, and is highly valued. Mr. Lewis speaks of it as follows:—

I believe Baker's German Prune is the coming Plum in this country, and the one most desirable for planting on a large scale with a view to shipping. Most of our varieties you have to pick and market in a few days, or you will have them rotting on your hands; but Baker's German Prune when fit to market can be allowed to hang on the tree and await the market for three or four weeks without injury to the Plum itself. Another thing; when you are over-loaded, and have a large quantity of Plums that you cannot market anywhere else, it is a freestone, and can be easily pitted, and when evaporated or dried in any other way, is a good saleable article, and desirable for that reason. Another point in its favour, in my experience, is that the trees bear every year. With me, they have borne every year for six years, and the present is the first year in which there has been a partial failure, and that I attribute to the heavy crop of last year. There is a lady at Nottawasaga, named Mrs. Rose, who has marketed from a few trees a large quantity of these German Prunes yearly in this place, and who, I venture to say, has netted more money from

her orchard of Plums in proportion to its size than any other person in this country.—*Canadian Horticulturist*.

PERFORATED PLUMS.

I SEND you a few Plum fruits affected with maggots. The trees, growing in a cool orchard house, were thoroughly washed before being started into growth and every precaution taken. Half the crop is now affected in the same way as those sent. Pears, Cherries, and Peaches in the same house are free as yet. Can you give me any hint as to the cause?

J. N.

** The fruit in question is badly affected, and, as a matter of course, ruined by the larvæ of the Plum saw-fly (*Tenthredo morio*), like all other destroyers, wonderfully abundant this year. If he has not already done so, "J. N." should remove and burn every perforated fruit, and that without delay, also any that may have fallen from the trees in the course of thinning, otherwise he will witness a repetition of this great annoyance next season. Washing and cleansing last winter, it is hardly necessary to say, was a step in the right direction, but unless the surface soil was removed from every pot and border, the chances are strongly in favour of the parents of these insects having been left snug enough, biding the time for the last transformation, which takes place just before the trees come into flower. The female saw-fly, we gather from careful observers, ascends the trees in the spring, makes choice of a newly-expanded flower, giving preference to the largest, as a nucleus in which to deposit her eggs. These are laid between the teeth of the calyx in a hole in the most fleshy part, which she saws out in an oblique direction, but not extending quite through. In each of these she deposits an egg, which is very small, whitish green, and transparent. Hatching is completed in a few days thereafter, when a delicate whitish larva makes its appearance, with a dark brown head, six pairs of middle feet, three pairs of fore feet, and one pair of anal feet. It then leaves its birthplace, where there is no suitable food for it, hastens to the Plum growing near it, which is then scarcely the size of a Hemp seed, and attacks it. It fixes itself in the centre of the Plum stone, which, being tender and milky, affords it the best nourishment; the Plum in the meantime continues to grow and the larva with it, so that the latter never wants for food. It has attained its full size in six weeks, when it is ready for its final destination. The Plum then drops to the ground, when the insect buries itself in the earth and provides for itself a covering. It remains in this state until the following spring, when it undergoes its last transformation and appears again as a perfect saw-fly, which again ascends the tree and continues its species. If "J. N." will examine a few of the affected Plums—which, by the way, in the samples sent to me still contain most lively grubs—he will find the latter most correctly described. Moreover, he will arrive at the conclusion that the parents must have been present in his orchard house last year, although he may not have noticed them, and most certainly another generation will appear unless every perforated fruit is destroyed immediately. Early in the autumn, or as soon as the fruit left is gathered, he may remove all the trees to the open air, turn them out of the pots, reduce the balls, especially the upper parts, and repot in a fresh compost containing a fair percentage of soot and old lime rubble. Exposure for a couple of months will then do them no harm; but this is a matter of little consequence, as these measures will most likely put an end to his trouble. Upon the assumption, however, that the burnt child fears the fire, he may keep a sharp eye on the house when next his Plums are in flower, and if, between the hours of 8 a.m. and 5 p.m. on fine days, he finds the female busy at work, he must encompass her destruction. If he believes in setting fruit with spray from the syringe, he may syringe the trees daily during the time they are in flower, as the saw-fly never makes much progress in the open air in showery weather. Whether it be the constant washing or not I am not prepared to say, but one thing is certain: we cannot go far wrong by imitating in mixed orchard houses the conditions which

lead to the best results in the open air. Insect pests this year are a terrible scourge, and will continue so as long as these dry seasons continue, and fruit growers persist in the insensate practice of destroying their best friends and co-operators, the beautiful birds which frequent our gardens.—W. COLEMAN.

SUMMER PRUNING OF THE GRAPE VINE.

THAT the manipulation of the summer growth has a far-reaching effect upon the well-being of the Vine all will be prepared to admit. In cultural matters generally every man should study his own position, taking up and working through his mind the smallest details, for as scarcely any two sets of circumstances may be exactly identical, so in many respects another person's experience may not be similar, and would not profit or avail us. But there is one thing in which a common-sense principle may be universally applied, and that is, to let the Vines carry as many leaves as there is room for without crowding. Two leaves are not better than one, unless there is ample space for them both to develop to their full size. Small, thin leaves are useless as collaborators in comparison with the leathery substantial leaf which is never attacked by mildew, and from which the red spider beats a retreat. It is a very easy matter to tell from the condition of the foliage the fruit-bearing capacity of the Vine, and it is just as possible by judicious management of the young growth to invigorate the roots and throw a burst of new life into the whole system of the tree. Never mind what the orthodox system of previous management may have been; if there is room for three or more leaves beyond the bunch, do not stop until that number has been made, but as soon as the shoot has reached as far as it is intended to permit it to go, pinch out the terminal bud and stop all further progress in that direction. The bearing laterals should not be crowded, as it is even more important that the back leaves should be strong and well developed than that those at the extremities of the branch should have light. In no case should the bearing shoots be nearer than 12 inches, and in some instances where the Vines are very vigorous 12 inches will not give sufficient space, and they may with advantage be 2 inches or 3 inches further apart. As regards sub-lateral growth, no hard or fast line should be drawn.

If the bearing branches are carrying an ample and sufficient breadth of the right kind of leaves, the sub-laterals had better be removed in the bud state, as they would only crowd the main leaves and interfere with their work, but there may be cases where a little development of the sub-laterals may be permitted with advantage to supplement the work of the main leaves, but it will be obvious, I think, if the main leaves are sufficiently numerous to do the work, that it will be better done by them than by the small soft watery spray which come after and which must be, in comparison with the first made leaves, of inferior working capacity. I remember a large vinery I had something to do with some years ago planted chiefly with Black Hamburgs, and the bunches of which had commenced to shank a good deal. The Vines had for years been closely pinched, both as regards the bearing shoots and also the sub-laterals, and it was decided, in connection with a partial lifting of the roots, to encourage more freedom of growth. In carrying this out, instead of pinching to within one or two leaves of the bud, four, and wherever room could be found, more leaves were left. Such an increased leaf surface had a considerable effect on the crop, and in connection with rich surface dressings and liquid manure, a very satisfactory change was soon wrought in the condition of the Vines. From this it might be thought the more growth the better, but I should qualify this with the words, if there is room for it, but I do not advocate much extension of the sub-laterals. It is better to get all the leaves there is room for at first hand, and having got them, not to permit anything to come between them and the light, which is the source of all energy in plant life. Hence, I should say, one leaf must be the extreme limit for sub-laterals, and in many cases sub-laterals might

be rubbed off close to the source of their origin. The same principle should be applied to open-air Grapes where open-air Grapes are grown, but, in a general way, Grapes in the open air are so wretchedly managed, or mismanaged, that no result at present obtained can be looked upon as a criterion of what might be done under favourable circumstances.

E. H.

HARDY FRUITS.

FRUIT trees of all kinds—Plums in many places excepted—have produced an abundance of unusually large flowers, and crops generally seem to have set fairly well, but not so profusely and freely as might have been wished or expected. Paucity of pollen, due, no doubt, to the heat and drought of last season, many fruit growers say, is the cause of this sterility, but, so far as I am at present able to judge, crops of all kinds will run up to a fair average, and in many cases they will be abundant. One thing, however, is pretty certain, and that is, total destruction where incessant labour is not devoted to the removal of the plague of caterpillars, grubs of various kinds, and aphids with which Apples, Pears, Plums, and Peaches are terribly infested. Here, although our trees receive careful attention and good soapsuds from the laundry are syringed over them many times in the course of the season, the grub of these destroyers is waging a very determined war, and the elements, unfortunately, are terribly in their favour. Of sun-heat, we have had a fair share of late, but the wind has hardly changed from the north or north-east. Nights have been and continue very cold, and the little rain we have had has come from that ungenial quarter when the barometer has been rising. These conditions, it is needless to say, impede the progress of the sap, check and chill the tender fruit and foliage, and prevent the young growths from running away from their enemies.

PEACHES

are a full crop, many trees requiring much thinning, and where free from aphids the young growths are now ready for tying in. I do not, however, advocate too much haste, neither do I approve of hard disbudding, a heavy hand, so long as fly prevails, being most decidedly in its favour. Once fly is removed, either by dipping in weak tobacco water or by constant syringing, all growths essential to the proper furnishing of the trees must be closely heeled in and encouraged forward, otherwise, the season being so backward, an unkind summer may prove detrimental to perfect maturation of the wood in the autumn. Where water is plentiful and moderately warmed by exposure to the sun and air, an occasional soaking of the borders, especially where the roots are robbed by vegetables, will not only help the fruit and young growths forward, but the stimulus thus given will be found an excellent aid to insecticides. When Peach trees have been badly crippled by green-fly they are a long time recovering, and then the best half of their short season is lost; moreover, the crop of fruit as well as the wood for another year is seriously affected. Prevention, of course, is the best step, but so rapidly do these insects increase that we sometimes have to seek a cure before we become fully alive to the fact that serious mischief is brewing. The cure sometimes, especially during the prevalence of drying east winds, is often injurious to the tender fruit, and for this reason the greatest care and attention should be devoted to the preparation and application of insecticides. I have tried many, but find nothing better than tobacco water for dipping purposes, and good soapsuds raised to a temperature of 75° or 80° by dilution with an equal bulk of hot water for daily use. With a mild preparation of this kind all trees or parts of trees are syringed every afternoon about 4 o'clock, and by this simple means insects disappear as rapidly as health is restored. Timely thinning of the fruit again is a valuable insecticide, for, cleanse as we may, a clean bill of health cannot be expected where the trees are heavily handicapped by overcropping and the unnecessary strain of forming more stones than they can cover with pulp. Unceasing attention, then, to every detail, including disbudding, thinning, cleansing, mulching with

fresh stable litter, and root watering must be insisted upon, as we are now passing through a peculiar season and may hear of some failures.

PEARS

produced a wonderful blossom, and have set better crops of fruit than many at one time anticipated; but how will it stand, is the next question. So far we have no reason for complaint, at least where trees of moderate dimensions can be reached by the hand and hose. Standards, it is to be feared, have been kept too long without rain, for not only are they dry at the roots, but grub everywhere is abundant, and nothing short of hand-picking can prevent it from decimating the crop. This operation upon wall trees and pyramids, we have repeated several times, carefully opening each cluster of fruit, the secure home of a grub, and removing all curled leaves as a sort of preliminary to copious washing with the hose, for after all has been done there is nothing like a refreshing bath with pure water. When the trees are clean, the fruit must be well thinned, an operation by far too much neglected, especially in these days of keen competition in the production of extra fine samples. About this time it is usual to commence breaking out breast-wood, but allowing for the lateness of the season, and considering that premature pinching results in a complete forest of soft, sappy growths, this work, as a rule, will be best left alone until July, when many of the lower buds will remain dormant and form the nucleus of future spurs. There are, of course, exceptions to all rules, especially in the management of young pyramids and espaliers, when repression in one place may be necessary to the forcing of sap into another; but when we come to old-established trees, not seldom too full of spur wood, general pinching should be deferred until the first flush of sap is expended. Pears of all kinds upon the Quince stock, it must be borne in mind, revel in a thoroughly moist soil—if warm, so much the better, but it must be moist and well drained into the bargain, otherwise the fruit in dry seasons will be gritty, and in cold wet seasons it will be deficient in flavour. The drainage being right, the borders or mounds first of all should now be made thoroughly moist, by hand, of course, as there is no immediate prospect of a deluge from the clouds, and then right heavily mulched with manure of fairly good quality. This as the Pears swell must be well washed in with the hose, that is unless Nature pays up the heavy debt we now have against her. Thunder rain is our only hope, and a few storms just now would be of infinite value to the country.

APRICOTS,

in many places a thin crop, like all other fruit trees, have been sadly infested with grub, and yet the trees look well, a fair proof that an occasional hot, dry summer is beneficial, always provided the roots are well mulched and copiously watered. Hand-picking and washing with the hose are the only means by which a tithe of a full crop can be secured, but this work, fortunately, is pretty well over, and thinning by this time should be finished. If not already done, a thoroughly good mulch of fresh stable manure should now be spread over the whole width of the wall path and liberally hosed to secure an abundance of root moisture during the time the fruit is swelling, otherwise it will be small and mealy. Also all gross breast-wood may be removed from old or well-established trees—first to let in light and air and force the sap into useful channels, and second to get rid of the plague of destroyers which sometimes take refuge in the tips as their last stronghold.

SWEET AND MORELLO CHERRIES

are an enormous crop and look extremely promising. The prevailing pest, of course, has had its day, and a little black fly within the last twenty-four hours has appeared on the tips of some of the sweet varieties. If a "stitch in time saves nine," this adage applies to this troublesome aphid, for once it gets fairly established in the spurs, nothing short of incessant drenching with a very strong insecticide will destroy it. Dipping, on the other hand, in tobacco water so soon as the first fly is seen not only settles the account with the first parents, but

it renders the points of all the young shoots so treated distasteful to future generations. All superfluous shoots, as a matter of course, may be removed and burned prior to dipping; mulching with good manure and the composing draught then may follow. The latter it may be necessary to repeat, but the hose alternately, if possible, should be brought to bear to wash the pests off the leaves and fruit and at the same time to stimulate the roots into vigorous growth. We do not often, I am sorry to say, thin Cherries—indeed for some years past this work has not been absolutely necessary, but this season the thinning of all thickly set clusters might be followed by decided advantages, not only in securing finer fruit, but also in reducing the trees to good average annual croppers. Early sweet varieties will soon require netting to protect them from birds already on the outlook for their share of the fruit, but before this is done the trees should be regulated and the leading shoots loosely tacked in to secure them from injury. Intermediate growths are best left alone until after the fruit which they shelter and protect is gathered. Morellos, in like manner, where formerly they were pegged or nailed in, we now allow to grow out from the wall, and find the fruit keeps longest and best where wood and leaves are most plentiful.

STRAWBERRIES.

Old beds with us are weak in quantity and quality of flower, but strong, almost, if not quite, approaching grossness in leaf, a condition, no doubt, due to the severe check the plants received last year. Young plantations, on the other hand, are excellent, and having escaped spring frosts the fruit promises to be abundant and fine. These plants, nevertheless, and notwithstanding the fact that they are quite clear of all shade from trees, have grown rather freely into leaf-stalk, and the flower-scapes look as if they were now enjoying the stimulating food the dry weather rendered comparatively inert last summer. Under these conditions it will not be wise to go too freely into stimulants until the fruit begins to swell when water in abundance may be given to them. Littering down between the rows meantime must be pushed forward, and so must thinning and trussing up with short sticks and matting, or twigs of Birch to keep the fruit safe from grit and nocturnal marauders. Slugs and snails of late have had a bad time, but a dripping month will bring them out of hiding, whilst mice in old gardens are sure to be well represented. For the first we lay baits of bran by putting down numerous pinches near their haunts on mild moist evenings. Then with a box charged with quick-lime, hand-brush, and dust-pan, we pay a second visit some two or three hours later. What then takes place may be left to conjecture; suffice it to say, years ago, when these pests were very numerous, our tubular boilers were converted into midnight crematories. Mice, before the fruit is ripe, may be trapped, not afterwards, as no bait comes up to the seeds of a good Strawberry.

RASPBERRIES

at the commencement of growth looked hard and unkind, and of late they have improved, and where well mulched, genial rains will now put them right until the fruit is gathered. If a dripping June puts all Nature in tune, nothing proves more grateful than the Raspberry, for moisture above and below the surface it must have; therefore, lacking showers, the hose and barrel must be put in motion. If one good ground soaking can be given it will be found worth a dozen dribbles, and no time better than the advent of refreshing showers.

FIGS,

protected and non-protected, are alike good, and fruit in plenty is now swelling freely. All superfluous and barren shoots having been cut back to a single eye, the breaks from these must be encouraged by the removal of all useless spray, as it is to these growths that we must look for next year's produce. Fruit-carrying shoots must be regulated and trained, or left alone according to taste, and the conditions, favourable or otherwise, to certain maturity. Healthy trees, which have passed through the winter unscathed, do not need pinching, but others hard hit

may require occasional stopping to restore them to a proper balance and future fruitfulness. As these trees, once they start, are apt to grow too strongly, they will pass through the hottest and driest summer without the aid of water, whilst others in restricted borders, and carrying plenty of fruit and foliage, will be the better for mulching and an occasional soaking.

APPLES

purposely, I have left unnoticed until last, and for this reason: the trees are later than usual, the blossom has been fine and plentiful, and so has the codlin moth, which has furnished a powerful army of slayers. Fruit, nevertheless, so far seems abundant, but how it will stand must be determined after the next heavy rainfall. Garden trees in good deep soil have set well, and where the grub has been disturbed by the fingers or hose, the fruit gives promise of some work in thinning. Apples, unlike Pears, may be thinned as soon as they have attained the size of horse beans, but both, the more the clusters of fruit are opened and relieved of the grub snugly working mischief in the centre, will give a handsome return for this attention. If not already done, pyramids and bushes on the Paradise stock must be well mulched with something that will keep in moisture prior to the application of water, at all times in dry seasons acceptable to these mop-rooted, home-abiding trees. The light, soft showers which have fallen since the 1st of June, although not equal to cleansing purposes, have started a rapid growth of young wood, and soon a few of the strongest shoots may require a balancing check, but beyond this, a free and even growth for the present may be encouraged; indeed, where space is unlimited, much may be gained by giving trees on the Paradise more room and allowing them to extend in every direction. An idea that a tree on the Paradise must be pinched to the dimensions of a birch broom somehow has sprung up, and the majority of amateurs find it hard to unlearn early lessons, but I can assure them that the most perfect extension specimens capable of shading their own roots in due course can be made, and now is the time to let them go. The recent discussion upon Apples and Pears having stimulated the desire for conversion, all young stocks and trees recently grafted must now be looked to. When the scions are fairly on the move all spray from the stocks and stems must be constantly repressed by close pinching, entire removal being deferred until the young shoots are capable of carrying off the full flow of sap, when the ligatures may be removed.

THE ORCHARD.

Here, as in the garden, more aged trees which have been headed back and crown or notch-grafted must be examined and re-daubed with soft, semi-liquid clay to keep out the air and favour the rapid spread and expansion of new sap wood. The roots of old trees having undergone a most violent shock, the chief care of the operator must be directed to their speedy restoration to activity, and in no way can this be better accomplished than by allowing every leaf and twig from stock and scion to grow to their fullest extent throughout the season. Young standard trees planted since last autumn will now make good progress, especially where they were puddled in and mulched. The ties by which the trees were secured to the stakes in some cases may require easing to prevent the possibility of hanging the roots by the gradual subsidence of the soil; and another matter equally important is a careful search for live stock which may have been introduced with them from the nursery. Grub is bad enough, as it soon destroys the points of the young shoots, when, independently of the check, a season is lost. American blight, however, is worse, but, taken in time, an occasional syringing with soapsuds and paraffin, an eggcupful to a gallon, will soon destroy it.

Bearing trees have been laden with very fine flowers, but how the fruit will escape the enemy, it is as yet rather early to venture an opinion. Should this moist growing weather continue, I am inclined to think an abundance of Apples will commence swelling, but fear the subsoil in many places is too

dry to carry the crop to perfect maturity. Blenheim Orange in this part of the county has flowered as I never saw this fine variety flower before. Cox's Orange Pippin with us, on the other hand, is shy, the imperfectly formed flower-buds apparently having broken into leaf and wood. W. C.

Fruit prospects.—One of the leading salesmen in Covent Garden, who has the best opportunities for forming an opinion on this matter, estimates the Apple crop in the home counties at about one-tenth of what it should be. Maggot and a continued low temperature with chilling winds have ruined the prospect of a good crop of Apples this year. I have seen Apple trees so infested with grub that not a bloom expanded, and such instances seem to be common. The same individual gives as poor an account of the Pear crop, but Cherries, he thinks, will be good and plentiful. Bush fruits are so infested with caterpillars, that he sent to two growers 6 cwt. of hellebore powder, which is the remedy now relied on by the Kentish market gardeners. Never in the memory of the present generation of Nut growers have the trees been so infested by maggots. One grower alone collected 4 bushels of them by spreading Hop pockets under the trees and beating them. This will show to what an alarming extent the Nuts are attacked this year.—J. C. B.

NOTES OF THE WEEK.

Seedling Columbines.—I enclose you a few seedling Columbines that seem to me exceptionally fine and of good colours.—K. A. SPURRELL, *Bessingham*.
*The Rev. A. Rawson, Windermere, also sends us a collection. Both the gatherings show in a marked degree what fine forms may be obtained by the raising of seedlings.—Ed.

Flowers from Ireland.—Mr. Greenwood Pim sends us a fine gathering of flowers, consisting of *Iris longipetala* minor, *I. sibirica*, St. Bruno's Lily, *Androsace lanuginosa*, and *Veronica Lyalli*. The *Iris sibirica* represented a fine form. The St. Bruno's Lily sent was that now known as the major variety.

Flowers from Farnborough.—Mr. John Crook, Farnborough Grange, Hants, has sent us a gathering of Phloxes rich in variety and of fine colours, and *Silenes*, one of which was an improvement as regards colour, owing to its brightness. Mr. Crook also included flowers of *Campanula Allioni* and a spike of the showy *Delphinium nudicaule*.

Tufted Pansy Ardwell Gem.—This variety fully merits the name of a Tufted Pansy, for a more compact kind I do not know. It branches freely, is very short-jointed, and the shoots are quite prostrate and spread over a large surface. The flowers, which are of a soft yellow, are most abundantly produced and sweetly scented.—A. H.

Tufted Pansy Skylark.—This is a pretty variety having white flowers with a marginal edging of bluish mauve, not one mass of formal edgings of an equal width all round, but a pretty and natural one, widening and narrowing, the line or band being occasionally broken by streaks penetrating a little further into the ground colour.

Chionanthus retusus is a beautiful, graceful, free-growing Japanese tree, with glossy leaves like those of a Pear, and white flowers that are borne freely in bunches at intervals along the leafy branches. They are larger than those of the old *Chionanthus virginicus*, and appear on the second year's wood. A specimen in the Coombe Wood Nursery of Messrs. Veitch has flowering freely a few days ago.

Dendrobium Dalhousieanum.—We have received flowers of this Indian Dendrobe from Mr. F. Bedford, Ströfhan. They represent a good form; the sepals and petals buff-yellow, and the lip, downy on the inner surface, also buff, except on either side of the column, where there are two eye-like blotches of velvety crimson.

Market Strawberry erries.—It would scarcely be believed that good Strawberries were this year sold in Covent Garden at 6d. per pound. Such, however, was the fact; indeed, for a day or two there was some difficulty in getting rid of them at that price. It was simply a case of the supply being far in excess of the demand, and those big growers who seem to imagine that an unlimited amount of fruit would

find a sale at remunerative prices will have been taught a severe lesson. Over-production to such an extent does no good in the long run and often takes away a living from small growers.—J. C. B., *Byfleet*.

Iris Korolkowi.—This species was recently shown before the scientific committee of the Royal Horticultural Society. It was received from Herr Max Leichtlin in 1885, and now flowering for the first time at Kew. It seems to be a variable plant, as the figure in the *Gartenflora* differs in colour from the one exhibited, in which the falls were of a pale lilac or grey colour, with narrow lines of purple, and with a deep purple-fringed blotch at the base. The grey standards are also lined with purple veins.

Viola lutea.—This true British Viola, common enough, perhaps, in its native hilly wilds, is well worthy of a quiet corner in many gardens. It is interesting as one of the species that has given rise to our noble race of garden Pansies. It is beautiful, too, and worthy of quite as much attention as is bestowed in many places upon the little *V. cornuta*. In habit it is dense and tufted, and formed a perfect picture as I saw it recently—a free and open group, partially shaded, the tufts nestling amongst some flat stones laid there to keep the plants cool and moist.—A. H.

Rose Cleopatra.—Mr. H. Bennett, of the Pedigree Rose Nursery, Shepperton, has sent us flowers of this new seedling Tea Rose, gathered from plants grown in the open ground and without any protection. This variety will add still further to Mr. Bennett's reputation, as it is one of the finest we have seen in its line of colour. There is a robustness of character in both stem and flower, and the beauty of the massive bloom will be hard to eclipse. It is full, dense, and brightly coloured, the strong firm petals delicate rose, with flakes of a deeper tint in some instances, the colour becoming of a clearer shade in the beautifully arranged centre. There is also a powerful Tea fragrance, a point of no small importance. We want hardy Tea Roses like the variety Cleopatra.

Styrax japonica and **S. obassia** should be noted by all as two beautiful shrubs to be obtained next autumn, as they are somewhat out of the common, and belong to that class of shrubs that are often heard of, but seldom or never seen. The first of the two mentioned is of free, graceful growth, and just now expanding into full beauty, being laden with Snowdrop-like flowers of snowy whiteness, an ornament to the garden scenery and a cheerful covering for a warm sunny wall. There are specimens of it in the Coombe Wood Nursery of the Messrs. Veitch, the one more exposed just coming into full flower. *S. obassia* would be worth planting if only for the large, deep green leaves, which are about 8 inches across and abundantly produced. But just now, when its racemes of white bell-shaped flowers are freely borne, this Japanese *Styrax* is about as handsome a shrub as one could have. There is also a specimen of this in the Coombe Wood Nursery, and both are perfectly hardy.

Flowering of Rheum nobile in Edinburgh.—This handsome species of Rhubarb is in flower for the second time in the Royal Botanic Garden, Edinburgh. The plant is the only one remaining out of a large number which were raised from Sikkim seeds presented by Mr. H. J. Elwes in 1883. At present the inflorescence is about 2 feet high, forming a perfect cone like a sugar-loaf. The bracts, which overlap each other and protect the flowers, are very delicate, semi-transparent, and creamy-white in colour. The plant is at present growing in a sheltered part of the garden surrounded by hedges, but it has only been in that position for about a year. It is hoped that the plant may ripen good seed, as seedlings raised from home-saved seeds may be expected to prove more amenable to cultivation in this country than those raised from Sikkim seeds. The plant which flowered in these gardens eight years ago (for the first time in Europe), a coloured plate of which appeared in THE GARDEN (Vol. XVIII., p. 406), was much taller than the present one, but scarcely so handsome. Unfortunately, it met with an accident and did not

produce seed. Another plant, which flowered in the gardens at Drum Castle, Aberdeenshire, in 1883, is stated to have ripened good seed, but I have not heard what became of the seedlings, or if any are still alive. A few seeds of the Aberdeenshire plant which I received from Mrs. Forbes Irvine in Nov., 1883, did not germinate.—R. LINDSAY.

Cyrtanthus obliquus.—This handsome bulbous plant is at the present time among the chief attractions in what is known as the Cape house at Kew, where are gathered mainly the plants native to South Africa. It is very unlike the ordinary kinds of *Cyrtanthus*, such, for instance, as *C. McKeni*, the flowers being more like those of *Clivia cyrtanthiflora* or a *Blanfordia*. The leaves are broad, very thick in texture, not very long, and have a peculiar twist in them, while their colour is a greyish or glaucous green. The stout flower-stems rise about 15 inches high, and each carries a dense umbel of flowers numbering from eight to twelve. Each tubular flower is 3 inches long, of a bright orange-red, with the lobes bordered with Pea green. There are large specimens of it in bloom, some carrying as many as seven spikes. It is a noble and beautiful plant, and one that deserves to be generally cultivated. It is, we understand, one of the many good things collected and brought home from South Africa by the assistant curator, Mr. Watson, when he went there last year.

The Rocky Mountain Bramble (*Rubus deliciosus*).—Nothing in the way of a flowering shrub could be more beautiful than this Bramble. Bramble it is called, but one must not associate it with Brambles in ordinary. It is quite a different thing, being more like a single Rose; in fact, one would describe its great saucer-shaped flowers of snowy whiteness as being like those of the Dog Rose, only bigger and more beautiful, if that could well be. There has been at Kew during the past fortnight some glorious bushes of it all lit up with crowds of blossom. One against an east wall has been every day in the sunshine a beautiful sight, as every bloom opened wide, so that the bush looked like a sheet of white. It seems to derive considerable benefit from being against a warm wall, though really it is as hardy as our native Bramble, and flourishes well as an open bush. In various parts of Kew Gardens there are large spreading bushes of it, and all have been laden with bloom. Such a beautiful shrub is not half enough known, as instead of being a stock plant in nurseries, it is not even known in some of the largest nurseries. No one need hesitate to put it in a most select list of hardy flowering shrubs.

The Mysore Thunbergia (*T. mysorensis*).—This is an old friend under a new name, but many will know it well under its older name, *Hexacentris mysorensis*. It is a very showy plant, extremely graceful in growth, and easily grown as a stove climber. Just now it festoons the roof of the great Palm stove at Kew in a beautiful way, and is laden with numerous large and dense clusters of great yellow and crimson flowers, or, to be precise, the tube is Venetian red and the lobes bright yellow with a red border. The flowers hang on the slender branches for a fortnight or more, so that it is a plant worth growing in a general way. It was introduced from Mysore about thirty years ago, and soon became well known. I remember how finely the late Mr. Vair used to grow it in the stoves at Dangstein, in Lady Dorothy Nevill's garden. He chose for it the lightest position, gave it plenty of root-room, abundance of water during the growing season, and used to prune it hard back in winter. During June it used to be the glory of the place. It is one of those plants too seldom seen now-a-days, simply because gardeners do not know it.—W. G.

Alliums.—It would be a great pity if amongst the great number of species belonging to this genus a few at least could not be found available for the flower border. Curiously enough, the best have been introduced only recently, mostly from Turkistan; amongst them *A. giganteum*, *stipitatum*, *Ostrowskianum*, &c., are perhaps the most useful. Among older varieties may be classed *pulchellum*, *flavum*, *cæruleum*, the charming *pedemontanum* and *neapolitanum*, while amongst very old friends we have the yellow *eczoniferifolium* and *Moly*, the

pretty white and rose-tinted attenuifolium, roseum, and a few others that rank with many of our really good border flowers.

Early-flowering Honeysuckle.—I send you a few sprays of an early-flowering variety of Honeysuckle, which blooms quite a month before the common kind. The plant from which the flowers were cut is growing upon a cottage porch with a western aspect. The flowers commenced to open about the end of last month, and at the present time the plant is a mass of blooms. Is this variety generally known? I have never met with it elsewhere.—J. DAY, *Galloway House, N.B.*

* * The early Dutch Honeysuckle.—ED.

The green Ixia (*I. viridiflora*), with its tall, elegant spikes of sea-green flowers with black centres, greatly attracts the visitors at Kew, being quite unique in colour among the multitudes of flowers now to be seen there. It is a charming plant for any garden, and being so cheap and so easy to grow, ought to be grown by everyone who likes beautiful flowers out of the ordinary run. Among a great crowd of other sorts of Ixias in the Cape house at Kew it stands out conspicuously.

Brunonia australis.—It is so seldom that this pretty little New Holland plant is seen in flower that the fact of its now being in bloom at Kew is worth notice. It is a dwarf plant, and may be called a greenhouse alpine. It is somewhat like a small *Scabiosa*, growing 6 inches or 9 inches high, and having a slender stem topped by a dense cluster of tiny Forget-me-not-like flowers of the loveliest blue imaginable. It is, of course, only a botanic garden plant, but it is interesting as well as pretty. It may be seen in what is called the Cape house.

Golden Drop.—The charming *Onosma taurica* seems to have found a genial home at Kew, as it may be found in several places, in all of which the plants seem well established, yielding a large amount of their beautiful golden flowers. One plant, however, growing in a cold frame used for Cacti attracted our attention most. It is over a yard in diameter, producing hundreds of golden flower bunches, and, we were told, receives no attention whatever. Three years ago it was planted out of a 2½-inch pot a mere rooted cutting, and this we learn is the quickest way of dealing with the *Onosma*. Just after the flower season is over, cuttings, if taken off and placed round the rims of small pots, will root freely. If the cuttings are not taken just as the flowers fade some difficulty will be experienced in striking them.

Silene virginica.—This charming plant was recently shown in grand condition at a meeting of the Royal Horticultural Society, its numerous jagged-edged, bright scarlet flowers never failing to draw attention. It is a native of America, and, we believe, somewhat rare until the large importation by Mr. T. S. Ware this year. It was, however, introduced in the time of the Loddiges (1783), and figured in several of the botanical works. Elliott, an old American botanist, describes it with quite entire petals, a state of this plant we have not yet seen. *S. pennsylvanica*, a near ally, was first flowered by Messrs. Fraser, in Sloane Square, a good many years ago. The flowers are gathered into a sort of fascicle about the size of those of *S. virginica*, and bright pink. It is perfectly hardy, and a native of Pennsylvania.

Tweedia cœrulea is an old plant not often seen grown well or even in flower. The colour of the flowers is peculiar, if not unique, and is certainly very beautiful. It is the sort of blue tint that is popularly called Cambridge blue or turquoise. The flowers are star-shaped, about 1 inch across, and several are borne in a cluster terminating the shoots, which are inclined to entwine themselves around the nearest support. It is shrubby, and as it comes from Buenos Ayres, it can be grown in a cool or even unheated house, provided the plant is protected during winter. It is benefited by being pruned in autumn. Though it has been in English gardens for over half a century, it is only in those where uncommon plants are fostered that one meets with it. It may be seen in the greenhouse at Kew,

planted in the centre bed against one of the pillars. Its newer name is *Oxypetalum cœruleum*, but that of *Tweedia* is best known.

Cooperia pedunculata is one of those beautiful half-hardy bulbous plants that are far too uncommon in gardens. It is one of the *Amaryllidaceae*, and reminds one of a Zephyr Flower (*Zephyranthes*), as it partakes of a similar habit of growth. The flowers have narrow tubes, 3 inches or more in length, and the sepals are pure white and spread about 1½ inches across, and delightfully fragrant. Only one flower is borne on a stalk which rises about 6 inches high. It is a native of Texas, as is also the only other species of the genus, *C. Drummondii*, and, therefore, cannot be grown successfully out of doors without protection, except in the most favoured localities. The late Mr. Joad used to grow the *Cooperia* well in an unheated frame in his garden at Wimbledon, but he always took care to give the plants the benefit of full exposure during the summer and autumn. He used to plant the bulbs out in free soil largely composed of peat. *C. pedunculata* may be seen in flower in the Cape house at Kew.

ROSE GARDEN.

ROSE NOTES.

NOTWITHSTANDING the cold weather that lasted until the middle of May, Roses in the open air are for the most part in a remarkably vigorous condition, and the flowers will not be so late in expanding, should favourable weather continue, as might have been expected. If it were not for the Rose maggots which have attacked almost every plant in the garden, there would not be a single complaint to make, as the plants are growing well and showing plenty of flowers that promise to be unusually large. The plants growing in the form of bushes are the most promising. Such varieties as Ulrich Brunner, Violette Bouyer, Charles Lefebvre, Magna Charta, Mrs. Baker, Emily Laxton, Baroness Rothschild, Antoine Ducher, Grandeur of Cheshunt, Paul Verdier, and Jean Souper are growing freely. When the plants are not on their own roots I have always advised rather deep planting, but those in question I found were not so deep in the soil as they ought to be. Instead of taking them up and replanting them, I increased the depth by adding to the surface, first putting on a layer of manure, and then a covering of soil 3 inches thick. The latter was nothing more than well rotted garden refuse, which is so nourishing for the roots, that I gave another covering of the same kind of material last winter.

The season has been a trying one for newly-planted Roses, especially those put in late. A lot of dwarf plants of some new sorts that came to hand in the month of March has given a good deal of trouble. The cold kept them from starting into growth, and the shortness of the rainfall during the month of May necessitated regular watering at the roots. These plants have not been pruned, nor shall I touch them with a knife this year. To do so I am sure would, in their present condition, kill them outright, because my experience is that it is a dangerous practice, under any circumstances, to prune late-planted Roses the same season. If the plants must be moved late, it is better to prune them in November or not at all. This remark applies to both standards and dwarfs. So far as the season has gone, there appears to be more than the usual number of blooms with green centres. This is especially the case with those sorts bearing white or flesh-coloured flowers, as there are many such on the plants of *Boule de Neige*, *Gloire de Dijon*, and *Souvenir de la Malmaison*, and even under glass *Niphetos* has been affected in this way. In most cases there are two or three rows of outside petals which are perfect both in form and colour, while the centre contains a cluster of flower-buds or greenish-coloured petals.

The absence of green-fly upon outdoor Roses is remarkable, as not one is yet to be found. Our usual remedy for the destruction of this insect is soft soap dissolved in warm water at the rate of

1 ounce to 1 gallon of water, and with this the plants are syringed. It will be seen that the remedy has the merit of cheapness, and at the strength I mention it is harmless to the trees, but destructive in its effects upon every insect it reaches. The thinning out of the flower-buds of Roses is an operation that only a limited number of cultivators practise, yet it is quite as necessary as some other parts of the management. It is absolutely essential in the case of those who require Roses for exhibiting, and it would appear quite as necessary in many other cases if the cultivator could realise how much the plants are distressed by being allowed to mature so many flowers. On strong-growing plants it is not unusual to see from five to seven buds in a cluster. If left to themselves, the first flower that opens is fairly good, the second and third are considerably smaller, while the others fail to open at all. It is evident, therefore, that the buds require to be thinned out, and that if left upon the plant they are an unnecessary tax upon its strength, to say nothing of the injury they do to those that are left to become fully developed. With regard to mulching Roses, another dry spring has shown the value of the practice where sufficient material was used, for the plants, whether well established or recently planted, that had the surface between them covered with half-rotten manure to the depth of 3 inches are in much better condition than those that only had a slight covering of the same kind of material.

J. C. CLARKE.

Rose Marechal Niel.—Being interested in growing the *Marechal Niel* Rose, I am anxious to know if anyone has had experience in growing it on its own roots and putting a box around the stem to prevent the canker from killing the plant. I was told, six years ago, that in Quebec the nurserymen, on the first appearance of canker, put boxes around the stems and fill them with soil; the plants root up the stem in this box and grow away vigorously. I tried this plan on two plants, and I find they live much longer. I filled the boxes with waste soil from the potting bench, and a few days ago I examined these boxes, and I find they are full of roots from the stem. I intend to put boxes on the other plants. I prefer to plant this Rose in inside borders where it can be layered on the first appearance of canker.—CAMERON.

SHORT NOTES.—ROSES.

Rosa coruscans (*rugosa*), now in bloom, is of a much softer pale satiny rose than the type, and to many people more pleasing, but it does not appear widely known.

Comte d'Epremesnil, a double crimson form of *R. rugosa*, is one of the most deliciously fragrant Roses in existence, and blooms throughout the season with great freedom.

Rosa indica (species *Harpur Crewe*) is now in bloom, and is one of the most lovely single Roses, with its great flesh-coloured petals. It flowers most freely as a maiden.

Rosa spinosissima *Hoggii* is one of the prettiest of the Scotch Roses, having pale yellow semi-double flowers, produced at this time of year in the utmost profusion.

Grace Darling is already (5th June) in flower on dwarf plants in the open. It is always among the earliest to expand, and should be largely grown everywhere.

Fortune's Yellow, one of the most charming of climbing Roses and quite unique, is also in bloom (6th June). Its red and gold flowers are quite irresistible, and in the bud or half-open state they are delightful for cutting.

Madame Lambard.—The early blooms of this beautiful Tea are this year all of a self rose colour, almost exactly as they generally appear in autumn. No Rose is, perhaps, more variable in tint than this invaluable variety.

Rose seed gathered last autumn is already germinating freely. Seedlings of the less double Hybrid *Perpetuals*, such as *General Jacqueminot*, are immensely abundant, and are now about an inch high. Among the seedlings of *Rosa multiflora* also there appears considerable variation in habit and foliage.

Rose Kronprinzessin Victoria (*Späth*, 18878-8), said to be a sport from *Souvenir de la Malmaison*, is a very pretty Rose, having well-formed buds, white on the margins of the petals shading to a delicate primrose-yellow in the centre. It is rather more yellow than *Gloire Lyonnaise*, and, unlike that variety, is a very full Rose.

Rose pests.—The amount of grubs and caterpillars on the Roses this year is appalling, and mildew and red-rust are also apparent. Mildew may be checked by syringing with a solution of sulphide of potassium, but the cure for red-rust has yet to be discovered; careful hand-picking is slightly palliative, but no more. The only Rose pest not yet very conspicuous is green-fly.

THE CHUSAN PALM (CHAMÆROPS FORTUNEI) AT HECKFIELD PLACE. THE annexed illustration shows well two plants of the Chusan Palm, which, from the number of years during which they have been planted and the severe winters they have survived, may be considered hardy here. I planted them out in September, 1869, and since the winter of that year not the least artificial protection has been given them. They were then vigorous plants 4 feet in height, and the largest of the two—the one to the left of the picture—is now close upon 15 feet high, and the girth of stem 2 feet from base is 45 inches. The foliage is of immense size, many of the

supply of it would not be of much service. The subsoil is a gravelly sand, and the pan having been broken when the plants were first put out, I am prepared to believe that many of the roots have gone down as deeply as the plants have upwards. The plants began to throw up flower-stems fourteen years ago, and every summer since they have thrown up from six to twelve spathes each. Very fortunately, the plants are a pair, and the female has produced seeds from which we have raised young plants. Seeds are not produced every year, because the pollen of the male has frequently dispersed ere the flowers of the other have expanded. Had any set last year with

best possible taste in sub-tropical gardening. In the Pine-apple Nursery of Messrs. Hooper & Co., Maida Vale, there are several varieties of the new Continental Cannas. One named *Petite Jamé*, bright red, with an edge of gold, was carrying a spike of flowers, although the plant was only about 18 inches high. There is also a charming variation in colour in the Continental Cannas. Some are brilliantly showy, especially those with scarlet flowers and edges of gold and spottings of vivid hues.

STOVE AND GREENHOUSE.

GLOXINIAS AT MAIDA VALE.

THIS is an age of exhibitions of all kinds, and the latest in the horticultural way is a show of Gloxinias in the Maida Vale nursery of Messrs.



The Chusan Palm (*Chamærops Fortunei*) at Heckfield, Hants. Engraved for THE GARDEN.

leaves measuring upwards of a yard across and drooping most gracefully, and, as shown in the picture, to a large extent concealing the stems of the plants and causing them to look much smaller than they do when one is standing near them. The position they occupy is a warm corner at the south-west angle of the mansion, which is well sheltered from the north by a massive Holly hedge, and from the east by the terrace wall of the flower garden, the small gate to the right of the picture being the entrance thereto. They are growing in a light loam, which is biennially enriched with the best manure we can command, and anyone who saw the roots would need no further argument to convince him that a limited

the tropical heat we had, they would surely have been equal to imported seeds.

W. WILDSMITH.

A note on Cannas.—It seems that quite a revolution has taken place with regard to the Cannas. The large tall-growing varieties that have been the fashion are about to give place to a different type in the Continental kinds that are being grown in many English nurseries. These are much neater, as robust in their way as those of the other race, and though, perhaps, not so useful for giving great masses of foliage in the flower garden, are of more value for the house. We want both classes of Canna, in fact. We could ill afford to lose such a lovely form as the crimson-flowered *Canna Ehemanni*; but varieties of this class take far too much room except where bold views are required. The smaller growing Cannas can also be used with the

Hooper and Co. The Gloxinia has the advantage of carrying its flowers well above the foliage, and the blooms display an infinite range of colouring from the purest white to the richest self crimson, with intermediate shades and spotting of many tints. There are some things that look miserable on the exhibition board, though gay enough in the garden, and it is these that should not be put up to public gaze, as a wrong impression is obtained of their real worth. The plants are arranged in a house of moderate size, and, mixed with Maiden-hair Ferns, make a charming picture, as nothing brings out the delicacy, yet boldness, of the Gloxinia so well as Ferns. At the back of the house is a bank of foliage subjects, such as Palms, Crotons, and things of that character. It is amidst such leafy surroundings and in a

mass that we see the brilliant diversity of colour now obtained; and another point of importance is the dwarf sturdy habit with robust leaves, unlike the spindly examples that used to be seen at exhibitions some years ago. This is the result of an improved treatment. It is no longer considered essential to give the plants a hot atmosphere, so that we have examples of a stronger growth with naturally a greater freedom of flowering and more strength in the blossoms themselves. This robust, dwarf habit is characteristic of the varieties at Maida Vale—all seedlings, by-the-by, and capable of making a display for some time to come. Those flowers spotted with various shades of crimson on a white ground are very rich, so also the vivid scarlet and purple shades; but it is impossible to particularise where the colouring is so strikingly varied. The practice is to sow the seed, of course in heat, in January, and the young plants are potted on as necessity arises, at all times having a light position to prevent a lanky habit, which is a sign of indifferent culture. Another important matter is to provide plenty of air and light shading when the flowers are in full beauty. By having a successional supply the display of flowers will continue for some time, so those who intend to cultivate the *Gloxinia* should bear this in mind, as one individual specimen is not in itself very long-lasting. The bulbs are dried off in the usual way, and the mode of propagation followed is by seed and the leaves. The *Gloxinia* is a flower that, although by no means uncommon, is not very largely grown, notwithstanding its charms. The flowers have perhaps the disadvantage of being of very little use when cut, as they are so easily bruised, and even the plants when in bloom must be handled tenderly by reason of their brittle leaves. But those who require something out of the ordinary and have a warm house may make a pleasant change by growing the *Gloxinia*, as it is not difficult to manage, and at this season will produce plenty of gay flowers.

Manettia bicolor.—This slender-growing, twining plant forms a very pretty object when grown in a pot and allowed to ramble over a few twiggy branches stuck therein, as the shoots will attach themselves to the sticks and present quite a mass of slender stems and bright red and yellow tubular-shaped flowers. Besides this, it may be grown as a pillar or rafter plant, but should not be planted where strong-growing subjects are desired, as in this respect it will not hold its own with many other climbers. This *Manettia* is a native of tropical America, and to succeed with it it requires liberal treatment and the heat of an intermediate house or the cool part of the stove. When growing it should be frequently syringed, otherwise the foliage is liable to be attacked by red spider, which will cause many of the leaves to turn yellow and fall. Cuttings of the young growing shoots taken at any time during the spring and early summer months strike root readily enough if kept close and shaded for a time. Plants raised in this way flower more freely when young than seedlings.—T.

The Tree Tomato (*Cyphomandra betacea*).—This plant, alluded to in *THE GARDEN* June 2 (p. 500), fruited many years ago at Kew; indeed I well remember a large specimen in the temperate house that bore a quantity of fruits twenty years ago, and after that flowered and fruited annually. The plant in question was, I should say, 6 feet or 8 feet high, and consisted of a clean stem, the upper part of which was divided into three or four branches, thus forming a specimen of tree-like habit, the large, heart-shaped leaves of which gave it a noble appearance. The fruits also formed a very distinct feature, for they were borne on long stalks, so that they hung quite clear of the foliage. The individual

fruits were egg-shaped, of a reddish colour, and borne in good-sized clusters. From this it will be seen that, irrespective of its importance as a fruiting plant, this native of Brazil is of considerable value from a decorative point of view, especially where there is a large conservatory, so that the specimen can be allowed to assume its full development. Seed of it germinates readily, and cuttings of the weaker shoots can also be struck.—H. P.

WORK IN PLANT HOUSES.

TREE FERNS.—When well managed the large-growing species of Tree Ferns are the best of all for conservatory decoration. The system of planting out that in some cases is adopted in large ferneries or in conservatories with a view to giving the plants a more natural appearance cannot be recommended. When planted out, unless the stations the plants occupy are limited in size, so as to keep the roots sufficiently confined, the heads soon attain undue proportions, such as cause them to overshadow everything near them. And in addition there is no chance of varying the arrangement of the houses by moving the plants to different positions in the way that can easily be done when the specimens are kept in pots or tubs. Where these are used, they need not be nearly so large as is often supposed necessary. If during the growing season the plants are regularly supplied with manure water, the fronds come sufficiently large and strong and keep of a dark green shade. By regular feeding in this way the plants will go on for a number of years without additional pot room. Strong-growing kinds of Ferns, such as most of the Tree species, will bear manure water in a somewhat stronger state than plants that make less growth; yet I have found it better to use it weaker and to apply it all through the growing season every other time the soil requires moistening than to use it stronger and less frequently. A thin shade is necessary in bright weather for most species, including the Tree sorts, but more light with more air and less moisture in the atmosphere as well as overhead, and less heat than is often given, are the secrets of having Ferns in the best condition. When kept too hot and in the half darkened houses that were considered necessary they become a prey to thrips, and under such conditions their fronds are too tender to bear the fumigating or washing with tobacco water that is necessary to kill the insects.

TODEA SUPERBA.—This, the finest of all Filmy Ferns, often suffers through the mistakes that are made in its treatment. Up to the time that the plant became sufficiently plentiful to admit of its being had at a reasonable price it was supposed to require some fire-heat to keep it in condition, especially during the growing season. From the fact that it enjoys a confined atmosphere it was thought that it would be benefited by the application of water overhead. To the presence of these two conditions can be attributed most of the failures that occur. The temperature of a cool greenhouse is quite sufficient to grow the plant to the largest size of which it is capable, and it should never be syringed overhead, as where this is practised the fronds generally have a seared, unhealthy appearance. It is best kept in a glazed case with little or no air admitted; in this way the fronds are nearly always hung with drops of moisture, the effect of which is quite opposite to that which follows the use of the syringe. Like most other Filmy species, this *Todea* does best when closely shaded, so as not only to shut out the direct rays of the sun, but also to keep the light subdued.

FERNS FOR CUTTING.—The lasting properties of Ferns when used in a cut state in a great measure depend upon the way the plants are treated whilst making their growth. To have the fronds in a condition that will enable them to keep fresh and free from flagging for a week or so after cutting, the plants must not have more heat than is necessary, and should have air given them freely from the time they begin to grow. They must also have all the light that can be afforded them, using no thicker shade than requisite to keep the growth

from being injured. It is only when so treated that the fronds will keep in a presentable condition for any length of time after they are severed from the plants. It is also better before the fronds are used to immerse them overhead in water for six or eight hours, so as to keep them fresh.

STOVE.—POINSETTIAS.—A second lot of cuttings should now be put in. They will bloom later than the earliest struck plants. Sometimes a difficulty is found in getting the cuttings to succeed through their damping off; when this occurs it is usually through the shoots being taken off when they are young and too soft, especially when they are strong and sappy, or the precaution is not taken to have a heel attached. If the firm wood at the extreme base of the shoots which forms the connection with the old stem is secured, it rarely fails to produce roots. Cuttings of plants of this nature that have a considerable amount of soft core in their shoots should always be secured in this way, and whilst they are in the propagating frame or glasses they should not be kept too confined or too much in the dark, as both these promote damping off. The cuttings should be put singly into small pots half filled with a mixture of sifted loam and sand, the top all sand. Cuttings that are sufficiently rooted, and have begun to make top growth, should be put into pots two sizes larger than those in which they have been struck. Good fresh loam with some sand and rotten manure is the best material to grow *Poinsettias* in. A moderate stove heat with the plants close to the roof of the house, or pit, in which they are kept during the summer with a moderate amount of air in the daytime are necessary. If kept too hot, the atmosphere over-charged with moisture, and not sufficient light, their natural thin, straggling habit causes the plants to grow to a greater length than is desirable. The treatment recommended is the more requisite, as it is of little or no use stopping the shoots, particularly in the case of young plants, for in most cases where stopping is attempted, only a single shoot usually afterwards grows on, and where large heads of their coloured bracts are required it is necessary to concentrate all the strength into one growth.

OLD POINSETTIAS.—Strong stools that have produced a crop of cuttings, and that are to be kept on for another year, may now be turned out of the pots and have a good portion of the old soil shaken away. They should have pots two or three sizes larger than those they have previously occupied. If required, they may have three or four shoots each, but if extra large heads are wanted they should be confined to one stem, in which case the other growths should be taken off.

PLANTED-OUT POINSETTIAS.—Where there happens to be a lean-to or a hip-roofed stove, with the back wall facing the south and not too much darkened by the other plants occupying the body of the house, *Poinsettias* can be grown in it. Where they can be planted out and there is enough room to admit of the branches spreading, the plants attain a large size and are highly effective when in flower, producing numbers of their glowing-coloured heads such as cannot be had when the roots are confined to pots. Grown in this manner, the shoots should be loosely trained to the wall, allowing about 18 inches of the top to stand out from it; in this way they give a mass of colour such as few things can equal, and afford plenty of material for cutting.

GREENHOUSE.—CINERARIAS.—Some seed should now be sown, and this will furnish stock that will bloom in spring at a time when the plants can be had in better condition than those that come in earlier. Now and then exceptionally fine varieties will appear amongst the seedlings, in which case it is worth while to keep them. Where this is done, the plants should be kept free from aphides and be encouraged to make suckers, which later on will be in a condition for taking off and potting. In procuring seed of *Cinerarias*, it is well to obtain that which comes from a strain that has a branching, compact habit of growth, and that produces dense heads of medium-sized flowers, pure and decided in their colours. *Cinerarias* of this character are preferable to the thin-habited plants that give flowers of extraordinary size, but comparatively few in number.

DAPHNE INDICA.—Plants of this *Daphne* that have flowered late in spring and are now making growth will be benefited by an intermediate temperature, for though it will succeed with ordinary greenhouse treatment, it makes much more progress when kept warmer, especially if it is assisted with manure water, which may be given frequently. Syringe overhead lightly every afternoon at the time the house is closed. Any plants that have made vigorous growth and seem to want more root room may now be potted, but care must be taken that they are not over-done in this respect, as both varieties of this *Daphne* are spare rooters that do not like too much space. In most cases pots one or two sizes larger than those they have been in will be big enough. By giving a shift at this time the plants will be in better condition for making free growth next spring than if they were allowed to remain with their roots too much confined until after they had again flowered.

BRUGMANSIAS.—Plants that were wintered under cool treatment should now be pushing their new growth freely. Specimens that are in pots or tubs as large as it is desirable to give them should have plenty of manure water. By giving this as soon as the young shoots have got fairly into growth, and continuing its use up to the time of their flowering, a vigorous condition with a plentiful crop of bloom may be depended on with as much certainty as if the roots had more space.

CHRYSANTHEMUMS.—It is now time to move the general stock of *Chrysanthemums* into the pots in which they are to flower. The amount of room given requires to be regulated by the strong or weak-growing character of the varieties, and where two plants are grown together larger pots should be used than when each plant has a separate pot. In the case of the weaker growing kinds and such as were struck in spring, two plants may be put into one pot. Good turfy loam, with a liberal addition of rotten manure and some sand, is the right material to grow the plants in. Provided they are now furnished with enough shoots, no more stopping will be required; if they are not, pinch out the points at once. It is a mistake to carry out the stopping so late in the season as is sometimes practised.

T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Brazilian Wood Sorrel (*Oxalis brasiliensis*) produces a profusion of rosy purple flowers at this season. It does well in a pan and a cool house.

Scilla natalensis is a bold-growing Squill having flowers of a delicate sky-blue tint. It has tall scapes and is desirable for a greenhouse in June.

Two fine *Fuchsias* are *Monarch* and *Venus de Medici*, both of which are flowering freely in the greenhouse at Kew. The first is of a deep purple and crimson colour and the other purple and pink.

Calochortus cæruleus is in bloom in the alpine house at Kew. It has a solitary linear leaf, the flower white except in the centre where it is of a purplish tint and thickly covered with slender hairs. It is quite dwarf and a native of Sierra Nevada.

Lilac Charles X.—Though a great many varieties of *Lilac* have been sent out within the last few years, this is still one of the best, if not the very best, of the dark-flowered forms. It is a free, yet sturdy-growing kind, with massive clusters of blossoms, conspicuous either in the open ground or when forced into flower under glass early in the year; indeed, it is one of the best for growing into neat little bushes for this purpose.—H. P.

Greenhouse Rhododendrons.—I recently noted in Mr. Bull's nursery at Chelsea two excellent new seedling varieties of this deservedly popular family of plants. They appear to be remarkably free-flowering, as quite small plants were heavily laden with large trusses of bloom. Fair *Rosamond* is of a uniform soft blush; whilst *Diana* is a slightly larger flower, white, with a tinge of blush towards the centre of the limb.—W. H. G.

Anthurium Scherzerianum.—This plant still maintains its popularity, and it bids fair to continue a general favourite. Amongst many seedling forms which I have seen during the past few years, I have seen nothing so fine as a new form now in Mr. Bull's possession at Chelsea. The spathe is flat and even, large without appearing coarse, measuring 6 inches in length and 3½ inches in width, and intensely rich in colour.—W. H. G.

Passiflora kermesina.—Those who want a beautiful climber to adorn the roof of a stove, should make a note of this *Passion Flower*, which is one of the best of all. It is peculiarly suitable for a small house, as it does not grow so vigorously as many others, and it flowers freely even when small. The blossoms are small, being about 3 inches across and of a charming carmine colour, a tint that everybody admires. It may be seen in flower in the Palm house at Kew in one of the stoves.

Aquilegas as pot plants.—It is not very often we find the *Columbine* grown as a pot plant, although from its bushy, Fern-like character nothing could be more suitable. In the Maida Vale Nursery of Messrs. Hooper & Co. it is successfully treated in this way. The seed was sown in the spring of 1887, and the plants put out in the open ground for the summer, being lifted in the autumn. During the winter they are kept in a cool house. A few days ago they were commencing to flower freely, and the charming elegance of the *Columbine* is not destroyed by growing the plants in pots. There were several varieties of the common *A. cærulea* and other well-known sorts.

Olea fragrans.—In answer to "D. T. F." in *THE GARDEN* June 2 (p. 504), young plants of *Olea fragrans* will grow more freely when grafted on the *Privet* than they will on their own roots, and on this point I can speak with confidence, as I have propagated them both by grafting and by cuttings. Unlike "D. T. F.," I never experienced any difficulty in inducing cuttings to form roots, though I must admit that the process is a slow one. The principal difficulty with "D. T. F." appeared to be that his plants did not grow with sufficient freedom to yield good healthy shoots as cuttings, a difficulty I never experienced, as a bush planted out in the conservatory, in company with and under the same conditions as the *Camellias*, both grows and flowers with great freedom. A few years ago, a good specimen of this *Olea*, whose condition left nothing to be desired, was growing in one of the beds in the temperate house at Kew, but whether it is there still I cannot say. With regard to plants in pots, they need the protection of a greenhouse to keep them in health, though I find they do better if plunged outside during the summer months in a spot where they are not too much exposed to the full rays of the sun. The conditions under which I find the cuttings to strike very well are to take good clean shoots just as they commence to get woody (for the entire cutting must be of the current season's growth), and having cut them off clean at a joint, they are dibbled rather firmly into light, sandy soil, and after being well watered, they are stood in the propagating case of an intermediate house, in company with and under the same conditions as the various greenhouse *Rhododendrons*, great numbers of which are struck here.—T.

Oxera pulchella.—In the letterpress accompanying the coloured plate of this in *THE GARDEN*, June 2 (p. 510), it is erroneously stated that the plant was introduced into this country by seeds from New Caledonia; whereas it was sent here from Algiers, where it happened to be flowering when Sir George Macleay was there some seven years ago. He immediately secured a piece of the plant and sent it to Pendell Court to my predecessor here, Mr. Green, who thinking that as it did well in the open air in Algeria, planted it in a cool greenhouse, where, although it grew in summer, it went off in winter. The consequence was that the first four years' growth was lost in attempting to establish it in this house. On my taking charge I found the plant still a cutting, and on being told of its failing to grow, as well as looking to the fact that it was a native of New Caledonia, I decided that a lighter and warmer position was required. Accordingly it was when large enough planted in its present position, where it soon established itself, flowering at the end of the season. It again flowered profusely this year, many of the axillary, cymose bunches of flower, being from 8 inches to 10 inches over, and as they are produced in midwinter they last a long time in perfection. Amongst other plants which were introduced here with the *Oxera* and from the same place came a plant labelled

Phædranthus Lindleyanus, which, however, on flowering turned out to be only a fine form of the beautiful *Bignonia Chereze*. Although the two plants both succeeded equally well in Algeria, yet the *Bignonia* thrives here luxuriantly where the *Oxera* refused to grow.—FRANK ROSS, *Pendell Court, Bletchingley*.

STEAM HEATING.

THE importance of greenhouse heating is perhaps appreciated as well by gardeners as any subject in connection with the florist's business. He is sure to be reminded of its importance at least once a year—that is when he has his coal bill to pay. The desire to reduce the amount of this bill has led to a great deal of experimenting and changing, the benefit of which has often been doubtful, for if the coal bill is small, which it often is not, it may have been more than balanced by extra labour and greater risk.

The requirements of the business will settle or has settled the question of greenhouse heating at the present time, as it has done in the past. Years ago, when the business was limited and greenhouses seldom built over 50 feet long, and those devoted to growing a variety of plants, the brick flue was all the heating apparatus required. I doubt if steam would have answered any better, as you could grow a large variety of plants in one house by growing plants requiring a high temperature in the warm end, and those of a low temperature in the cold end. When the grower found the business required a large quantity of one kind of flowers, he then had to devote a whole house to one kind of plant, and that house was better to be 100 feet long than 50 feet. It became necessary to have a better heating apparatus to heat a large house, as flues required too many fires, and the uneven temperature was unsatisfactory. Hot water then proved to be just the thing required, the brick flues began to disappear, and the water apparatus to take its place, not so much because of its superiority, but because it was better adapted to the condition of the business. Hot water then became for many years the only method of greenhouse heating, but the business has been growing; the increase in the last ten years has been wonderful. Now the 100-foot house is not long enough; the grower keeps on building and putting in one hot-water boiler after another, until when you ask him how many fires he runs he is unable to count them.

It is about time he made a change to some system by which he can heat his place from one central station with not more than two or three fires. The only practical system by which this can be accomplished is by steam. Hot water under pressure has been tried by a number of growers, not with the idea that you would heat more space with one fire, but that there was a great saving in fuel over the old method. Those who have tried it have met with very satisfactory results in some cases, and decidedly unsatisfactory results in others. It is doubtful if there is any advantage in this system over the old, except the use of smaller radiating pipes holding much less water; the pipes become cool much quicker, and the water becomes hotter in the boiler, causing a quicker circulation, which is an advantage. But when they put the water under pressure and heat it above the ordinary boiling point, without any automatic regulator, it would seem to be trusting too much to chance.

Steam for greenhouse heating is now an accepted method. The large places cannot very well do without it, and many small places are using it with very good results. There is not practically very much difference between steam

and hot water, but what difference there is in favour of steam on all points. It is safe to say that the steam apparatus, properly constructed, will beat the hot-water apparatus on every point. It meets the requirements of the business better, less labour to run, is safer, gives a more even temperature, the apparatus costs less, uses less fuel, and is easier to repair in case of accident. It is expected that this statement will be doubted by many who have tried steam. This superiority is only claimed when the apparatus is properly constructed and properly taken care of, the same being allowed the water apparatus.

Under the head of proper construction much more than I shall be able to say might be said. First, it must be understood that there are two distinct ways of running a steam apparatus—one is as it is run on large places where there is a fireman on duty all night and can attend to the fires as often as necessary; the other, when the fires are made up in the evening to last until morning, eight to ten hours without attention. A grower putting in an apparatus must first make up his mind on which plan he will run it. If he has over 15,000 square feet of glass he had better have a man on duty all night, in which case it will be well to use a tubular boiler, the capacity of which will depend on condition and location of the house and on kind of stock grown. To grow Tea Roses it would take at least a 30-horse power boiler for 15,000 square feet, and it would be better to be more, but of course with a man on duty all the time a boiler can be run to its full capacity, which is about 200 running feet of $1\frac{1}{4}$ -inch pipe to each horse power. If the grower has less than 15,000 feet and wants his apparatus to run all night without attention, a cast iron sectional boiler with a slow fire will be better. A tubular boiler does not work as well with a slow fire as the cast iron sectional. There is no danger of cracking a cast iron boiler with a slow fire and plenty of water, but there is when you force the fire or if the water gets very low.

There has been a considerable disappointment in the use of cast iron boilers, the reason being that they have been put up in a way that they would need constant attention, and have been expected to run eight or ten hours without attention, which could only result in disappointment. If you wish to run a slow fire you will need a good deal more boiler capacity, say 1-horse power to 125 feet of $1\frac{1}{4}$ -inch pipe, where on the other plan you can run 200 feet. There are a great many kinds of cast iron boilers made, without much choice between them, all working well when properly put up and properly cared for.

In locating the boiler, it should be as central as possible and as low as possible—low enough that the water-line in the boiler will be 2 feet below the lowest radiating pipes. When you have your boiler set up, you will then be ready to run your main pipes. The plan of running main pipes overhead should not be adopted when they can be run under the walks at the ends of the house, with the supply pipes taken out of the top, in which case it is better to have the main pipes covered. In regard to size of mains and supply pipes, a 5-inch will supply 15,000 feet of $1\frac{1}{4}$ -inch pipe, 4-inch 8000 feet, 3-inch 4000 feet, $2\frac{1}{2}$ -inch 2000 feet, 2-inch 1000 feet. Supply pipes—that is, the branches from the main—should be as follows: $1\frac{1}{2}$ -inch pipe for 500 feet of $1\frac{1}{4}$ -inch pipe, $1\frac{1}{4}$ -inch for 250 feet of $1\frac{1}{4}$ -inch pipe. If the houses are to be run at a low temperature, a little larger supply should be allowed. The radiating pipe should be $1\frac{1}{4}$ -inch, which will give the same amount of heat as a 4-inch water pipe. The easiest way

for a gardener to tell how much steam pipe to put in a house is to put the same amount of $1\frac{1}{4}$ -inch pipe as he would 4-inch water pipe. When a number of pipes are run in one stand they should be connected by a manifold valve at the ends; this will enable you to heat one, two, or more pipes as you wish. In a house of 20 feet wide or less the pipes should be so arranged that you can heat one pipe, as that will give all the heat needed in mild weather. In putting in these stands of pipe one end will need to be turned across the end of the house before they are run into the manifold, as that will allow for expansion, the last connections being made with a piece of pipe with a right-hand thread on one end, a left on the other. On the manifold farthest from the boiler there should be an air valve. The return should be one size smaller than the supply, and should be run back to the boiler as quickly as possible.

There are two very important things in steam piping. First, the pipes must be so run that the water caused by the steam condensing be returned as quickly and freely as possible to the



Flowers in simple bunches.

boiler. The other is that the expansion of the pipes be allowed for; if not allowed for the expansion will break the connections. The most important thing comes when you have your apparatus all in—that is, the care and running of it. Keep your boiler well cleaned, fire evenly and often, run the steam pressure low, but not so low that you will lose all pressure when you put coal on the fire, keep up pressure enough to keep all the pipes full of steam, and you will not be disappointed with "steam heating."—W. H. ELLIOTT, in *American Florist*.

SWEET FLOWERS IN SIMPLE BUNCHES.

ONE of the many good reasons for having one sort of flower in a bunch by itself is that it is so easily thrown out and renewed when its first freshness is gone. The white Pinks and the Sweet Brier in simple, easily-washed-out glasses, as engraved, are just placed in the glasses as they were picked in the hand, giving the least possible trouble. An elaborate arrangement that takes some time is often put off till the flowers are beyond beauty both for sight and

smell—a matter worth remembering in high summer-time, when flowers fade as quickly as they come.

FLOWER GARDEN.

GARDEN IRIS.

THE Iris is often compared to the Orchid, and suffers nothing by the comparison, as a large collection will show. We have in this delightful flower a brilliant range of colours running through many tints, and also a long succession of bloom. The flowers of the early Iris reticulata and its progeny, which often peer up through the snow, commence the season, and there is scarcely a break in the flowering chain until the dwarf pumila and others of that type appear in April and May, when the glorious German Iris supplies the place of the fading early flowers. It is strange that with the taste that is now being shown in gardening in many places that the Iris is not planted more largely. Nothing in its way gives a bolder character to the garden scenery than large masses of Iris germanica, I. flavescens, I. florentina, and others we could mention, and the plants go on increasing year by year, giving little or no trouble, with an annual display of striking flowers as valued for their delicious Elder-like perfume as for the beauty of their colouring. But there is no accounting for fashion, and it is possible that the Iris, from the delicate reticulata to the robust germanica, will soon have as much attention as the gaudy Daffodil.

Those who care for Iris will find a large collection of them in the Royal Horticultural Gardens at Chiswick, where there are nineteen beds devoted to them. Considering the dryness of the weather, it is surprising the strong growth the various kinds have made, and from a mass of them as here presented we can see the great value of the Iris for giving beauty to the garden at this season. There are some large clumps here and there in the wide herbaceous border, a use they may be more often put to, reserving the grassy I. sibirica for positions more under the eye, and where a free, graceful, delicate flower is required. The Iris barbata has been split up for the sake of simplifying matters into various groups, and the first, by reason of its greater beauty, to be noted is the germanica group, of which the variety Purple King is a grand representative. The spikes are strong and the flowers of a full purple. One named major has blue standards and purple falls. A variety called nepalensis, which we noted at Kew, was even richer and larger than this. Amateurs who require a vigorous Iris capable of making a glow of blue in the flower garden early in June, should certainly first note the German Iris. In the section aphylla the flowers are margined with delicate colours and are smaller than those of the kinds just mentioned. One named Bridesmaid has pale lavender standards and creamy white falls beautifully reticulated with purple; Mme. Chereau is white, with a blue margin, and Gazelle is another bright flower, earlier apparently than the others of its particular group. Iris neglecta section is useful for the colour of its flowers and robustness of the plants; the standards are usually of purple or shades of the same. A few of the best now flowering at Chiswick are Du Bois de Milan, in which the standards are pale lavender and falls of the richest purple, the upper part reticulated with the same; it is a free, beautiful flower. Cordelia is exceedingly rich, the standards violet, and the falls of a royal blue. Chameleon displays two shades of blue, and Sultana seems to be dwarfer

and later than the majority of those of the section, as it was not in bloom. *Amabilis* has deep purple falls and standards of a fine blue shade. *Clarissima* is a curiously coloured bloom, the standards blue and the falls reticulated with purple; it is not a bold flower. Another worthy of mention is *Fairy Queen*, which has narrow standards and falls, both reticulated with white. *Nationale* is deep rich purple-blue, especially the intensely coloured falls. *Virginie* and *Edina* are also good forms. The neglecta group has several beds devoted to it, but the varieties are not so fine as the German. The forms of *amœna* have generally white standards, or nearly so. The variety *reticulata alba* is very late; and *Victorine*, *Morpheus*, and *Comte de St. Clair* will keep up the display; the latter has the falls reticulated with purple; and *Juliette* is a good flower, the falls deep purple, a contrast to the almost white standards. *Iris pallida* comprises an important group, the standards showing, as a rule, a difference in colour. *Variabilis*, a fine blue, with the falls of a reddish tone, is one of the best. *Queen of the May* is rosy red, the falls being of the deepest colour. *Khedive*, *William Tell*, and *Rubella* are later, and will succeed such as the lavender-blue *Dalmatica*, the richly coloured *Mandralisæ*, and the lightly tinted *Celeste*.

Under the heading *squalens* there are many varieties, but there are few which we would care to have in our gardens. There are scarcely any decidedly rich colours, but an incongruous admixture of æsthetic bronzy brown shades, displeasing, ineffective, and weak. The growth of the plants is strong, but this is of little use if unaccompanied by flowers that we can admire. A contrast to the *squalens* varieties are those of the lovely grassy *Iris sibirica*. It is one of the most beautiful of all, and a bold clump on the border or the higher parts of the rockery gives elegance, freedom, and lightness. The type is well known, and the milk-coloured *lactea* is also useful, as it is as robust as the other and just as graceful. *Acuta* has more sharply pointed leaves, and is considerably dwarfer; the blue flowers are also smaller. In the section *variegata* the standards are of a yellowish colour, and in the type the lip of the fall is reticulated with purple; *Rigolette* has standards of a brilliant orange colour, like those of the glowing *I. flavescens*, which was blooming freely hard by. Honorable, with bright orange-yellow standards, and *Enchantress* are varieties of the *variegata* section that should be noted.

We need not describe the charming *Florentine Iris*, which was full of its delicate flowers, but it is one that should be grown by all who admire the *Iris*. The dwarf *I. biflorus*, *Chamaeiris*, *olbiensis*, *virescens*, and *pumila* were past, but the strong growing *I. sambucina* was yet in its prime; it has rosy bronze standards, falls of purple-crimson and a refreshing fragrance.

Those who intend to cultivate the *Iris* need not fear disappointment, as it is, generally speaking, a sturdy hardy flower, loving sun, air, and a substantial moist soil.

The *Poppy* is one of the flowers of the season in the hardy garden, and nothing can eclipse the splendour of the Oriental *Poppy*, that now gives gorgeous colouring to many a wide herbaceous or shrubby border. The foliage of this grand plant is in itself a striking feature, and when the flowers unfold the contrast is rich and gaudy. It seems that quite a new race of Oriental *Poppies* is promoted; the variety *bracteatum* nothing can rival for intensity of crimson colouring, but those who require a change may have it by growing such

as *Salmon Queen* and *Fink Beauty*. The now common *P. umbrosum* and *Danebrog* need no description, nor the charming Iceland *Poppies*, except the orange-scarlet form, which has yet to come to the front. It is a rich self colour. A row of *Poppies* of this character makes a quiet feature of the garden, reserving the bolder views for the more imposing Oriental varieties. The only fault of these is their deadly opium smell.

POPULARITY OF ALPINE PLANTS.

THERE were many striking groups of these at the great Whitsuntide show at the Botanic Gardens, Manchester; the most striking was the fact that there were five exhibits in the nurserymen's class of forty plants or pots each. The next was the popularity of these plants with the public. In the great annexe or avenue, alpine, roses, and fruit were the most popular of all the exhibits, *Pansies* and *Violas* following hard on the heels of these. One more, and a somewhat grotesque and troublesome proof of the popularity of alpine was seen in the desire of the exhibitors to sweep all sorts of plants into their collections. Hence these included not a few plants that are seldom seen among alpine. The inquiry now, What is an alpine? is much easier asked than answered, and the jurors obviously did not attempt to answer it in their awards. This, however, is a matter that affects botanists more than cultivators or the public. As to the latter, it is a pleasing sign of the times to see the public so enamoured of simple hardy plants, even in the immediate presence of the choicest exotics and the most gorgeous *Orchids* in the world. These lovely flowers, the democracy of plants, as they were happily called at the jurors' dinner after the show, not only mustered well at the shows, but they abound in the markets of Manchester, so that almost the humblest may have an alpine plant for their room or window for a few pence. Many of these are good-sized tufts of beauty in full bloom. They bring a great deal of freshness and verdure into crowded rooms and town gardens at little cost. No doubt, many of them perish during the winter, suffocated by soot and dust. But what then? These things of beauty are a joy for weeks, months, if not for ever; and the taste once created is not likely to be lost, while a considerable trade has been established in the cultivation and sale of alpine and other hardy plants for mechanics, artisans, shopkeepers and other classes.

HORTUS.

Two beautiful *Flaxes* are *Linum perenne* and *L. arboreum*, both of which are most useful for the border, and the last of the two mentioned might be used for beds, as it is dwarf, free, vigorous, and has a profusion of rich yellow flowers, that make a greater show of colour than many bedding plants. *Linum perenne* is not of this character, as it is, like a beautiful *Grass*, graceful and studded with flowers of a lovely blue colour, that bend before the breeze. I was much struck with it when I saw several plants of it on an old-fashioned border a short time ago.—R. W.

Collinsia verna.—The *Collinsias* comprise a few species of hardy annuals seldom seen now, though in days gone by they were grown frequently. There is a potful of the charming *C. verna* in the alpine house at Kew, and the delicacy, brightness, and neatness of it suggest that in every greenhouse *C. verna* should be seen. It grows about 1 foot high, and during early June is smothered with *Lobelia*-like flowers that are especially brilliant, as the upper part of the corolla is white and the lower of a lovely blue. Those who have not grown this *Collinsia* in pots for the greenhouse should make a note of it as one of the things to be obtained.

White Agapanthus.—This is apparently but a variety of the old *A. umbellatus*, yet it usually seems to flower rather earlier in the season than the type, from which it differs also in the blossoms being of a beautiful pure white. Besides its high ornamental qualities when grown as a specimen plant, it is also extremely useful in a cut state, as white flowers are always in demand. It is as yet but little known, probably owing to the fact that seed-

lings are not to be depended upon to reproduce the variety; therefore it is necessary to propagate it by means of division. While there are several kinds of *Agapanthus* to be found in different catalogues, the best in my opinion are the white and a good deep-coloured form of the common blue; the variety *excelsus* has a taller flower-stem, which, generally speaking, does not tell in its favour; minor is at best not equal to the common kind; *flore-pleno* does not open properly; indeed, it is useless; while some seedling forms with greyish blue flowers are not decided enough to be of any value. The form of minor with variegated leaves is, when in a flourishing condition, very pretty.—H. P.

USEFUL PLANTS FOR THE FLOWER GARDEN.

WE have reached the time of year when the summer display in the flower garden has to be provided for. It is the custom in every garden, large and small, to have flower beds and borders, and it is necessary to fill these with plants during the summer. The zonal type of *Pelargoniums*—bedding *Geraniums*, as they are popularly termed—still hold their own, and it is difficult to name another class of plants so readily attainable, so moderate in price, and so effective and lasting as the zonal *Pelargoniums*. Certain sorts are largely propagated for the purpose of filling flower beds, such as *Henri Jacoby*, crimson-scarlet, very fine and effective; *West Brighton Gem*, and *Her Majesty*, both in the way of *Vesuvius*, perhaps with brighter scarlet flowers, but invaluable for bedding, and *Cannell's Dwarf*, bright orange-scarlet; *Surprise*, a salmon-coloured *Vesuvius*, dwarf and very free, and *Mrs. Holford*, deep salmon, margined with rose; *Lady Bailey*, deep pink, and *Master Christine*, also pink flushed with rose; *Queen of the Belgians* and *White Clipper*, white. There are many other varieties grown for bedding, but the foregoing are all well-tried sorts that have proved very useful for the purpose named. Of the golden tricolor section, *Lady Cullum* and *Sophia Dumaresque* are very effective and stand through all summer weather. Of the silver tricolors, *Eva Fish* and *Mrs. Clutton* make excellent bedders; of gold and bronze or bicolor section, *Zulu* and *Maréchal McMahon* are the two best; of yellow-leaved varieties, *Crystal Palace Gem* and *Creed's Seedling*; and of white edged varieties, *Little Trot*, *Viscountess Cranbrook*, *Flower of Spring*, and *Lady Plymouth*. All the preceding are good sturdy growers, and do well when planted out in good soil and in suitable aspects.

DAHLIAS are plentiful enough. But in purchasing for garden decoration some attention is necessary in obtaining varieties suitable for the purpose intended. Those who raise *Dahlias* from seed, and more especially the single types, are often disappointed at the height to which they grow, and their lack of fitness for the particular combination into which they may be brought.

THE CACTUS *DAHLIAS*, so called, which is a misleading term, because so many of them differ in type from the well-known *Juarez*, require to be selected with a little care, because not a few of them are of very tall growth, and their branches hide the flowers from view. Such varieties as *Cochineal*, *Constance*, *Empress of India*, *Fire King*, *Juarez*, and *Parrot* are among the best. There is a class of very useful bedding *Dahlias*, such as *alba floribunda nana*, white; *George Thomson*, pure yellow; *Scarlet Globe*, orange-scarlet; *King of Dwarfs*, dark purple, four very useful varieties indeed; but many of the show *Dahlias*, so called, self, tipped, edged, and striped, make admirable bedders, and all that is necessary is to request one's nurseryman to send their dwarf, erect-flowering sorts, and if the decaying blooms be removed, the plants will bloom until quite late in the season. The pompon or bouquet *Dahlias*, so called from their small, compact size and great freedom, are very useful subjects for bedding and general decorations. A few very good sorts will be found in *Comtesse von Sternberg*, yellow and white; *Dandy*, crimson-purple; *Dr. Rauch*, orange-red; *Garnet*, orange-scarlet; *Gem*, intense rich scarlet; *Hector*,

bright clear scarlet; Mignon, bright crimson; and White Aster, pure white.

CALCEOLARIAS are still employed with considerable effect in the flower garden, and it is difficult to name any other yellow-flowered plant that can take its place. Of yellow-flowered sorts, *amplexicaulis*, *aurea floribunda*, and *Golden Gem* are the best. Darker coloured kinds will be found in *Prince of Orange*, *Sparkler*, and *Camden Hero*.

LOBELIAS are plentiful enough, and all that the purchaser has to do is to require that the plants sent be raised from cuttings. Seedlings often grow much stronger than plants from cuttings, and unless the seed has been saved from a good selected stock, cannot always be depended upon. *Ebor* and *pumila magnifica* are two good dark blue varieties, the former rather the tallest and the most robust grower; with *Ingrami* and *Swanley White*, white; and *Omen*, pink. The herbaceous section (*L. fulgens*) furnishes some charming bedding plants of various shades of colour, some of the scarlet and crimson varieties being remarkably telling, while they generally possess dark or claret-tinted foliage.

THE TUBEROUS-ROOTED BEGONIAS have rapidly grown into deserved favour as summer bedding plants, and, dry as last season proved, these Begonias did remarkably well bedded out. Seedlings are best for the purpose, and as it is now too late to sow seed for the purpose, good and reliable seedlings can be bought at a comparatively cheap rate. Those who sow seed should do it not later than February or early in March, so as to have good strong seedlings to put out by the end of May or early in June. Beds of mixed colours are the most attractive, and any good sorts that it is desirable to save should be marked, and be also employed for the production of seed.

Then there are the pretty dwarf *Ageratums*, an old, but still useful and persistent class of bedding plants. They supply cheerful shades of blue better furnished by them than by any other subject. *Countess of Stair*, *Cupid*, and *Lady Jane* are good useful varieties of this shade of colour; the best white-flowered kinds are *Perle Blanche* and *White Cap*.

HELIOTROPES are delightfully fragrant flowers, and the varieties have largely increased of late. *White Lady*, white; *Swanley Giant*, blue; *Roi des Noirs*, deep blackish purple; and *Mina*, pale blue, are all very good and useful both for bedding or for culture in pots for the decoration of the greenhouse, where they yield a most delicious perfume.

TROPEOLUMS OR NASTURTIUMS of dwarf and compact habit are very effective bedding plants and generally persistent in bloom. *Bedfont Rival*, scarlet; *The Moor*, deep maroon-crimson; *Vesuvius*, crimson; and *New Yellow* are excellent bedders, and as they seed very sparingly, the flowers are prolonged for a considerable period. There are two dwarf growing double varieties that are both curious and showy, and find much favour among gardeners; they are *bicolor flore-pleno*, pale clear orange-scarlet, and *Gloire de Bordeaux*, deep orange-scarlet.

THE FUCHSIA.—The value of this as a bedding plant is not appreciated so fully as it deserves to be. What is wanted are varieties of dwarf compact growth and freedom of bloom like *Lord Beaconsfield* and *Maid of Kent*. Some *Fuchsias* are more diffuse in their habit of growth than others. And it is those that are most compact, and at the same time robust, that make the best bedders. The habit of the *Fuchsia* has been greatly improved of late, and so it may be said that nearly all the varieties of more recent introduction will be found useful for bedding purposes. If anyone is purchasing plants let them make it a condition with their nurseryman that the varieties sent are suitable for bedding. Then there are *Golden Fleece*, with golden foliage, and *Sunray*, with dark and silvery leaves, both well adapted for edging a bed of ordinary flowering varieties.

PETUNIAS are now so much raised from seed that it has almost ceased to be a practice to name varieties. Plants named from cuttings have this advantage over seedling plants, that they are generally of dwarfer and more compact growth, and produce

flowers with greater freedom. On the other hand, it might be said that seedling plants last better and bloom more abundantly later in the season. Then there are *Verbenas*, still some of the most useful of bedding plants, because they are so free, and if the lustre of a bed be dimmed by a heavy shower a burst of sunshine soon puts a new face upon matters. Now there are a good many named *Verbenas*, but all are not suitable for bedding purposes. But I can name the following as well adapted for filling beds: *Brillant de Vaisse*, rich crimson-scarlet; *Basilisk*, bright scarlet; *Blue Beauty*, deep blue, with white eye; *Géant des Batailles*, crimson, dark centre; *Purple King*, purple; *Lady Cowley*, soft pink; *Zulu*, deep rich claret; *Lady of Langleybury*, striped; and *Purity*, white. *Verbenas* raised from seed are often recommended for bedding purposes; but unless the seed has been obtained from good and fitting sorts the plants are apt to be coarse in growth and poor in the quality of their flowers. Thus it is, for small beds especially, I recommend that named varieties be obtained, feeling sure that they will give the greatest satisfaction. R. D.

Plantain Lilies in the wild garden.—Those who occupy themselves with the naturalisation of hardy flowers should not lose sight of the Plantain Lilies. They are not, of course, capable of coping with strong-growing things, but I saw them doing so remarkably well on the fringe of a wood, that I think it only right to class them with plants suitable for the wild garden. Where they grew the herbage was not very rank, and a little shade was afforded by overhanging boughs. I believe that for the first year or two they were kept clear of more vigorous things, but after that they became large enough to hold their own. The capabilities of Plantain Lilies are not so fully realised as they should be. The majority of them are so hardy and vigorous, that they will thrive for many years where most other flowering plants would die away. They do not seem to mind how poor and porous the soil is, as, when once established, they will increase yearly. I know of a garden where, some ten years ago, the edge of a large bed was planted with as complete a collection of them as the owner could obtain. The soil is sandy, and becomes quite parched in dry weather. I know that from the time of planting these Plantain Lilies they have never had any manurial stimulant. Many hardy flowers, not having half their decorative value, would have died long ago; but they have not only existed, but increased to the extent of forming individual specimens a yard across. Only in this condition is the true worth of Plantain Lilies seen, for the highest state of leaf development is only attained by thoroughly established plants. In the season hundreds of flower-spikes are thrown up, and everyone knows how valuable they are for cutting. In gardens of a fair size there are many places where Plantain Lilies could be established without putting them in the flower garden proper. On the fringe of shrubberies, where the ground gets very dry in summer, they would be thoroughly at home. Once get them large enough to cover the ground, and weeds will be no trouble.—J. C. B., in *Field*.

Hollyhocks.—The assumption that Hollyhocks are chiefly raised under glass is a very erroneous one; but, indeed, were it the universal rule to sow seed under glass and then plant out in the open ground, it would not tend to make the plants tender, as they would have some time before the winter in which to harden. But where largely grown, Hollyhocks are as much raised outdoors as indoors; indeed I have just seen a seed bed of some 5000 plants and of a good double strain, the seed having germinated admirably. That suffices to show that Hollyhock seed does germinate so well outdoors if sown during May, that raising under glass is needless trouble. The month of May is a capital time to sow seed, as the seedlings are ready to transplant in July, being then very strong and stout, and such plants will throw up very fine spikes of flowers the following year. We have pretty well given over the old plan of propagating by cuttings, not only because the Hollyhock was nearly ex-

terminated by the fungus, but also because it is now found that any good kind is almost completely, if not absolutely, reproduced by seed. I do not attribute the operation of the fungus to such propagation, as was once the rule, any more than I attributed the Potato disease to any lack of vigour in the Potato consequent upon methods of storing or of propagating by tubers. Climatic and some other natural causes now seem to have weakened, if not destroyed, both forms of fungus, and Hollyhocks and Potatoes are now as robust and healthy as ever.—A. D.

Double Wood Anemone.—This is one of the daintiest of hardy flowers and one of the most valuable, as it belongs to that section which demands no cultural care. It flourishes in all soils and aspects and is just the thing for naturalising on the edges of shrubberies and similar situations not suited for summer-blooming plants. It is an excellent flower for cutting, and should be grown in quantity where white flowers are much in demand early in the year. Hardy flowers so easily accommodated as this should be cherished in gardens of large extent, where they can grow into large masses. Many hardy flowers require good soil and frequent transplanting, but this little Anemone does not demand this care, but, similarly to hardy bulbs, does best when left alone. I have lately seen the common form of this Anemone growing in a situation that I should hardly have thought would have suited it. This was in a meadow and it seems to be quite at home there. I should suppose that there was formerly a wood near by from which the Anemone escaped, but, strange to say, this is the only spot for some distance where it is to be found.—J. C. B.

Christmas Roses and *Convallaria polygonatum*.—Where Christmas Roses are grown in large establishments and planted out for cutting purposes, I should strongly recommend for both shade and effect that good stools of this useful plant be interspersed in beds or borders through the *Hellebores*. Here, at Temple Hill, Cork, the flower-stalks of the *Convallaria* grow nearly 3 feet in height, and are at present very beautiful. Shade and moisture during the hot days of June and July are what the *Hellebores* need. In the *Convallaria* we have got a most lovely natural awning. I do not think in the whole race of hardy plants we have a more beautiful object in the way of foliage, particularly under artificial light, than cut spikes of the *Convallaria* placed in vases. Lilies planted out with *Hellebores* would be effective as flowers; so would *Hyacinthus candicans*. *Daffodils* would never answer, because the moisture the *Hellebores* need in summer would destroy the bulbs of the *Daffodils* when at rest.—W. B. HARTLAND, *Cork*.

SHORT NOTES.—FLOWER.

Wahlenbergia graminifolia is a creeping plant with narrow leaves and a profusion of purple-lilac, bell-shaped flowers. It is in bloom in the alpine house at Kew.

Achillea rupestris is a very showy flower, pure white, and crowded on the stems, that when overhanging a ledge on the rockery are of great beauty. It is a vigorous plant.

The Thrift border at Kew is again a sheet of flowers. The common *Armeria* of the sea-shore makes as good an edging almost as Grass, but of course it is not so neat.

The Mountain Clematis (*C. montana*) is flowering everywhere. We saw it the other day trained along chains, and the dangling masses of flower were delightfully free and natural.

Creeping Gromwell (*Lithospermum prostratum*) is now flowering freely. It is a grand subject for the rockery where an intense deep blue colour is required. Being low in growth and so very hardy, it is doubly valuable.—E.

Painted Wood Lily (*Trillium erythrocarpum*) is a charming flower, smaller than the white *grandiflorum* but of the same hue, except that it is coloured with crimson in the centre. It is in bloom at Kew in the hardy alpine house.

The Spring Gentian (*G. verna*) does well with Mr. Ware in small pots, better indeed than planted in the open. It requires a half-shaded position and a comparatively dry soil. Both this rich blue flower and the lovely *Gentianella* have bloomed freely.

Iberis corifolia is quite hardy, very free in growth and bloom, and also a good prostrate grower, soon covering a naked space of ground. It does well on the flat, or in an elevated position on rockwork; but in order that it should flower abundantly and freely the soil should not be allowed to become dry.—R. D.

Gypsophila cerastioides.—I do not recollect seeing any notice of this little plant in THE GARDEN.

It is now a sheet of white flowers, mottled all over after the manner of *Nemophila atomaria*. It is very useful on rockwork for filling up bare ledges where the bloom would be allowed to droop over, and I am certain it would succeed equally well associated with the purple-flowered *Erinus alpinus* as a wall plant, as both generally flower together.—W. B. HARTLAND, *Cork*.

HARDY FLOWERS FROM HOLLAND.

MESSRS. C. G. TUBERGEN, of Swanenburg, Haarlem, have sent me over a collection of hardy cut flowers from their garden, with the remark, "After you left us, weather has been very unfavourable, burning hot on one day, cold, sunless, and stormy on the following, sadly disfiguring some of our more tender bulbs which could not stand the inclemencies of our truly northern sea climate." In fact, we in this country do not quite realise the difficulties under which the cultivation of even hardy plants is carried on in Holland. The plants and even the gardens themselves would be blown away if precautions were not taken to prevent it. In Messrs. Tubergen's garden the hardy plants are set out in beds and are protected by close hurdles 6 feet high. The rows of hurdles run parallel to each other, and some shading can be stretched over the top to shelter the plants from hot sunshine. By this simple arrangement, the owner can walk underneath and enjoy his choice flowers in comfort. They cannot dig into the ground to make a rock garden, as the water is everywhere found 3 feet or 4 feet and even less than this below the surface of the ground. The latter is very sandy, but manure is used plentifully, and all kinds of hardy bulbs succeed splendidly under the hurdle shelters. I will enumerate a few of the hardy flowers sent to me from this garden in the last week in May.

Tulipa vitellina has large handsome, creamy white flowers of the size and form of those of *T. Gesneriana*. Another distinct and pretty *Tulip* is *T. lanata* with reddish scarlet flowers; at the base of each petal is a conspicuous black spot, with a gold margin. *T. linifolia* is also a charming species. The hardy Orchids succeed well, producing very large flowers in the rich deep soil. Four species of *Lady's Slipper* are sent. The North American rose-purple *Cypripedium acaule* has flowers 4 inches across from the tip of the dorsal sepal to the point of the large pouch or slipper; *C. parviflorum*, *C. pubescens*, and the common *C. Calceolus* of our English woods are very fully developed. The common *Orchis mascula* has spikes of flowers 6 inches long, and the quaint Italian *O. papilionacea* is interesting and pretty. *O. fusca*, with its prettily spotted lip and dusky petals, seems to grow as freely in the loose sand as on our own chalky downs.

A collection of *Iris* blooms sent comprises the *I. pumila* group, the variety *I. p. cinerea* being of a distinct tawny yellow. *I. Ciengalti* is the most beautiful, having a bold spike of rich violet-purple flowers. *Iris moræoides* as sent has blue flowers, but the *I. moræoides* of the *Botanical Magazine*, tab. 693, has white flowers with yellow markings on the base of the petals. *I. Calkana*, large reddish purple flowers; this I do not know. American *Cowslips* are represented by three forms of *Dodecatheon Meadia*, a pure white variety very pretty, and a variety named *elegans* besides the normal form. This plant was figured by Catesby in his "Natural History of North Carolina," and named by him in honour of a Dr. Mead. It is figured in the first volume of the *Botanical Magazine*, tab. 12. *D. integrifolium*, a very bright species, is also sent. This was first figured in the *Botanical Magazine*, tab. 3622, from a vigorous specimen. These hardy garden plants are free in growth and very beautiful at this season. They seem to succeed in any soil or position. A bronzy-leaved form of *Spiræa japonica* under the name of *atro-purpurea*; the leaves make an excellent leafage for the golden flowers of *Arnebia echioides*, also sent with them. *Trillium sessile californicum*, a variety with pure white flowers, having the leaves very faintly marked. *Ixiolirion brachyantherum* has large blue-purple flowers.

Varieties of *Primula cortusoides* comprise *alba magna*, fine white; *Rezziani*, pale lilac-purple; *Floridor*, a fine fringed variety, externally rosy purple, and whitish internally; *Giant*, rosy purple, white centre. *Fritillaries* comprise the orange-scarlet *F. recurva*. *Muscari* are represented by *M. flavum*, small spikes of fragrant yellow flowers; *M. armeniacum*, blue; *M. atlanticum*, blue. A dozen varieties of *Sparaxis* in many hues of rich colour, orange, orange-scarlet, French white, primrose, and rose. *Allium triquetrum* is very pretty, some six or eight white flowers being borne on a slender scape. *A. oreophyllum* is new to me, and is a singular species with a head of rosy red flowers, produced on a short stem from between two leaves.

There were also sent nine varieties of the double *Chrysanthemum*-flowered French *Anemones*. The flowers are of large size, rich and varied in colour, and very double. A bed of them must be very brilliant at this season. A large flower of *Pæonia tenuifolia*, very rich double crimson, completes the gathering of hardy flowers. J. DOUGLAS.

NOTES FROM NEWRY.

TEN days or so of summer weather have quite changed the aspect of the garden. Previously we had scarcely a spring flower, and now, after an almost tropical rush, the summer flowers are nearly in. I think I never remember such rapid growth. A fortnight since Crown *Anemones* were just coming slowly in, and now their glory has gone and seeds are ripening. No doubt much of this is owing to the extreme dryness of the ground. All herbaceous plants, unless we soon get copious rain, will be very dwarf. The dry, warm weather has just suited all the dwarf rock plants. The *Phloxes* have been and are magnificent. *Ancena*, *Nelsoni*, *pallida*, *setacea*, *Vivid*, &c., are solid masses of colour, not a leaf being visible, and the rather shy-flowering *P. stellaris* is beautiful. A mass of it, 2 yards across and more than a foot high, is a mound of closely-packed, starch-tinted flowers. When seen in this form it is one of the best of the lot. As a dwarf-growing, warm-tinted kind, *Vivid* stands alone. The *Alyssums*, *Aubrietias*, and *Iberis* are equally free-flowering and very showy, and *Lithospermum prostratum* is a dense sheet of gentian-blue, falling over and hiding the stones.

AQUILEGIA GLANDULOSA is already in flower in Scotland. This does not usually bloom before July; here it is in May, beautiful and welcome all the same.

IRIS ARENARIA.—This very dwarf species, only growing 4 inches high, has flowered freely, the colour being a distinct shade of yellow; the flowers, however, are of short duration, scarcely lasting a day.

BRODIAEA HOWELLI is a most distinct and pretty plant; the scapes are a foot high, bearing numerous white flowers, having a pale blue line along the outside of each segment; the colouring is similar to that of *Puschkinia*. These *Brodias* are all pretty, increase freely, and occupy but little room.

POLEMONIUM FLAVUM is a free-habited plant, and continues a long time in bloom. The colour is not golden, but a soft, satisfying tint that people are fond of. When associated with the similar habited, clear blue *P. Richardsoni*, the effect is very good.

CYTISUS PURPUREUS ALBUS should, I think, be called the "Fairy Broom." It is one of the purest and most exquisite of all dwarf shrubs, and more compact in habit than the type. It forms a close tuft of delicate loveliness that charms everyone who sees it. Another beautiful form of this is *C. purpureus incarnatus*, with delicate flesh-tinted flowers. A precious plant.

ALYSSUM REPENS must have a select spot. It is a good plant, of free, but very dwarf habit, with flower heads an inch or more across of the richest yellow, and only a few inches high.

PENTSTEMON GLABER likes warm weather and is blooming before its time. The flowers are of the richest blue.

PENTSTEMON MENZIESI is one of the best plants of its colour we have, a dwarf, compact, though free evergreen bush, now studded with short spikes of cherry-carmine flowers. A real beauty.

VIOLA PUBESCENS is a free-growing, 6-inch-high North American species, with yellow flowers marked with brown lines. In a half shady spot planted in light sandy soil it quickly forms a good patch, and continues a long time in bloom.

V. ROTUNDIFOLIA comes also from the same region. It has rather large glossy green leaves, which are prostrate on the ground. The flowers are bright yellow. It is a stemless species and a pretty plant.

TULIPA BILLIETTIANA is a most attractive recent introduction. It has ample undulated foliage, and produces two or three scapes from a bulb. These grow nearly 2 feet high. The flowers are clear yellow at first, and after a few days become flamed with orange-scarlet. It lasts a long time in bloom, and is a fit companion to *T. Gesneriana*, which in stature it resembles.

CHEIRANTHES MENZIESI is one of the most distinct things amongst the later introductions. It is a stemless species, with a deep woody root-stalk. The leaves are hoary, and remind one of sundry *Convolvuli*. The flowers, produced on short spikelets, are pretty and very sweet-scented.

MYOSOTIS REHSTEINERI is of low, compact, though free growth, with ample leafage and deep blue flowers, which are almost continuously produced during the summer months. It does best in a moist position. T. SMITH.

FLOWER GARDEN NOTES.

BEDDING OUT.—Consequent on the coldness of the weather this work has been longer than usual on hand, but it is now finished, the last that was done having been the filling in of beds containing large plants with smaller carpeting plants, a lot of which work we are compelled to do in order to make the large plants hold out to the end. But though done from necessity, the practice is a desirable one to follow, because there is no crowding of plants, each tall grower having space enough for full development, and the carpet may be planted as thickly as may be thought desirable without in any degree detracting from the effect of the larger subjects. The selection of plants for undergrowth is almost entirely composed of hardy species, the only exception being in favour of *Alternanthera* for tender foliaged plants, *Harrison's Musk* for subtropicals, *Gnaphalium lanatum* for Castor-oils, and *Mesembryanthemum* for succulents. The best amongst the many suitable hardy plants for quickly covering the ground are *Sedum glaucum*, *S. corsicum*, *S. Lydium*, and *S. acre elegans variegatum*. These are all excellent associating with fine-foliaged *Pelargoniums*, *Fuchsias*, and tuberous *Begonias*, and the following hardy kinds are first-rate as undergrowths for any extra large growing and permanent plants: *Antennaria tomentosa*, *Cerastium arvense* and *Biebersteini*, *Helianthemums*, several kinds, *Leptinella scariosa*, a finely cut-leaved plant of a most beautiful shade of green; *Lithospermum prostratum*, a flat-growing shrubby perennial that is nearly always covered with handsome small flowers of the deepest blue; *Lysimachia Nummularia aurea* (yellow-leaved Creeping Jenny), a grand plant for use as undergrowth for tall, dark-foliaged plants, and the same is true of the golden variegated *Thyme* and *Balm*; the latter unless exposed to full light loses its variegation; it should therefore be reserved for the most open positions. *Phlox reptans* is another excellent permanent carpeting plant with light green foliage, and in spring for near upon six weeks it is covered with bright pink flowers. *Veronica repens* is another equally fine plant for permanent planting, either under small plants or on rockwork to droop over the stones and root-work; and lastly, the green and variegated shrubby trailing *Vincas* (*Periwinkle*) may be used with excellent effect as undergrowth to ornamental shrubs of any kind.

CLIMBERS.—These, in common with every department of the garden, require training and tying, and

must have it, or the growths will get so entangled together that injury will be caused by breakages when the work does commence. Roses being over-weighted with flowers are having first attention, and blight on them is so bad that tying in to trellis must be hastened in order that remedial measures may be put into practice; soap-suds, tobacco water, and frequent drenchings of clear water with the hose will be practised till the plants are clean. Clematises are rarely troubled with insects, but they are now growing so fast as to render training of the shoots a work of difficulty if left to themselves more than a week, and the same is true of newly planted Virginian Creepers, except the variety Veitchi, which always takes care of itself. The variegated French Honeysuckle is one of the most useful of climbers, and at the present time with its profusion of new growth no climber excels it in beauty. I planted a quantity lately to train to some stout iron uprights that support a trellis for climbers, and the effect now that the uprights are covered is exceedingly neat. This plant also bears pinching or stopping with impunity, and thus forms a fine bush. In this form we have a quantity growing round the sides of some raised basket beds, and nothing could look better. *Wistaria sinensis* is another of our best climbing plants. The word climber does not represent the full meaning as to the best way to use this plant. I prefer to call it a first-rate drooping or festooning plant, and to this mode of training the flowers lend themselves well. We have it growing in festoon fashion over an archway in the kitchen garden, and it is so fine and the flowers are so sweet, that had I half a dozen arches of a similar kind, I would treat them in like fashion, and if objection were made to its deciduous nature, and consequent bareness in the winter, that objection might easily be met by covering the wall with Ivy.

FLOWERING SHRUBS.—The beauty displayed by masses of *Rhododendrons* and *Azaleas* at the present time makes one regret that everybody cannot see them, and some cannot grow them, not from any fault of their own, but for lack of suitable soil. Peat is, of course, the soil for them, but they will do fairly well in any staple that is not real clay, and that is not impregnated with chalk or lime. About here the soil is, for the most part, naturally of a peaty nature, but we have all sorts, from pure light loam to stiff clay, and even in this last *Rhododendrons* do very well if the drainage is thoroughly done. Chalk and lime in the soil are the ingredients the plants do not relish, and so long as these are present it is useless to expect them to thrive. As a substitute for peat there is nothing better than leaf-mould, but it is too light of itself, and therefore there should be mixed with it an equal bulk of fresh loam. It is the same in respect of *Azaleas* and *Kalmias*, and it is quite useless to expect a regular display of these flowers if peat is not present in the soil naturally or is added. To carry out the latter is expensive, but to get such a wealth of beauty as the shrubs now in question present is worth a good deal. The flowering period of *Rhododendrons* may be made to extend over something like a couple of months if care be taken to make the selection to include the very earliest as well as the latest flowering kinds, though this (flowering) is not their greatest merit, that being their beauty as evergreen shrubs alone all the year round. There are such quantities here, that to pick off the seed-pods from all is quite impracticable, but an effort is made to do as many as possible, and those thus favoured are the finest sorts and in the most conspicuous places. There is no doubt as to the operation being of immense benefit, more particularly in regard to the size of the flower-heads the following year. They should be picked off directly the flowers have fallen, because young growth is produced rapidly at this stage, and if their removal be delayed some of the young shoots are sure to get destroyed.

GENERAL WORK.—There is a formidable programme of this on hand, the most pressing being the tying up of perennials, such as *Pæonies*, *Delphiniums*, *Pyrethrums*, *Potentillas*, *Lilies*, *Phloxes*, *Pinks*, &c. To prevent a bunchy appearance, use two or three sticks instead of one for each plant. They can then be tied loosely without fear of losing any of the foliage, owing to the stems being drawn

close together. To thin out the seedlings of *Mignonne* and other annuals, and plant out in open spots any spare bedding plants. Bedding plants, one and all, to mulch with cocoa fibre, and thus by a couple of days' labour and the expenditure of a sovereign in fibre, save many days' labour of watering, and, not least, gain a quicker growth of plants. Then comes pegging down of such plants as require it, and tying up of *Dahlias*, *Abutilons*, *Fuchsias*, and, in fact, of all plants likely to be damaged if not done.

W. WILDSMITH.

BOOKS.

THE CULTIVATION OF THE PANSY.*

THIS little book will doubtless prove a boon to all lovers of the Pansy, as it is published at a price which places it within the reach of the humblest amateur, to whom, as the author remarks, the Pansy owes more of its popularity than to the professional gardener. It is the work of one who, having been impressed in youth with the simple and quiet beauty of the Pansy, became an enthusiast and turned his attention to the improvement and raising of new varieties. The experience gained is here given in concise and practical form, especially in the two chapters on propagation from seed and from cuttings. According to Mr. Lister's experience, September is the best month to put in cuttings, and from these cuttings a good stock is attainable for planting out the following spring. We find some kinds hardier than others, and by dividing and planting some of these hardier kinds in the autumn an early bloom is obtained. The rest of the book is written more from an exhibition standpoint, doubtless because the Pansy is greatly exhibited in Scotland, where there are several Pansy societies working for the improvement of this flower alone. Unfortunately, many of these new varieties can hardly be called improvements, for many of the large show flowers are coarse and vulgar-looking when compared with the clear, soft, and delicate colours of many of the beautiful selfs. We are indebted much to the florists for the patience and attention they bestow on some of our flowers, but in their enthusiasm there is a danger of going to the extreme.

Nature has given the Pansy flower a shape of its own, and has endowed it with soft and quiet hues, such as the delicate self yellow of our native *Viola lutea*, or the exquisite harmonious blendings of *V. tricolor*. Man steps in to improve on Nature, and decrees "that the outline of the flower shall be a perfect circle," that the colours shall not be blended, but contrasted, so that in two-coloured flowers any blotch or margin which appears upon the ground colour shall be of exactly the same shade and size or width on every petal as if designed and set out with compasses. This at once breaks down the fundamental principle on which Nature usually works—that of avoiding rigid distinction, and choosing rather simple and easy gradations—and sets up instead an artificial rule which tends towards formalism. In many of the show Pansies it is the sharply contrasted geometrical blotches that detract from the beauty of the ground colour and look coarse in themselves.

The Pansy is worthy of something more than merely to be grown for exhibition with a paper collar round its neck. This is a defect in Pansy exhibiting that might well be remedied, for if the Rose can be cut and shown with its own foliage, why not a Pansy?

In the moister and cooler climate of Scotland the Pansy generally does best, but there are many gardens in England where the culture of the Pansy would be the means of introducing quite a new type of floral beauty. Pansy raisers have given us a strain compact in habit of growth, and hence appropriately called *Tufted Pansies*, which are very free flowering, and the flowers are mostly of one clear decided colour, embracing all the various and intervening shades of white, yellow, blue, and purple.

In gardens where the Pansy has been cultivated it has generally been for the purpose of spring bedding, which system was a necessary evil and did not do justice to the flower, for it often happened when the Pansy was at its best it had to be pulled away to make room for the summer occupants.

A mass of one colour is always more effective than a complicated mixture, but these masses are generally produced in some geometric shape; whereas a bold, free group of any of these tufted Pansies, one of the pure whites, of which there are several, or one of those delicate blues which rival the sky in clearness and transparency, beneath a group of some handsome Rose, will make a picture in spring or early summer, and as the Pansy gets tired the Rose commences to grow, giving a succession of flower while the Pansy is grateful for the partial shade.

Pansy shows and enthusiasts will probably continue, and one cannot blame a florist for endeavouring to supply whatever is in demand, whether for beauty, novelty, or fashion, but whilst these show Pansies are not the proper class for adorning the garden, there is a class the merits of which needed pointing out to cultivators and Pansy lovers. That Mr. Lister possesses some of these beautiful selfs is evidenced by a gathering of flowers sent with the book, and in these we have a mine that cannot be too freely worked.

A. H.

GARDEN FLORA.

PLATE 653.

BULBOUS IRISES.

(WITH A COLOURED PLATE OF *I. HISTRIO*, *ROSENBACHIANA*, *PERSICA*, AND *KOLPAKOWSKIANA*.*)

AMONGST the loveliest of our spring flowers, these bulbous Irises are held in high esteem by all those who take a real interest in their gardens. The majority of them are found in dry, exposed situations in the Mediterranean region, Turkestan, and elsewhere, and may be grown even in quantity with comparative ease in almost any garden. *I. reticulata* and var. *sophenensis*, *Krelagei*, and its charming variety *cyanea*, are too well known to need detailed notice here, although in passing we may note that the netted Iris at least are subject to a disease which affects the bulbs and renders them entirely useless for flowering purposes. This we believe to be almost, if not entirely, due to the presence of vegetable matter in a decaying state in the soil, as we have always seen that those bulbs nearest to the leaf soil were most affected. At any rate, we have entirely baffled the disease by clearing out the old soil and using pure loam and coarse, gritty sand. A very sunny position, sheltered from the north and east, as winds from these directions are very injurious to the blooms in spring, should be chosen. The bulbs should be lifted and dried annually as soon as all growth has ceased and the leaves died off, planting again from a fortnight to a month later. The English and Spanish *I. xiphoides* and *I. Xiphion* have now attained great perfection, and may be had in almost endless variety, the colours and markings being most gorgeous and fantastic, and as the bulbs may be grown in the ordinary mixed border, there is no excuse whatever for their absence from the garden. They rarely ever fail, and are enhanced by the fact of their late flowering habit, carrying the flowering even beyond the *germanica* and *pallida* groups. No chance should be lost of raising *I. reticulata* and *Krelagei* from seed should an opportunity present itself, as wonderful variety may be had, and the seedlings flower in three or four years from seed. The seed should, however, be sown

* "Treatise on the Cultivation of the Pansy." By Alex. Lister. Paisley: Alexander Gardner.

† Drawn for THE GARDEN in Mr. Ware's nursery, at Tottenham, by H. G. Moon, February 28, 1888, and lithographed and printed by G. Severeyns.



GROUP OF SEPTIM FL.

1 IRIS FL. 271 - PENEACHIANA 272 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

as soon as gathered and left in a cool frame shaded from bright sunshine. The variety *sopenensis* of the netted Iris, introduced only a few years from the hill-sides near Kharput, Asia Minor, is quite distinct in colour, though otherwise not much different from the type. *I. Krelagei cyanea* is a most lovely little plant, bright sky-blue, and one of the earliest. *I. sisyrinchium*, *scorpioides*, Boissieri, and others are all beautiful in their way, and worth a trial.

THE CAUCASIAN IRIS (*I. caucasica*).—This plant has been in cultivation for many years, but seems to be giving way to the more showy species, such as those figured in the annexed plate. Where variety is desired, however, it may be grown in small quantity and will be found perfectly hardy in the open air, producing its pale greenish white flowers in February and March. *Iris caucasica* has been confounded with a plant which we have received from the Continent as *I. orchoides*, and though now grown as a variety of *caucasica*, Dr. Foster seems inclined to give it a specific distinction. Whatever its difference from *caucasica* may be to the botanist, the gardener has in this (*I. orchoides*) a really beautiful golden yellow flower, produced in plenty, and at a time when blooms of this description are in demand. It is hardy, like its near ally, but we have always considered it too good to leave to the mercy of battering rains and mud splashes, and find it perfectly amenable to pot culture in an unheated house. It flowers in February, and is not mentioned in Baker's monograph.

I. FILIFOLIA.—This is a most lovely species, native of Spain, where it was found by Boissier on sandy calcareous rocks on the Sierra Bermeja at 3000 feet to 4000 feet elevation. It is said to be wild also in Morocco, where it grows in company with the better known *I. tingitana*. In *I. filifolia* the leaves are narrow and long at flowering time, the blooms when produced being violet-purple, 2 inches to 3 inches in diameter. It requires rather more care than the others, and almost refuses to produce flowers in the open unless the bulbs are well roasted against a south wall. *I. tingitana*, which is a near ally, is a native of Morocco, differing by its larger leaves, taller stems, and having larger and darker maroon-coloured flowers. The only really successful way of dealing with this species is to grow it in pots in rich light soil.

LEBANON IRIS (*I. Histrio*).—No. 1 in the accompanying plate—is a very distinct and extremely showy species deserving fuller recognition than it seems at present to be receiving. It is nearly allied to the netted Iris, differing in the spathe valves being whitish instead of green, both the leaves and flower-stem being taller, the flowers larger and broader in all their parts and produced earlier, and lacking the fragrance that characterises both *I. reticulata* and *I. Krelagei*. It is, however, none the less worthy of a place in the garden, the colour of its flowers being quite different from that of either of those mentioned above, in addition to its blooming so much earlier. We are told that in favoured places in England it has flowered before Christmas in the open air. The leaves are awl-shaped, four-cornered, slightly glaucous and well developed, while the flowers are as yet in the bud state. The flowers when fully open are about 3 inches in diameter, standards narrow, self lilac, the falls much broader, light blue, with large blue-purple blotches or spots on a creamy ground, with a bright golden crest through the middle. Native of Lebanon; introduced about 1873.

I. JUNCEA (Rush-leaved Iris), called *Buphane stylosa* by Salisbury in the Transactions of the Horticultural Society, 1, p. 305, and cultivated by him in 1801, flowering the following year. None of those planted in the open air (he says) lived and those in pots dwindled away, becoming less and less every year, and at last sending out only one or two fibres nearly as thick as the bulb itself. This Iris appears to be extremely rare now; we have only seen it in flower once. It very likely requires greater extremes in drought and moisture than our climate

affords, and is in consequence more troublesome to keep; the flowers are yellow, medium-sized, the leaves narrow and Rush-like. Native of Algeria; flowering in July.

IRIS KOLPAKOWSKIANA (No. 4 in the accompanying coloured plate) is another close ally of *I. reticulata*, introduced to our gardens from Turkestan about 1878. It is perfectly hardy in the open air, flowering about the same time as *reticulata*, and very effective in groups. Seeing that it is now fairly plentiful in the trade, we may soon hope to see it more generally grown. The chief difference from the netted Iris is in the bulb and leaves. The bulb is roundish or globose, about half an inch in diameter, the outer coat composed of open reticulated fibre. The four to six leaves are narrow, linear, deeply channelled on the inner face, with a central band or rib like a *Crocus* leaf, pale green without the glaucous tint usual to this group. The falls are deep violet-purple, with a beardless bright yellow keel from which are purplish branchings; the standards are pale self lilac with creamy anthers. Plentiful in fields near Wernage, in Turkestan.

THE PERSIAN IRIS (*I. persica*).—No. 3 of our plate—has a wide geographical distribution, extending from Asia Minor to Persia, and found, we are told, at elevations as high as 6000 feet above the sea-level, and in the south of England, at any rate, perfectly hardy in the open air. It was cultivated in our gardens in Parkinson's time as early as 1629, that writer remarking that it was very rare and seldom bore flowers. The Persian Iris is a great favourite with growers of the bulbous section of this genus, and, with the exception of the Spanish and English kinds, is perhaps more largely grown than any other. Its flowers are extremely beautiful and sweet, emitting a delicious fragrance resembling that of Violets. Out of doors it is the first to greet us in early spring, its flowers generally being in perfection about the end of February or beginning of March. This early-flowering habit necessitates its being planted in a somewhat sheltered position, otherwise the flowers get damaged by heavy rains and other causes, and their beauty lost. It may be planted in the ordinary border, but a light sandy soil, fully exposed to the sun, suits it better than any other. It is said, also, to be well adapted for growing in Hyacinth glasses, but as we have neither seen it nor tried it, we are unable to recommend it to others. The bulb is oval in shape, producing five or six pale green leaves, about 6 inches long, 1 inch broad at the base, sharp pointed, and keeled on the under side. The scape, which is one or two-flowered, rarely exceeds 2 inches or 3 inches in height, the blooms bright sky blue, the falls marked with a yellow streak, having a deep purple spot at the base and on each side. A few flowers will scent a whole apartment.

I. ROSENBACHIANA.—This, a good idea of which is given in No. 2 in the plate, and undoubtedly the most charming Iris of this section yet introduced, was found by Albert Von Regel a year or two ago on the mountains of East Buchara, Turkestan, at an elevation of 6000 feet to 7000 feet, and proved quite hardy out of doors in the Botanic Garden, St. Petersburg. It is found wild, we are told, in two varieties both growing together, the flowers of one form being blue, those of the other of a fine violet. The bulbs of both the varieties are small, with thin tunics, never reticulated, as in the netted Iris. The three to five leaves are linear-lanceolate, pointed, at the time of flowering short, but as the season advances, increasing in length. The flowers are on long tubes, the falls oval, at the forepart blunt, the inner broader than usual. Dr. Foster flowered the blue variety and Herr Max Leichtlin the violet one.

THE SNAKE'S-HEAD IRIS (*I. tuberosa*).—This does not perhaps belong here, but we have found it of sufficient interest to grow in quantity, and add it to the Xiphions with the hope that others may be induced to try it. The directions usually given with this species, *i.e.*, a dry gravelly soil, I find quite unsuitable. It requires a good rich and deep soil, with the roots planted well down out of harm's way, and with such treatment it flowers regularly. Its five or six leaves are long, quadrangular, dark green,

supporting a one-flowered scape, the flowers being dark greenish yellow with a purple blotch on the falls. It flowers in April, and appears to have been cultivated by Gerard in 1597. Also called *Hermodyctylus* (Salisbury, Transactions Horticultural Society, 1, 305).

I. VARTANI.—This is a new species of merit introduced by Dr. Foster, of Cambridge, through Dr. Vartan of the Medical Mission, Nazareth, under the impression, we believe, that they were bulbs of *I. Histrio*. Dr. Foster says it differs from *I. Histrio* in the bulbs being more pointed and of a longer, more slender oval form, the falls having a very narrow claw, which is crested. There are other minor, though important, differences, sufficient to distinguish it from all other bulbous Irises known to us. The standards are narrow, brownish yellow, marked with deeper lines; falls yellow, and greenish with lilac lines. It flowers early, its exact locality in Palestine not being known. D. K.

KITCHEN GARDEN.

WHAT CONSTITUTES A GOOD TOMATO.

OPINIONS vary as to what would be rightly termed a really good Tomato. Solidity would appear to find most favour with the Americans, and as they number a much larger percentage of Tomato lovers than we do in this country, it would appear presumptuous to differ from them. What they and many in this country describe as first-class varieties are any that are solid, heavy, and with but few seeds. In reality these very solid varieties, of which Trophy is the best known type, consist largely of core; whereas what I should term a good fruit would contain a full complement of seeds and plenty of pulp. I fail to find anything objectionable in the seeds, and those eating the fruit are not inconvenienced in any way by them, while the pulp accompanying the seeds is the most pleasing portion of the fruit. It is possible to have fruit of one variety either largely composed of core or with plenty of seeds and pulp, this being respectively either the result of an imperfect or perfect set. Believing in the advantages attending the production of abundance of seed, this both affecting the appearance as well as quality of the fruit, it is always my aim to either artificially impregnate the flowers, or, at any rate, to assist Nature as far as possible. It is a curious fact that neither bees nor any other winged insect that I am aware of will approach Tomato flowers; the former, in fact, will not go near them, even when shut up in a house for the purpose of fertilising the Tomatoes. In the open air the wind distributes the pollen, and, as a rule, more seeds are found in open-air fruit than in those under glass, but only in such seasons as 1888 is there sufficient heat to properly ripen the fruit. Usually house-grown fruit, although less perfectly set, are the best in point of quality, although such was not the case last year. When plenty of air is admitted to Tomatoes under glass these set fairly well, especially if the pollen is distributed by smartly tapping the bunches of bloom when quite dry. The earliest fruit may be similarly set, always supposing that the plants are not placed in a shady or badly ventilated position. We have also frequently effected a good set by gently rubbing the fertilising parts of the flowers together, or the pollen may be distributed with the aid of a camel's-hair brush. The Old Red is not generally considered of excellent quality, but we have up to the present time (May 28) cut not less than 20 lbs. of fruit from plants in pots of this variety, which are still carrying heavy crops, and the flavour is first-rate. These plants were raised from seed late in January, and much trouble was taken in order to secure a good

set. The Dwarf Orangefield, grown by a friend from cuttings, and which was earlier than our seedlings, is at this time quite delicious, and this old favourite has plenty of seed and pulp, but scarcely any core. If either of these and a few other varieties fail to set properly they are apt to become hollow, and are therefore rather disappointing, especially as far as weight and sale are concerned.

That the solid-fruited varieties keep in good condition much longer than those forming more seeds and pulp I readily admit, and it is this good-keeping quality that has helped to make them the most popular. None are really improved by keeping them a day after they are once ripe, quite the contrary being the case; and it is the stale, flat, and insipid fruit that has led to so many Tomato lovers being rather prejudiced against it at the outset. Freshness being so much in their favour is a decided advantage to English growers for the market, the imported fruit rarely fetching anything like the prices obtained by those home-grown. Private growers should bear this fact in mind, and never keep their fruit lying about several days before eating it. Those who appreciate good Tomatoes will like to have them direct from the plants, and thousands of Tomato lovers will gather and eat them like Apples. Unfortunately, the smooth, round-fruited varieties have a tendency to crack before they are fully ripe, and as it is not always practicable to give more air in order to check this, the fruit must be cut early and ripened, but not baked, on a warm shelf. The variety called Perfection thus ripened fully deserves its name, and Hackwood Park, Acme, and Hathaway's Excelsior are also of excellent quality when cut early and ripened off the plants.

The question is often asked, Why are not Tomatoes used as dessert fruits? The Banana and other insipid, because badly ripened, exotic fruits are largely used for dessert purposes, and I hold that a well-ripened Tomato is quite equal, if not superior to these. At present it is not the fashion to place them on the table by way of giving a variety to the dessert, but this may eventually be changed. During May and June, when good Tomatoes may easily be had in quantity, there is a great scarcity of dessert fruits, and numerous housekeepers would gladly introduce them if only they dared. It is my belief that many of the wealthier classes have not yet acquired a fondness for Tomatoes. Let anyone who wishes to acquire a liking for Tomatoes commence with a medium-sized fruit only just ripe and eat this in an uncooked state, or sliced as a salad, with a dressing of oil, vinegar, salt and pepper. If he fails at the first attempt it will not be long before he thoroughly relishes them, and will perhaps soon eat them as readily as Apples or other popular fruits.

Tomatoes rank among the most showy fruits, and would be most ornamental on a dessert table. They vary surprisingly in size, form, and colour, as well as flavour. Some hang in clusters, like Red Currants; others resemble Cherries; and there are also Plum, Pear, and egg-shaped varieties. Unfortunately, none of the very small-fruited varieties are good in quality, and till they are improved in this respect they are suitable only for garnishing. Greengage and the newer Golden Queen are both very ornamental and excellent in quality, and these, selected ruit of Perfection, Orangefield, and other good varieties might well be dished up for dessert purposes. For salads, or eating in an uncooked state, medium sized and not over-ripe fruit ought to be selected, while the larger ones, or any slightly over-ripe, are suitable for either

baking or making into sauce. For the markets, or for the town house, the fruit ought to be packed before they are soft, as any sent to a distance when fully ripe will keep badly, and be also much impaired in quality by the time they reach the table. As I have attempted to show, it is not always the fault of the variety when the quality is inferior, so much more depending upon the fruit being perfectly set, ripened well, and thoroughly fresh. Good cultivation improves the quality of Tomatoes as well as various other fruits, and there is a proper time to use them. W. IGGULDEN.

TOMATOES.

WE hear from time to time of the relative values of this, that, and some other varieties of Tomatoes, but it is very doubtful whether, taking any half dozen of the most esteemed forms, there is really any choice between them. This remark specially applies to all that round, smooth-fruited section which are known generally as Perfection strains, because they all originated from the same source and have all the same characteristics. It is invidious to name special varieties, and I have no wish to decry any, but it is certain that all the finer round forms date with us from Hathaway's Excelsior, which, introduced from America where Tomatoes were largely grown before we took them in hand, gave us all that we now have in productiveness and beauty of fruits, but lacked the size since seen. It was but natural that growers of Hathaway's Excelsior in all directions should commence to save seed from the finest or selected fruits; in other cases some crossed Excelsior with the larger-fruited Trophy, and obtained again almost the same results as others did by mere selection. In any case we saw a flood of fine handsome forms break out all at once in the trade, and experience has since shown that these deviated from each other hardly a hair's breadth; indeed, where all had been working with the same material such a result was unavoidable. Two so-called varieties were recently commented upon by a writer as having very diverse qualities, and it will but serve to show how easy it is for imagination to run riot in writing of Tomatoes when I state that the two so-called varieties are identical. A gardener got a fine selection from Hathaway's Excelsior and grew it, giving also some seed to a gardener friend. A year later the stock of one grower went to one seed house as one kind, and that from the other to a second firm as another kind, both quite unknowingly at the first, for there was not the slightest attempt to deceive. Without doubt it was a fine selection, and remains such. Still, to endeavour to show that so-called varieties have such diverse qualities is absurd. Livingstone's Favourite, or Perfection, is practically identical with our strains of Perfection. Mix plants of it with any half dozen of our best rounded forms and I will defy any grower to select them, or even tell me which is which out of the half dozen others. The differences in habit in all kinds of Tomatoes are trifling generally, and only in a few do they stand out markedly, but in the Perfection type the divergencies are indeed indiscernible. The simple fact is that as every grower for seed saves invariably from his best fruits, the very same process of selection is going on universally, and what happens to one happens to all.

Crossing produces sometimes very erratic results. Some years since I crossed Excelsior with Greengage, and obtained two kinds, Red King and Golden Queen, both rather larger than the parent forms. Out of seed of Red King came next year a finer yellow form, since named Prince of Orange, noted at the trial at Chiswick last year; but that seems now to be identical with Golden Trophy and some other large-fruited yellow varieties—pretty conclusive proof that the same results are being obtained in several directions from the same means. The yellow-coloured sorts are but diverse coloured forms of the red varieties, but as to improved flavour, &c., I cannot see any difference. I have tried very hard indeed to find extra special flavour in this kind or that. I have

found in the stout, firm, handsome, round fruits greater juiciness and fleshiness, whilst the old sutured forms are both more hollow and stringy. That fact shows that in our process of selection we have gained in weight and solidity, as well as in beauty, but the same good qualities are found in all the handsome fruited forms alike. We are a very long way yet from having a Tomato fit to place on our dessert tables, in spite of the fact that we have grape, plum, pear, currant, and other diverse shaped and pretty forms all tempting in appearance, but disappointing to the palate. I am as fond of a raw Tomato as anyone, and have a high relish for a ripe, juicy fruit. None the less, it must not be said that we can class Tomatoes as dessert fruits. Anything which could conduce to the production of forms having pleasant, piquant flavour, and especially in the matter of plum-shaped kinds, would be indeed meritorious. Generally there are three forms of Tomatoes which merit attention: the early and more hardy selections suited for outdoor culture, such as, first early and open air; second, the large-fruited and very prolific forms still largely grown for market, viz., Main-crop, Market Red, and others; and, finally, the gardener's Tomato *par excellence* for house culture, the Perfection types, which give such wonderfully handsome, rich-coloured samples and excite such high admiration. We have remarkable fruitfulness, rich colour, great beauty, solidity, and exceeding excellence, but still want briskeer or richer flavour, and to endeavour to secure that element raisers should work. A. D.

KITCHEN GARDEN NOTES.

ASPARAGUS.

ALTHOUGH Asparagus was generally late, it has more than compensated for this, as, in this district at any rate, it was never more plentiful and good in quality. This rapid growth will have had a rather weakening effect on the plants, and the beds ought not to be cut from a day after Peas are available and fairly abundant. In a few days after cutting has ceased, all well-established beds should be gone over, and the greater portion at least of weakly growth be cut out, leaving only the strongest shoots. These being thus given plenty of room will eventually form strong buds for the foundation of a good supply of fine shoots next season. Weeds ought to be kept under either with the aid of the flat hoe or by hand-weeding, and another liberal dressing of salt and other manures will not be thrown away on the plants. What evidently suits Asparagus is a dry soil during the winter, and plenty of moisture in the early part of the summer especially, or while active top and root growth is in progress. At the present time, owing to the comparatively dry state of the ground, the plants would be much benefited by a good soaking of liquid manure, followed by a mulching of strawy manure, leaf soil, short grass, or other substitutes. This, on naturally dry soil, may prove almost indispensable, as there is every prospect of another dry hot season being experienced, and even on richer and more retentive ground a summer mulching is preferable to a heavy autumn or early winter dressing of manure. Especially should newly planted Asparagus, and also any growing on shallow and only slightly prepared or untrenched ground, be mulched. When the growths are fully developed they are naturally very top-heavy, and liable to be blown about or weighted down by rains. This, in the case of new plantations, is most injurious to the plants, and all strong growths ought therefore to be lightly supported by stakes. It is by no means a formidable job, as any common stakes will answer the purpose, the Asparagus being loosely hitched up to these with the aid of a strip or strips of raffia or matting. Slugs are not nearly so troublesome to us this season, but where they are plentiful they must be destroyed in some way, or otherwise they will skin all the Asparagus stems, and the plants be greatly weakened in consequence.

EARLY SAVOYS.

A few rows of these are frequently of good service in the autumn, and seeing how little room they require, there ought to be no excuse for not planting some. They form a neat edging to borders or

breadths of other winter crops, or they may be planted between Brussels Sprouts or Broccoli, in succession to early Potatoes, between which the former are established. Tom Thumb, Little Pixie, King Koffee, and earliest Dwarf Vienna are of neat habit, and form capital hearts, which are of excellent quality, long before severe frosts are experienced. There is no necessity to manure and dig ground specially for them, as they succeed quite as well on fairly rich, undug soil. The plants ought to be dibbled out from the seed beds before they have become leggy, and may be set about 12 inches apart each way. Gilbert's Universal, if raised and put out early, and not more than 15 inches apart each way, hearts in quickly, and is very tender and mild in flavour without the assistance of frost. We have had this variety both early and late simply by putting out successional batches from one seed bed. All should be given water when required to keep them from flagging badly, but when well established a light moulding up is all the further attention needed.

THE LATEST BROCCOLI.

A spell of exceptionally hot weather naturally hastened the end of the Broccoli season, and we shall have none after June 15. Ledsham's Latest of All and Late Queen have done us good service, and we never had these now well-known varieties finer or better in quality. Planted on firm good ground, or say in succession to Strawberries, a failure rarely occurs, and either of them or both ought to be grown wherever late Broccoli are appreciated. Those who grow for the market or sell their surplus produce will find them very profitable varieties, the wholesale price this season being 3s. per dozen, and they were retailed for double that price. Selection has much to do with the production of extra late stocks of Broccoli, and if one or more perfect heads are available after the rest of the plants have been cut over, it is these that should be seeded. It is useless, however, to attempt improving any strains of Broccoli if inferior varieties also are allowed to flower at the same time in the neighbourhood, unless some provision is made for the exclusion of bees. Crosses are not difficult to effect between any members of the Brassica tribe, and the strain of Broccoli may easily be "poisoned" by the pollen of Borecole.

THINNING ROOT CROPS.

Advantage should be taken of showery or dull weather to complete the thinning out of Beet, Carrots, Onions, Parsnips, Salsafy, and Scorzonera. As large roots of Beet are not in demand, it is advisable to leave the plants about 6 inches apart, a much greater space encouraging coarse growth. It often happens there are a few blanks in the row, and these may be made good by transplanting some of the seedlings with a trowel, taking care not to break the tap root off short, or some of the thinnings may be dibbled out. If this is done in dull weather the plants soon recover from the check given, and if they do not eventually form straight or serviceable bulbs the appearance of the bed will not have been disfigured by ugly gaps. The Turnip-rooted Beet can be transplanted readily and forms handsome bulbs; in fact the process is a good preventive of grossness. Carrots do not transplant satisfactorily, and if large blanks occur in the rows it is advisable to either hoe over the bed and re-sow, or seed of the quick-growing Horn varieties may be sown where there are bare patches. The Horn varieties may be thinned out piecemeal or according as young roots are needed, but the intermediate varieties Improved Altringham and Long Red Surrey ought to be thinned early and to a distance of about 6 inches apart. If extra large roots are preferred give them rather more space, but we find coarse Carrots are not appreciated, and most of them go to the stables. Nor are big Parsnips nearly so serviceable as double the number of smaller roots. Ours are thinned out to about 8 inches apart, but if large roots are required they ought to be left nearer 12 inches apart. The coarsest roots, however, are most liable to canker, are not so good in quality, and do not keep so well as those of medium size. Parsnips transplant fairly well, and we usually dibble out a few of the thinnings rather than have any blanks. Salsafy

and Scorzonera sown in rows 12 inches apart need not be much thinned, a distance of 5 inches from plant to plant being ample. There is rarely any necessity to transplant either of these. Large roots of Chicory are of good service, these producing small Lettuce-like hearts when forced in a Mushroom house, the rows being 12 inches apart. Thin out the plants 6 inches asunder.

TOMATOES IN POTS.

The house-room being wanted for other purposes, any Tomatoes in pots that have already perfected the best portion of their crops may well be slightly hardened off and then transferred to the foot of a sunny wall or the fronts of forcing houses. They are also well adapted for setting between Peach and Nectarine trees under glass that have not yet occupied all the wall space. Such large plants ought not to be turned out of their pots, as the fruit already set on them, as well as those partially grown, may be spoilt before the roots have taken to the soil. They need a good amount of moisture at the roots, and this cannot well be supplied to the old balls of soil and roots when buried in fresh soil. The better plan is to half-plunge the pots in the borders, and then completely cover them over with manure and loam in equal quantities, or manure only may be used. Being frequently examined and watered whenever at all dry, the roots soon become more active and spread out into the rich food above and the soil below them. Plants thus treated form but little superfluous growth, and yield early heavy and continuous crops until disease or frosts intervene.

MAIZE OR INDIAN CORN.

Young ears of Indian, or Sweet Corn as it is termed, are much esteemed in America as a vegetable, but in this country comparatively few appreciate them. Any of the green forms are of noble appearance, and never fail to produce abundance of fine ears of corn. The variegated variety, or Zea japonica, is much less robust, but is very handsome, and during most seasons produces ears fit for the table. Strong plants ought now to be fit to put out on good ground, or any place where they are likely to be ornamental and useful. They may be planted 3 feet apart in a row, or in groups of three plants 4 feet apart. A later supply may be had by sowing seed in small pots, setting these under glass to germinate, finally planting out before the seedlings are badly root-bound. W. I. M.

Moss Curled Parsley.—It is rather a curious feature in this Parsley that whilst bolting to seed seems to demoralise the old treble curled form, the Moss Curled variety becomes, as it runs up, even more pleasing and graceful in appearance. So clothed are the stems from base to top with the Moss-like foliage, that the plants are singularly decorative, and, were they not Parsley, would readily find a place in greenhouses or flowergardens. Whilst the market trade seems disposed to fight shy of this Moss Curled strain, preferring the old curled kind, I think for ordinary garnishing uses it is by far the most pleasing; many of the plants also show a very deep shade of green, and that also, apart from the soft refined nature of its leafage, should make it a favourite for domestic uses.—A. D.

Punnett.—We might with almost as good reason ask what becomes of all the fruit punnets as of the pins, but certainly the former are inflammable and most likely come in time to help to light fires. A neighbour who has but a few acres of Strawberries has just got in 10,000 of these punnets, made at Brentford, where enormous quantities are produced by but a few families annually, and this large number are, as it were, but a drop in the vast body of punnets which the fruit growers consume yearly. Strawberries absorb mostly a flattish punnet, about 1½ inches deep and some 6 inches across, each presumably holding 1 lb. of fruit, whilst Raspberries are gathered into taller, but narrower punnets, in which these soft fruits travel short distances very well. No one objects to partake of freshly gathered Strawberries from clean punnets, and as the pickers have little time for other cares, they fill these little baskets as speedily as possible, leaving to the

packers the duty of weighing each, and placing a few leaves on the top. Thus the fruits are but little handled; indeed, growers are careful to impress upon their pickers the need for clean hands and light handling. The punnets when filled are placed in large shallow boxes or baskets, with laths running through to form stages, upon which tier above tier of punnets are laid, until the receptacles are quite full. Thus packed, Strawberries travel safely, keep fresh, and come out as cleanly as could be desired. A nice new punnet garnished by a few leaves is as acceptable as a plate from which to partake of the fruits, perhaps even more so, as there is then less handling.—A. D.

PROPAGATING.

HEATHS.—The members of this beautiful class of plants are propagated by means of cuttings, but, generally speaking, it is little followed in private gardens, being, as a rule, left to those trade establishments that make a speciality of such things. For all that, in the case of many of the varieties, their propagation is by no means difficult, provided the necessary appliances are at hand and reasonable care and attention are bestowed upon them. The different Heaths are roughly divided into two classes, viz., hard-wooded and soft-wooded. To this latter class belong many of those kinds that are so largely grown for market, such as *hyemalis*, *gracilis*, *cafra*, *persoluta*, &c. They, in common with such varieties as *ventricosa* and *Cavendishi*, are propagated by cuttings of the young growing shoots that strike root quickly, while the hard-wooded kinds are put in towards the end of the summer, when the season's growth is partially matured. When it is intended to put the cuttings in early in the season the stock plants should, in the spring, be placed in a structure that is maintained at a temperature rather above that in which they have been grown, the result of which will be soon visible in the plants starting rapidly into growth, and when the shoots are sufficiently advanced they make the best of cuttings. Where such wholesale propagation is not carried out, and the plants from which the cuttings are required are simply treated as the other Heaths are, the current season's shoots will now be in a very suitable state for cuttings. In selecting the latter the stout leading shoots should never be taken, as from their succulent character the chances are that many of them will decay. The best cuttings are furnished by the side shoots, and of them the best are those that are on the outside of the plant, and consequently well exposed to light and air. Around the base of the larger branches there are often a number of small wiry shoots which furnish good cuttings. A very suitable length for most cuttings is from 1 inch to 1½ inches, and they must before insertion have their bottom leaves removed for about one half their length. This is an operation requiring considerable care, and several courses are open for the removal of the leaves without injuring the cutting. In the first place, the leaves can be taken off by means of a very sharp knife or a pair of pointed scissors, but a better way with many kinds is to strip them off by means of the finger and thumb, and if this is carefully done the cutting will not be bruised in the least. Of course a certain amount of practice is necessary to strip off the leaves without injuring the bark in any way, but if there is any doubt about a cutting being bruised it is far better to throw it away at once than to run any risk of promoting decay by putting in a cutting that is certain to fail. The cutting should be made by means of a clean cut at the base, a very good plan being to use the thumb of the left hand as a support, so that by pressing the knife on to it a clean cut is ensured. When stripping off the leaves only two or three should be taken at a time, as there is much less risk of damaging the bark than if half a dozen are pulled off at once. As many of these cuttings quickly flag they should be prepared in a cool shady spot, and inserted as soon as possible after they are ready. A very good way to keep them fresh is, when taking them from the plant to drop them into a flower-pot lined with

a piece of wet rag, and in making them they may be dropped one by one, directly a cutting is finished, into a pot which is inverted on some moist material. As bell-glasses are very necessary to the propagation of Heaths, the size of the pots will, of course, depend upon the glasses that are available, as, if possible, the glass should fit just nicely within the rim of the pot. The pots must then be filled to within $1\frac{1}{2}$ inches of the top with broken crocks. A good plan in draining the large pots is to invert a small one in the bottom before putting in any crocks, as by so doing not only is the drainage improved, but the cutting pots are not so heavy when prepared in this way as when crocks alone are used. After the pots are crocked the remaining space is filled with the compost, consisting of fine sandy peat pressed down very firmly and level, just enough space being left for a thin layer of sand on the top. The whole being then watered through a fine rose is ready for the cuttings. Before the cuttings are put in it is a good plan to place the bell-glass in its place, and gently press it in position, as the mark left by it in the sand will serve as a guide for the operation. The cuttings must be dibbled in with a clean smooth dibble of some hard wood. The hole for the reception of the cutting must be made no deeper than necessary, as if too deep, even with very great care, a cavity is sometimes left at the base of the cutting, and when this happens the cutting is sure to perish. To prevent this as far as possible, and at the same time to disturb the surface no more than is absolutely necessary, the better way is to make the hole for the cutting with the dibble perfectly upright, then put the cutting in its place, and hold it there with the left hand, while with the right again insert the dibble exactly as for the cutting, but about a quarter of an inch from it, and press it toward the cutting during insertion. By this means the buried portion of the cutting will be held firmly throughout its entire length, while the surface soil will be but little disturbed. Overcrowding must be particularly guarded against, and at the same time space should be economised as far as possible. A very good way is to dibble the cuttings in rows and at such a distance that the tips of the leaves are just clear of each other. When a pot is filled with cuttings it must be watered through a very fine rose, as if too heavy some of the cuttings will be knocked on one side. After the watering the glasses should be allowed to remain off for a time until the foliage becomes nearly dry, when they must be replaced. The place prepared for the cutting pots when finished will depend upon circumstances, for where wholesale propagation is carried out there will be a propagating house set aside for the purpose that is kept at a greenhouse temperature, and in which the cuttings are placed under very advantageous conditions. Where such facilities do not exist, a good place for their reception is a cold frame, which should if possible be so situated that it gets but little direct sunlight during the hottest part of the day; indeed, shading is very necessary, as the sun must not at any time be allowed to strike on the bell-glasses. The frame must be prepared for the reception of the cuttings by thoroughly whitewashing it inside, and also by making a bed of ashes on which the cutting pots are to be stood. A very good plan is to plunge the pots in the ashes, as by so doing the soil does not dry so quickly, and consequently water is not so frequently required. The treatment after this consists in shading when necessary, removing the lights and glasses for examination every day, or at the longest on alternate days, and in watering when required. When the bell-glasses are removed, they should be wiped dry before replacing them. In a couple of months those that are not rooted will be greatly assisted if they are removed into a gentle heat, but care must be taken that they are not kept too close. In the case of the hard-wooded Heaths the same principle is carried out, except that the cuttings are put in towards the end of the summer when the growth is finished.

NEVUSIA ALABAMENSIS.—Where it is desired to increase this little-known shrub, it may be done to a very limited extent by means of suckers, which are occasionally pushed up from an established specimen; but a readier way to obtain a quantity

is to take cuttings of the young growing shoots and treat them as one would a *Fuchsia* or plant of a similar character. The cuttings strike root readily enough in this manner—that is, if they are not formed of the very succulent shoots. T.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Fabiana imbricata.—A pretty and interesting shrub belonging to the Potato family (*Solanaceæ*), but so much resembling a Heath, that it might well be mistaken for one. It is a slender-growing shrub with evergreen leaves, and in early summer every shoot is wreathed with a profusion of small white, trumpet-shaped flowers. It is a native of Chili; therefore not perfectly hardy as a bush except in the southern

den, large or small, and if space permits it should be planted in lawn groups of five or six plants together. The names of *F. Fortunei*, Sieboldi apply to forms of *F. suspensa* (see illustration), not differing materially from the original. *F. viridissima* (here illustrated), though less graceful in growth than *F. suspensa*, is, nevertheless, a desirable shrub. It is of erect growth, with stout, stiff shoots, which in early spring are covered with yellow blossoms, bell-shaped, and about as large as those of *F. suspensa*. It generally grows from 3 feet to 5 feet high, though in crowded shrubberies it sometimes shoots up as high as 8 feet or 10 feet. The name *viridissima* has reference to the green bark of the shoots. It is a native of Japan and perfectly hardy, while *suspensa* is a Chinese plant.

Fothergilla alnifolia.—A North American shrub of dwarf growth and deciduous. It is desirable on account of its flowering so early in



Fabiana imbricata.



Garrya elliptica. Fruit-bearing catkin.

counties, but is very suitable for growing against walls in cold districts.

Forsythia.—Of the two species of *Forsythia*, one of them is the most charming hardy deciduous shrub we possess. This is *F. suspensa*, with elegant long shoots, half-climbing, half-trailing. In early spring, usually in April, this shrub is hung profusely with strings of golden, bell-like flowers adorning every twig, and lasting in perfection for a fortnight or longer. It is thoroughly hardy, grows quickly, and is indifferent to soil if not excessively stiff or light. If planted in an open spot and sheltered from strong winds, it makes a delightful spreading bush, and sends out its long graceful shoots on all sides. It also makes an excellent wall covering, as its shoots, when they reach a few feet high, fall over in a most elegant way. It is also suitable for planting in rock gardens, so as to trail over bold rocks. It is an indispensable shrub in every gar-

den. It produces feathery tufts of fragrant white flowers before the leaves, which resemble those of the common Alder. Suitable for a moist peat border or low parts of the rock garden.

Fremontia californica.—This (an illustration of which is given on p. 566) is a handsome deciduous Californian shrub. It is scarcely hardy enough for the open air without protection, but there are few more beautiful wall shrubs. It has large bowl-shaped flowers 2 inches across, of a bright yellow colour, while the leaves are deep green and lobed. In favourable spots it reaches 10 feet or 12 feet in height, and flowers in early summer. It succeeds best against a north, west, or east wall, a southern exposure being too hot and dry for it as a rule.

Garrya elliptica.—A well-known Evergreen from California, beautiful also as a winter-flowering shrub. In mild winters it begins to

flower as early as December, producing amidst the handsome deep green leaves a profusion of its gracefully drooping pale green catkins in tufts. Flowering twigs of the *Garrya* cut and placed in vases in rooms endure a long time, and are very acceptable in winter. Though generally seen as a wall shrub, this *Garrya* is

joyed. There are various other kinds of *Garrya* in cultivation, but *G. elliptica* is the only one worth considering here. There are male and female forms of it, the most elegant being the pollen-bearing or male plant.

Genista.—In this numerous genus there are several beautiful garden shrubs which are, how-

boulders. In such positions their beauty is fully seen. The taller growing *Genistas* are few, but these are valuable. *G. elata* is one of the most noteworthy, and is not much known. It is a tall growing, spreading bush, often 8 feet or 10 feet high. It is suitable for light soils, and in late summer is covered with a profusion of small pea-shaped flowers which make the bushes glow with yellow, and thrives well as undergrowth to large trees if not too densely shaded, and is altogether a first-rate



Forsythia suspensa.



Forsythia viridissima.

thoroughly hardy and makes a dense bush from 5 feet to 8 feet high, according to the situation. In cold parts it is advisable to give it the benefit of shelter, but in the south and west it does not require this. If planted in a shrubbery it should always be placed near the path and not allowed to become crowded, as then its beauty can be en-

ever, more suitable for the rock garden than the shrubbery. Among these are *G. tinctoria*, *anglica*, *anxantica*, *sagittalis*, and *pilosa*, which for the most part are dwarf or prostrate shrubs, bearing yellow flowers. They are suitable for spots in the rock garden, where they can be fully exposed, and their shoots can ramble among and over

flowering shrub. The Etna Broom (*G. ætneensis*) is a slender, tall-growing shrub, from 3 feet to 12 feet high, and of most elegant growth. In August it is a mass of yellow bloom, which is then the more appreciated, as few other shrubs flower at that season. There are other *Genistas* to be seen in botanical collections, among them *G. ephedroides* and *monosperma*, but those described are the best for general culture. Being mostly natives of Europe, they are quite hardy, and suitable for almost all kinds of soil, though they prefer a warm light one.

Gordonia (Loblolly Bay).—The two *Gordonias* in cultivation, *G. pubescens* and *G. lasianthus*, are very beautiful shrubs, but are far too rare in English gardens, owing probably to the difficulties attending their propagation. The genus is allied to the *Camellia*, and the two species named are very old garden plants, introduced during the last century. *G. pubescens* is a shrub of *Camellia*-like growth, 6 feet high, bearing in late summer beautiful flowers 3 in. across, pure white, with a centre tuft of yellow stamens. *G. lasianthus* is taller and more robust in growth and has larger and more fragrant flowers than *G. pubescens*. Both are natives of the swamps near the coast of the southern States of North America; therefore are not among the hardiest of shrubs, but in our southern and coast counties they need no protection. Both species are obtainable in the best nurseries.

Grevillea.—These Australian shrubs are generally grown in the greenhouse, but there are a few quite hardy enough for wall culture. Among these are *G. sulphurea*, the hardiest species in cultivation, and which flourishes freely against walls about London. Its flowers are pale yellow, of curious shape, as in all *Grevilleas*, produced at no particular season, but continuously throughout the summer. *G. rosmarinifolia* is another hardy kind, having Rosemary-like leaves and red flowers in clusters. The *Grevilleas*, like other half-hardy shrubs, like a warm wall in a sheltered situation.

Grabowskia boerhaaviæfolia.—An ugly name for a not very beautiful shrub. It belongs to the Potato family, and is hardy enough for the open air, though a native of Peru. The flowers are dull pale blue and not showy. It may be well to know the name so as to avoid the plant.

Standard Rhododendrons.—These when they are well furnished with dense heads are amongst the most ornamental shrubs one can have in a garden, but it is essential to have a bold view, as things of this character are only adapted for large grounds. In the front of the Palm house at Kew there are several specimens which a few days ago were a sheet of bloom, and we may say the same of the huge leafy banks of *Rhododendrons* along the central walk leading to the pond. The varieties that are used are the following, all making good standards, some better than others. Michael Waterer is a variety with large trusses of rich crimson flowers, the upper petals spotted with purple; Queen is lightly tinted with pink, the upper petals yellow; the crimson Barclayanum and the early Blandyanum both make excellent standards; so also Charles Noble, which, however, is very late, the specimen at Kew only just expanding its flower buds. The variety Lady Eleanor Cathcart makes the finest standard of all, the trusses very large and the flowers full rose, the upper petals spotted with deep crimson. Concessum does not make a particularly good standard, but the rosy flowers are attractive. Fleur de Marie is a free-growing kind, developing a large head, and has rosy red flowers. Faust is later, pinky tint, with brown spottings on the upper petals.

Magnolia obovata.—After the earliest flowering *Magnolias*, represented by such kinds as *M. conspicua*, *M. Soulangeana*, and *M. Halleana*, are over, this species blooms. It will last in beauty under favourable conditions for some little time, as in a general way more of a succession is maintained by *M. obovata* than by any of the others above mentioned. It has not so handsome a flower as the Yulan (*Magnolia conspicua*), owing to the fact that the petals open but very little, their exterior alone being visible. In this species the roots are produced more freely than in the others, and consequently it is less impatient of removal than they are. It is usually increased by layers, and is generally employed as a stock to graft the others on.

M. obovata is also known under the specific name of *purpurea*, suggested by the colour of the blossoms, which, especially in some instances, are deeply tinged on the outside with that hue.—T.

The flowery Amelanchier (*Amelanchier florida*).—This *Amelanchier* grown as a standard and planted three or four together in the shrubbery produces a fine effect at this time of the year, when covered with its snowy blossoms accompanied with its own foliage. *A. florida* being later than *A. Botryapium* prolongs the effectiveness in the shrubberies. In our strong soil this *Amelanchier* grows freely, and never fails to produce a full crop of flowers. The plants are not pruned at all, but allowed to grow freely, thus having instead of stiff formal heads long graceful branches carrying a wealth of blossom.—S.

Darwin's Barberry (*Berberis Darwini*).—This *Berberis* is not planted nearly so freely as its merits deserve. Growing in masses of about six together it produces a fine effect in the mixed shrubbery, or in the same position singly where large plants are available it is equally showy. Planted on the margins of lakes or overhanging rockeries it is equally at home, and is sure to please most people by its wealth of rich yellow blossoms. The main point is to treat it liberally at planting time by adding some manure to the soil, afterwards allowing the plants to grow away at will. We have it here (Hants) growing as a hedge in conjunction with the common Holly, one plant of the latter to two of the *Berberis*. The reason for mixing it with Holly is that the latter affords some protection during the winter to the Barberry. In this manner we have an excellent hedge.—S.

Chinese Tulip Tree (*Magnolia fuscata*).—Compared with most of the other members of the genus, the flowers of this are small and unattractive, but in one respect, and that is in the delicious fragrance of its blossoms, it stands before all the rest of the genus. The species under notice forms a much-branched evergreen shrub, while the flowers, which are of a dull brownish purple colour, are almost hidden beneath the foliage. For all that they make their presence manifest by reason of their delicious perfume, which is so powerful that a few blossoms will be noticed throughout a good sized structure. This *Magnolia* is a native of China, and requires much the same treatment as a *Camellia*. Like the members of that genus, it may be either grown as a shrub in the conservatory, or employed for covering a back wall. In sheltered spots throughout the south and west of England it may be treated as an outdoor wall shrub; indeed, some years ago there used to be a fine specimen in the gardens at Bicton that had stood out for a long period, and which was in the habit of flowering annually.—H. P.

Golden-leaved Currant.—This is a form of the dwarf *Ribes alpinum* and known as *R. a. pumilum aureum*, and is one of the brightest coloured of golden-leaved shrubs at this time of the year, though as the season advances it becomes less effective, for the foliage loses a good deal of its golden hue and is then rather of a yellowish green. It forms a somewhat spreading, but much-branched bush, is seldom more than a foot high, and is of a sturdy and robust character. This Currant is well suited for planting on a sunny part of the bolder arrangements of rockwork, as when the plant is so situated the leaves acquire their greatest depth of colouring. It is easily increased by layers, for the branches will after a time strike root where they come in contact with the soil even if left to themselves, and of course the action of rooting is hastened if the under side of a branch is tongued and kept in position by a peg or pegs. I am not aware of the origin of this golden-leaved Currant, but Messrs. Osborn, of Fulham, were the first to call attention to its merits some seven or eight years ago, and about that time they were awarded a certificate for it by the Royal Horticultural Society. Possibly its slow rate of growth, especially during the earlier stages, has a good deal to do with the fact that it is as yet but little known in gardens. The lover of golden-leaved shrubs is by no means limited in his choice to this one, for besides the *Ribes* we have the golden Elder, which

increases in depth of colour as the sun gains strength; the golden Weigela, which behaves in a similar manner; as well as golden-leaved forms of the Hazel, of *Ptelea trifoliata*, of the Mock Orange (*Philadelphus coronarius*), and of *Spiræa opulifolia*. These last two are, besides the colour of their foliage, characterised by a less vigorous habit than the type. The golden Elder or the Weigela affords a well-marked contrast to the deep purple-tinted *Prunus Pissardi*, as each of the three is seen to the greatest advantage when fully exposed to the full rays of the summer's sun.—H. P.

Jew's Mallow (*Kerria japonica*).—This old-fashioned climber has flowered more profusely this season than I remember seeing it before, owing, no doubt, in a great measure to the thorough ripening of the wood during the past hot summer. The flowers also have been of unusually large size and brilliant colour. The best way to train it is to nail in the back growths and allow those on the front of the plant to hang loosely, which they will do in some cases to the length of 2 feet. Directly after the flowering is over, whatever pruning is necessary should be done. In the case of plants that have filled their allotted space, most of the front or breast-wood should be cut away, thus making room for new growth, which will ripen all the better if plenty of space is allowed. The foliage is liable to be attacked with red spider if the position is south or a very hot one during the summer; therefore a good soaking at the roots and a thorough drenching of the foliage with the garden engine occasionally will go a long way towards future success. This *Kerria* is largely used by the cottagers in this neighbourhood to cover the walls and porches of their houses, and right well does it look when in flower.—S.

The Spanish Furze (*Genista hispanica*).—To this low-growing shrub must be assigned a place among the showiest of those that bloom during the month of May. It is of neat, compact growth, usually forming, as it does, a dense bush, which at this season is profusely laden with bloom, so that a specimen of it presents the appearance of a golden mass. Given favourable weather, it retains its beauty for two or three weeks. It is a first-rate subject for large rockeries, as, unlike many other low-growing shrubs, it is not of a creeping character, and consequently does not overrun its weaker neighbours. Whether it is treated as a rockwork plant, or a place assigned to it on the margin of a shrubbery or similar spot, this *Genista* must be so situated that it gets plenty of light and sunshine, as when shaded it becomes weak and does not flower well. The Spanish Broom can be struck from cuttings at almost any season provided they are taken off, inserted into pots of sandy soil, and kept in a close frame, but still the best time of the year for the purpose is either early in the spring, or towards the end of the summer when the season's growth is completed.—T.

SHORT NOTES.—TREES AND SHRUBS.

Guelder Roses are flowering magnificently at Kew. Some bushes near the herbaceous ground are a mass of the white balls of flowers. It is a pity that more do not plant the Guelder Rose.

Azalea coccinea major is resplendent with red and glowing orange flowers. It is one sheet of bloom, and against a dark background is intensely brilliant. Amongst tree stumps or shrubs it shows its character well.

Cistus Clusi, which has white flowers of great purity and yellow stamens, is in full flower now in several places. It is specially free at Kew, where there are great clumps of it on the rockery and also in one of the borders. Its shrubby spreading growth and freedom of flowering fit it for such positions as these.

Euonymus radicans variegatus is very showy at the present time, the young foliage possessing a bright golden colour which is pleasing. For covering stones near the water's edge it is most useful, as this position seems just to suit it.—P.

The Lily-flowered Magnolia (*Magnolia conspicua*).—Here (Hants) this *Magnolia* has been more effective this season than I ever remember. It has flowered freely, and has not been at all damaged with late frosts, as owing to the prolonged winter it did not open its flowers so early. *M. Soulangeana*, though

it does not bloom so early as *M. conspicua*, does not, as far as I can see, differ either in the form or the colour of its flowers.—S.

CHRYSANTHEMUMS.

E. MOLYNEUX.

SUMMER POSITION OF PLANTS.

WHERE plants are cultivated for the production of large blooms, they must of necessity be allowed to grow taller than when the plants are cultivated for any other purpose, as it is not possible generally to obtain flowers so good in quality from dwarf plants as from those which are allowed to assume a more natural mode of growth, allowing them to grow uninterrupted until additional shoots known to *Chrysanthemum* growers as the "first and second breaks" are formed. If it were possible by any other means to obtain as fine flowers from dwarf plants, a boon certainly would be granted to cultivators. Unfortunately, this is not the case, and those who wish to have the very finest blooms must in a general way content themselves with plants which are tall.

The position which the plants are to occupy during the summer months should receive some consideration. What is needed is a place quite open to the sun's influences all day, and yet sheltered from rough easterly winds, which sometimes seriously check the growth. Another wind to be guarded against is that from the south-west, which so often blows with such force during the early part of September just at a time when the plants are forming their flower-buds, and in some cases where formed, they are entirely spoilt through being blown off or so severely whipped about as to cause injury to the delicate tissues of the skin, thus checking that regular even growth which is so essential to success.

Chrysanthemums grown for any purpose cannot well have too much sun, provided all other conditions are favourable. Therefore select the position with this view, and do not forget that plenty of sun is most essential to the proper ripening of the wood during September and the early part of October. At this time of the year the absence of sun upon the plants would have a most injurious effect, as the last growth requires ripening up thoroughly. The best of all positions is alongside of a path running east and west in the kitchen garden, for instance, which is generally walled in. Here the plants obtain the sun the whole day, and during the greater part it shines full on the foliage. One row on each side of a broad path running north and south does very well. In this case it is wise to stand the pots just clear of the path, as the continual watering with liquid manure is apt to disfigure the gravel. In such a position, boards, bricks, or tiles should be employed whereon to stand the pots to prevent the ingress of worms, which cause sad havoc with the soil in the pots.

If the plants are arranged all together on one piece of ground, the rows should run east and west, and be at such a distance apart that the shade caused by one row of plants does not fall upon the row behind. A distance of 5 feet between the rows should be allowed. If the space at command is of the size to accommodate several rows running parallel with each other, the tallest plants must be arranged at the back with the dwarfier ones in front. A knowledge of the relative height of each variety is necessary to effect this object. For the grower's observance of the growth and the better manipulation of each variety which has something

peculiar in itself, it is a good plan to arrange all the plants of each sort together.

Those who are interested in *Chrysanthemums* and wish to gain success will find it of advantage to note well for future guidance the different phases of growth. I should like to impress upon beginners the importance of this, as a thorough knowledge of each variety and its peculiarities can only be gained by close attention.

The height of *Chrysanthemums* differs somewhat according to the treatment they receive. The excessively tall growth of some varieties goes a long way towards condemning the method practised for the production of large blooms by some growers; still if flowers of the largest size and best quality must be secured, tall growth in some instances must be borne with, as, for example, *Mme. C. Audiguier*, which is naturally a tall variety and one of the best varieties of Japanese flowers in existence.

Some growers plunge the pots, but this is not necessary unless in the case of plants grown as specimen or bush plants, where good foliage is especially desirable. I do not approve of the system, for the reason that in continuous wet weather, which often occurs towards the end of September, it is difficult to know when the plants really do require water. Excess of moisture at the roots is as bad as too little. Some people think *Chrysanthemums* cannot have too much water, but this is a mistake. I have seen plants denuded of a large portion of their lower leaves through receiving too much water at the roots. If the pots on the sunny side could have protection from the rays of the sun in continuous spells of dry weather by boards placed in front of the pots, I think this would be a considerable advantage both to the plants in keeping the roots cool and a saving of labour in the application of water.

It is better to stand the pots when in their summer quarters on boards, slates, or tiles, or even on two bricks placed nearly together, than upon a bed of ashes, as the roots penetrate through the bottom of the pot into the ashes for some distance in quest of moisture. I have seen the roots 2 feet away from the base of the pot. When the plants are removed indoors these roots are destroyed, thus considerably checking the plants. Worms, too, are not so liable to penetrate into the pots as they are when the pots are standing upon ashes. If the plants have of necessity to stand on ashes, care should be taken to have good drainage underneath. Provision must be made to secure the plants from winds. This is best done by erecting a trellis-work to which the plants can be fastened. There are various means of effecting this; where stakes are used, as noted in a former issue, they will have been got ready. A framework of these can be put up which is strong, cheap, easily taken down, and stored during the winter. The stakes will last two or three years. The upright stakes should be of sufficient stoutness to prevent the plants swaying about, and placed at such a distance as their strength and the length of the cross rails necessitate. For the tallest plants three cross rails are required, while for the moderately tall-growing varieties two are enough, and one for the shortest plants. The method of tying the plants is in this way: the centre shoot or growth after the first break has taken place is tied to a long stake fixed in the pot, the one on each side of the centre growth being fastened to small temporary upright stakes secured from rail to rail. In this manner the plants obtain an equal share of light and sun, and when housed the shoots are tied loosely to the centre stake. Secured thus, there is not the

danger of breakage by wind or other causes; the lateral growths springing from the joints are more easily removed, and the under sides of the leaves are not so liable to be infested with mildew towards the autumn as they are when all the growths are huddled close together. Syringing, also, can be more effectively performed in this manner. Some growers stretch twine from post to post instead of the rails, but this soon becomes slack by exposure to the weather, and is not sufficiently firm to prevent the plants rocking to and fro.

Where stakes are not available, the strongest and neatest method is that of making a permanent structure of iron standards. The end standards should be 1½ inches square and be kept in position with iron supports 1 inch square. The intermediate posts may be flat iron 1½ inches wide and three-eighths of an inch thick. To these connect stout galvanised wire, to which a coat of paint has been given to prevent damage to the tender shoots, which sometimes occurs through contact with the acids used in galvanising the wire. Such contrivances are sometimes objectionable as a permanency; if so, they can be easily taken down and stored away if the wires are fastened by bolts and nuts to the end standards and the wire run through holes in the intermediate supports of flat iron.

There are various kinds of stakes in use. This must be taken into consideration on the spot, as much depends upon locality. When available, common Hazel rods answer well, so also do Bamboo canes, which can be had very cheaply. Stakes made from deal are light and serviceable, and if a coat of paint of a pale green or brown be given them so much the better. Some growers use one-quarter-inch iron rods made secure in the soil by means of three feet placed triangular in form. These have a neat appearance, but I think they are cold and not so good as those made of wood.

SEASONABLE NOTES.

PROCEED to get the plants into their flowering pots as fast as becomes necessary. Much of the bareness of the stems may be traced to neglect at this time of the year by allowing the pots in which the plants are growing to become too crowded with roots before the final potting takes place. Plants in this condition quickly become dry at the root, requiring so much more attention in watering. Pompon and single-flowered varieties may be left until the last, as these sections do not root so strongly as do the large-flowered or Japanese varieties. As strong easterly winds are prevalent, where convenience exists, the plants, until finally placed in the position they are to occupy during the summer, may be yet placed together where they can be given temporary protection. If the summer quarters be sheltered, the plants when potted can go directly into their allotted places; otherwise, if the position is not favourable, it is much better to render temporary protection for a time. One or two stormy nights or days will do more damage to a collection of plants in the way of bruising and breaking the young succulent leaves than can be repaired during the whole season. Therefore, I look upon any extra care bestowed in this detail to render the plants safe and free from injurious winds time well spent. The plants, where they are grown for the production of large blooms, are breaking into additional growth fast now, by the formation of a flower-bud in the apex of growth. Much care and attention should be exercised in thinning the growths to the allotted number before the plant is weakened by too many being allowed to remain; disbud to three where the finest flowers are wished for, retaining those situated nearest to the top.

As growth proceeds, secure the young branches to stakes, as they are liable to snap off easily by winds and other causes. Specimen plants should

have the shoots pinched out, for the last time, not later than the middle of the month.

Plants which are planted at the base of walls are growing freely where the shoots have been properly thinned out and kept nailed in position. Secure the growths as fast as they proceed. Timely attention to this secures a neater appearance later on, as

former and a dusting with sulphur for mildew quickly dispose of any trouble in this direction.

E. M.

A new Chrysanthemum pest.—Never till this season have I been troubled with an insect which quickly destroys the points of the young growths if

point of growth as soon as attacked becomes deformed and slightly bent over to one side, thus revealing something wrong. If the parts so affected be searched, the intruder can easily be found coiled up snugly where its presence is least desired. It appears to generally attack those plants which are most vigorous, on account, I presume, of their succulent character.—E. M.

Early-flowering Chrysanthemums.—There are two varieties not included in the interesting article on p. 466, both of which we find very useful. Neither of them come under the head of summer flowering Chrysanthemums, but form rather the advance guard of the general collection, being included in what is usually spoken of as the October flowering section. They are Mr. William Holmes, a large reflexed flower of a bright reddish crimson colour, which is, perhaps, best described as an early-flowering Cullingfordi. The other is Lakmé, a flower of a golden salmon hue. Irrespective of any other character, both these Chrysanthemums possess the great merit of being remarkably free, yet of good sturdy growth, and well furnished with ample foliage. They are both extremely useful for furnishing the conservatory at a time when most of the summer flowering plants are past their best, and before the bulk of the collection comes in.—H. P.

ORCHIDS.

W. H. COWER.

THE ORCHID EXHIBITION AT MR. BULL'S.

ALL those who set their faces against Orchids and Orchid culture, and those also who cannot understand why Orchids have become so extremely popular of late years should pay a visit to Mr. Wm. Bull's establishment, King's Road, Chelsea, where there are not only a vast quantity of plants, but an immense number of different forms now flowering. The Orchids are exquisitely arranged, the base from which they appear to spring being a bed of lovely Maiden-hair Ferns, whilst amongst them are dotted innumerable graceful and elegant small-growing Palms. The various colours are grouped and disposed in an exceedingly artistic manner, those bearing long spikes being so arranged that no straight lines occur in the view. There is no sameness, but the eye wanders on with eagerness to see and behold the fresh forms and the delightful change of colours which occur at every step. The display is arranged in a fine span-roofed structure about 100 feet in length, the stages in the centre and in front being about a yard wide, so that the display covers some 400 feet. In addition to this, numerous kinds which succeed best in baskets depend from the roof, and lend their charming spikes of bloom to the general effect, whilst the air is redolent with the delicious perfume yielded by the different forms. It is, indeed, a sight which all lovers of plants should see, especially those who have never seen Orchids at their best, for it is so beautiful that it is impossible to adequately describe it, as may be gathered from the fact that I selected nearly 200 kinds as specially worthy of note. These all exist in quantity, and for the most part in large examples. Here were hundreds in great variety of the lovely Princess of Wales Orchid (*Odontoglossum Alexandræ*), some being pure white, others beautifully spotted; while others, again, were suffused with a delicate rosy tinge. Quantities of its near ally, *O. Pescatorei*, were also in force, which, although it has been in cultivation longer than the Princess flower, has not produced the same amount of grand varieties it has done. These two charming plants are now as reasonable in price as *Pelargoniums* and are as easily grown,



The Slippery Elm of California (*Fremontia californica*). See p. 562.

the leaves face to the front more regularly, causing a better effect during the summer.

Pay the requisite attention to insects, such as green and black fly, mildew, and caterpillars, applying the usual remedies as soon as the first appearance is discerned, a neglect of this often causing some trouble later on. Tobacco powder for the two

not removed. In size and appearance it somewhat resembles the Rose grub, but is not quite so long and slightly lighter in colour. It secretes itself in the young unfolded leaves at the extreme point of each plant, eating its way until it buries itself in the stem and cripples the growth entirely. Fortunately, its presence is easily detected; the extreme

and they yield a much larger amount of pleasure; therefore I look upon them as being specially adapted to those having only a shady glasshouse in town, it being a remarkable fact that, notwithstanding the altitude at which these plants exist in a state of nature, they succeed well in town gardens. Associated with these white flowers were quantities of the brilliant-flowered *Masdevallias*. English Orchid growers have to thank Mr. Bateman for the strenuous efforts he made to induce collectors to send these plants home, for no other genus in the order produces flowers of such a brilliant hue. Amongst these may be noted groups of *M. Veitchi grandiflora*, numerous forms and colours of the variable *Harryana*, the most intensely coloured form being a newly introduced kind called *Comet*.

Lælia purpurata was represented by numbers of large plants, amongst them being many gorgeous forms. These were backed up with quantities of *Cattleya Mossiae*, *C. Mendeli*, *C. Schroderæ* and its variety *albescens*, which not only blooms later than any other form of *Cattleya Trianae*, but is said to retain its full beauty for a greater length of time, whilst the flowers yield a delightful fragrance. The superb *C. Warneri*, the old, but very elegant *C. intermedia*, *C. Skinneri* and its variety *oculata*, and the beautiful new *C. Lawrenceana*, as also numerous forms of their near relatives, *Lælia elegans* and *L. Schilleriana*, were also well represented. Amongst these were dispersed a whole army of Slipper Orchids (*Cypripediums*), the most notable being *C. Sanderianum*, *Parishi*, *Druryi*, *niveum*, *Lawrenceanum*, *superbiens*, *barbatum* in variety, *caudatum*, *villosum* and many others. *Dendrobies* were represented by the beautiful *D. thyrsiflorum*, *D. Bensoniæ*, *D. chrysotoxum*, *D. suavisimum*, *D. crassinode* and *D. Dearei*. Amongst *Oncidium*s the most notable were *Marshallianum* and *crispum* in fine form, *O. Papilio* and *Kramerii*, the latter being the most desirable of the two for amateur growers, as its blooms last longer and it requires less heat. Conspicuous also were the graceful spikes of *O. stelligerum*, *varicosum*, *macranthum*, *undulatum* and *curtum*; whilst amongst the smaller-flowered kinds, *O. nubigenum* and *cutellatum* were conspicuous. The majestic *Cymbidium Lowi* was also in grand form, as also were numerous examples of *C. eburneum*, with its pure ivory-white blooms. Yellow flowers were represented by the Tulip-like blooms of *Anguloa Clowesi*, and dark forms by those of *A. Ruckeri* and *A. Ruckeri sanguinea*.

Blue flowers, which among Orchids are always scarce, were represented by some nice examples of *Vanda cærulescens* and other distichous-leaved East Indian kinds, by numerous *Vandas* of the *suavis* and *tricolor* section, the Fox-brush *Aerides* (*A. Fieldingi*), and some excellent varieties of *A. Lobbi*, *A. crispum* and *Warneri*. From the roof depended quantities of spikes of the ever-welcome *Oncidium concolor*, its uniform clear yellow flowers being distinct and cheerful; also vast numbers of *Odontoglossum citrosum*, *Phalænopsis Sanderiana*, and the small-flowered *P. Parishi*, which, although a very pretty little flower, is not worthy of the name of such an indefatigable man. It appears to be the custom to tack on to good things the names of the growers at home, and leave the discoverer of many new kinds to be satisfied with some minute kind which the majority of Orchid growers would refuse to have named after them. *Acineta citrina* is a member of a neglected family which appears to be fast gaining favour. Its spike is pendent, dense,

the flowers large and of a deep yellow, too deep in my estimation to warrant the name of *citrina*. *Thrixperum Berkeleyi* is also a pretty little plant with pendent spikes of white flowers, whilst *Ornithocephalus grandiflorus* with its bird-shaped flowers of pure white and emerald green is quite enchanting; *Masdevallias* of the *Chimæra* group were also conspicuous. Other plants flowering here are too numerous to mention, but *Odontoglossum luteo-purpureum*, *O. Halli*, *O. cirrhosum*, and *O. Phalænopsis* were all too fine to pass over in silence, so also were *O. Chestertoni* and a beautiful new hybrid of the *O. Ruckerianum* type, called *princeps*, in which the flowers were very large, the ground pure white, richly and heavily spotted, not forgetting the grand display made by the host of *O. vexillarium*, amongst which are charming flowers remarkable both for size and depth of colour. Many things are here unnoticed in this ever-changing exhibition, which is supplied from the other houses in the establishment, and which contains features now which will be entirely changed as the season advances.

Dendrobium Falconeri.—In your issue of May 19 "J. F. W." asks if it is unusual for *Dendrobium Falconeri* to bear twin flowers. I have found strong plants often do so, but do not think it any advantage, as the flowers are never so large as when borne singly, as you will observe from specimens sent, which were cut from a plant bearing 150 such flowers. To show the accommodating nature of this sort, I may mention that while "J. F. W." grows his in heat with good results, I find it do equally well all through the year in a cool house with such things as *Masdevallias*, *Lycastes*, &c. I grow it on a block with very little compost, and keep it thoroughly dry during winter.—C. J. ROWE, *Nunfield Gardens, Dumfries*.

* * The flowers sent show that the habit of bearing twin flowers is no advantage, the blooms not being half the size of those produced singly.—ED.

Bletia hyacinthina.—This sweet little Chinese Orchid is, I am told, just now blooming beautifully out of doors in Mr. Gordon's nursery at Twickenham. This is encouraging, for few persons who have had it under culture in a glasshouse cared to risk it out of doors. That it is perfectly hardy, I am, however, well convinced, having grown it out of doors for fully five years in my old Welsh garden, and during that time several of the winters were anything but mild. It grows best, I believe, in limy peat, for I tried it for several years in pure peat, with a small admixture of loam, but it did not then succeed so well as after I removed it to a new situation and where the soil was largely composed of old lime rubbish; in fact, in planting, I knocked a quantity of old lime from the wall, and mixed it with the peaty loam in which the roots were placed. This pretty Orchid has long, grass-like foliage and a beautiful raceme of purple or pinkish flowers, which are of good substance, and remain in good condition for a very long time. What I want, however, to impress on the readers of THE GARDEN is, that the *Hyacinth-like* Chinese *Bletia* is perfectly hardy in, perhaps, every part of England.—A. D. WEBSTER.

SHORT NOTES.—ORCHIDS.

Cypripedium occidentale is a beautiful hardy Lady's Slipper that we might see more of. It has brownish purple petals and a white lip.

Masdevallia Harryana lilacina, which was flowering recently in the Maida Vale Nursery, is a bright, rosy-lilac variety of beautiful form. It well deserves a place in the Orchid house.

Masdevallia Lindeni has a brilliant flower of the richest magenta-purple, and although not so large as that of *M. Harryana*, is bright and beautiful, especially when a number of plants are grouped, as in the Maida Vale Nursery.

Phalænopsis gloriosa.—This appears to be a connecting link between *P. grandiflora* and *P. amabilis*, which at one time appeared to Lindley as so thoroughly distinct. It has the foliage of the former, with somewhat the flower of the latter kind, or perhaps it would be best to say that the flowers partake of the characters of both. It has been imported by the Messrs. Low, of

Clapton, and has recently been named by Professor Reichenbach.—W. H. G.

Cattleyas are in perfection now, and in the Chelsea Nurseries of Messrs. Veitch, C. Mendeli, Mossiæ, and Warneri are in full splendour. The latter is a shy-flowering variety, but is very beautiful. The rich, but yet soft lilac sepals and petals are in bold contrast to the charming deep purple lip.

Two *Lissocichilus* not often seen are *L. Krebsi* and *L. parviflorus*. The first has *Calanthe-like* leaves and a strong spike of flowers, that, however, are not particularly attractive. They are brown and yellow in colour. The other is smaller than *L. Krebsi*, the lip yellow and the sepals and petals brown. They are of more botanical than horticultural value, as the colours are not very striking. Both are in bloom at Kew.

White-flowered Orchis mascula.—I was glad to see (GARDEN, p. 500) that this very uncommon form of our early purple Orchid had been picked up wild in Scotland. I have already two or three English stations. Would not a coloured plate of British Orchids take well in THE GARDEN? I would go to some trouble in procuring specimens for such a purpose.—A. D. WEBSTER.

* * Yes, willingly; but the result would be best if drawn where they grow; indeed, some of them deserve separate plates as garden plants.—ED.

THE NEW ROCKWORK AT THE MANCHESTER BOTANIC GARDENS.

ONE of the new features formed by the reconstruction of the above gardens is a handsome piece of rockery in imitation of the new red sandstone constructed by Mr. H. Clapham, of Southport. It will be remembered that the gardens of the society were taken over by the promoters of the recent great exhibition at Manchester, and utilised as a promenade, while the representations of Old Salford and Manchester were erected on a portion of the gardens. All of the latter have been removed, and all that remains is a reproduction in stone instead of wood of the cross which stood in Marketsted Lane in Old Manchester and Salford. The huge fairy fountain is also gone, as it was found that it would prove too great a strain upon the resources of the society. The material which formed the foundations of the basin was blown up by dynamite, and the blocks used for the base of the rockwork above referred to. The site of the fountain is now a sunken rock garden, appropriately planted, and with seats placed about it.

In constructing the new rockwork which is between the exhibition house and the Chester Road, Mr. Clapham has imitated as closely as possible the natural dip of the new red sandstone found in this locality. He has followed the geological formation which dips from east to west, and he has also given the thin white beds of sandstone which come in between the layers of the red, sometimes in little beds and sometimes to the depth of 4 feet. As the natural stone is scarce in this locality, the blocks of concrete—a special formation to which Mr. Clapham has given the name of *Claphamite*—forming the foundation of the fountain were used for rockwork. Mr. Clapham states that the concrete is found to be better adapted for smoky localities than the natural rock. In forming the foundations Mr. Clapham kept them as free as possible, so that moisture could pass away freely, while he has so contrived it that all surface water falls away behind the face of the rocks and does not force its way to the front, as in the case of some ill-constructed formations. Plenty of root-room is afforded, and thoroughly efficient drainage. It is found that the roots of plants cling to the artificial stone as firmly as to the natural rock. As a matter of course some colouring matter was necessary to give resemblance to the sandstone, and if it looks a little bright it will soon tone down to the natural tint. The rockwork is raised to an appropriate height in the centre, so as to admit of a broad path running beneath, and here are cool alcoves with seats—a delightfully pleasant place on a hot day. The line of Marketsted Lane as it appeared in Old Manchester is maintained, and runs over the rockwork.

The reconstructed gardens have brought out several improvements; broad walks for promenading have been cut through the turf, while enough

of the latter is left to give character to the gardens. The renovated walks cover a space of 4 acres, and 12,000 yards of turf were necessary to relay the lawns. R. D.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

JUNE 12.

A GAY show of summer flowers we might expect at this season, and those who visited the Drill Hall, Westminster, on Tuesday last were not disappointed. There were Irises in abundance, Pæonies, Poppies, Rhododendrons, hardy Azaleas, and other June flowers, besides choice Orchids in considerable variety.

The first-class certificates, which were numerous, were awarded to the following:—

CATTLEYA WAGNERI SUPERBA.—This is a beautiful variety of one of the most free-blooming of Cattleyas. The flowers are larger than those of the type; the sepals narrow, pointed, and milk-white, and the petals of the same tint, but much broader and wavy. The heavily fringed lip is rich yellow at the base, this colour running into the throat, and also appearing on the outside of the side lobes of the lip at the very base. The plant is a stronger grower, and was carrying several flowers, all of considerable massiveness and beauty. From Mr. Ballantine, gardener to Baron Schröder, The Dell, Egham.

CYPRIPEDIUM BELLATULUM ROSEUM.—This is a variety of the Lady Slipper that has made a small stir in the Orchid world. It is more closely allied to *C. Godefroyæ* than the parent, the flowers more heavily spotted, and showing a rosy tint, which also appears on the dorsal sepal, overlaid with dots of crimson. The green seen in the type is scarcely perceptible in the variety. From Messrs. H. Low, Clapton.

PHALÆNOPSIS GLORIOSA.—This is so close to *P. amabilis*, that it was a mistake to certificate it. A critical orchidist may perhaps detect a difference, but to the ordinary eye the two are almost alike. From Messrs. H. Low.

ODONTOGLOSSUM NEBULOSUM EXCELLENS.—This is a handsome variety of far greater boldness of character and substance than seen in the type. The plant bore several flowers that are blotched with brown, except that there is a broad margin of glistening white. The petals are broad, and, besides the spottings, there is a suffusion of green in the centre, the only decidedly rich colouring being given by the yellow crest. From Mr. Sander.

ODONTOGLOSSUM HALLI MAGNIFICUM.—A good variety of this well-known and beautiful species of the luteo-purpureum type. The flowers were large, and blotched and barred with brown on a greenish yellow ground. From Mr. H. M. Pollett, Fernside, Bickley.

ANTHURIUM DE SMETIANUM.—This is a neat desirable Anthurium of the Andreanum character, and although the spathe is only a little over 2 inches across, it is of a very deep crimson, against which the spadix, white in the upper half and in the lower portion sulphur, is in excellent contrast. It is of shield-like shape, gradually tapering to an almost sharp point. It appears to be a thoroughly useful form. From Mr. J. Linden, Brussels.

PYRETHRUM WEGA.—This was labelled as certificated for its colour, but it was as rubbishy a flower as we have seen. We like the yellow colour, and perhaps the shape may be improved by careful culture. From Messrs. Kelway and Son, Langport.

PYRETHRUM METEOR.—A beautiful double crimson-flowered variety. From Messrs. Kelway.

PYRETHRUM BEATRICE KELWAY.—This single variety will be admired for the deep rose-crimson colour of its broad florets. From Messrs. Kelway.

BEGONIA CAMELLIA.—An appropriately named double-flowered variety, the bloom like that of a small Camellia, the centre full, and the colour of a rich crimson. From Messrs. J. Laing and Sons, Forest Hill.

BEGONIA H. ADCOCK.—This is also a double-flowered variety, and like a number of small rosettes banded together. It is very dense, and deep crimson in colour. From Messrs. J. Laing and Sons.

BEGONIA MRS. W. B. MILLER.—This, from Messrs. H. Cannell and Sons, of Swanley, is a large, bold flower of great width, perfectly double, and of a delicate salmon tint.

STYRAX OBASSIA.—A perfectly hardy shrub, with abundant foliage and a profusion of racemes, bearing closely together several of the Snowdrop-like flowers, delightful not only for their charming beauty, but also for their great purity, being absolutely pure white. From Messrs. J. Veitch and Sons, of Chelsea.

SARRACENIA WILLIAMSII.—This a robust plant, with large pitchers of a rich green veined with dull crimson, especially on the bold, spreading lid, the inside of which is coated with short hairs. From Mr. B. S. Williams, Victoria Nurseries, Upper Holloway.

RAMONDIA PYRENAICA ALBA.—The type is a lovely blue flower that is now one of the best things in the garden, and the variety is very similar, but has lighter leaves and flowers that are erroneously called white, as they have a faint tinge of pink. It is a beautiful rock plant. From Messrs. Paul and Son, of Cheshunt.

CUCUMBER LOCKIE'S PERFECTION.—This is apparently a Cucumber of considerable merit. The fruit is straight, of good colour, and smooth; the flesh firm, crisp, and pleasant. It is a cross between the varieties Verdant Green and Purley Park Hero. From Mr. T. Lockie, The Gardens, Oakley Court, Windsor.

The group from the Royal Gardens, Kew, was one of the most interesting features of the meeting, and included *Lobelia nicotianæfolia*, which bears a tall, branching spike of large white flowers; the elegant *Saxifraga valdensis*, the flowers white and the growth dense; *Saxifraga Hosti Macnabiana*, white, brightly spotted with crimson; *Cirrhopetalum Cumingi*, a curious, but interesting Orchid very seldom seen; the flowers are deep crimson, and have a characteristic bell-like lip. There were also a few Water Lilies, and amongst them a variety of *Nymphaea stellata*, the colour lovely azure blue; *N. Lotus*, white; *N. tuberosa* var. *flavescens*, the new name for *N. Marliacea*; and *N. Kewensis*, a cross between *N. Lotus* and *N. Devoniensis*. It is a bold, broad flower, about 8 inches across, and of a rich rose colour. Amongst other things were *Achillea rupestris*, a useful, free-growing rock plant, carrying a mass of white flowers; the dull-coloured, almost black, *Delphinium triste*; the brilliant scarlet *Musa coccinea*, and *Thunbergia (Hexacentris) mysorensis*, a South Indian plant, very free, graceful, and carrying bunches of brown and yellow flowers. An Orchid not very much known is *Lissochilus Krebsi*, but the bright yellow and brown-coloured flowers should make it popular; *Iris Milesi*, lilac, with pencillings of a deeper tint; *Smilacina stellata*, which reminds one of the Foam Flower (*Tiarella cordifolia*), and the singular *Masdevallia muscosa* also deserve notice.

ORCHIDS were numerous, and in the several groups were species and varieties that may be considered rarities. Messrs. Hugh Low, of Clapton Nurseries, had a group of excellently flowered Orchids, and a silver-gilt medal was awarded. *Dendrobium Devonianum*, a charming Dendrobe, was not the least attractive, and the forms of *Cattleya Mendeli* and *Mossiae* were of brilliant colouring; the flowers large and of bold expression. A variety of *Cypripedium Sanderianum* was remarkably bright, and the specimens of the beautiful *Dendrobium Bensoniæ*, *Phalænopsis Sanderiana*, the golden-coloured and sweet-scented *Dendrobium suavisimum*, *Cypripedium lævigatum* were full of flower; *Vanda Roxburghi* was carrying a spike of its quaintly coloured flowers; the lip and column are of a distinct bluish tint, and the sepals and petals olive-brown. Messrs. Sander and Co., of St. Albans, staged a fine collection, in which there was a huge specimen of the buff-coloured *Dendrobium Dalhousieanum*, bearing seventy-five spikes of flowers,

also a new prettily spotted *Acineta*, and a new unnamed *Cattleya*, with the bloom about the size of that of *C. Mendeli*; the sepals and petals rich rose-purple, the lip deep velvety purple. A good example of *Cattleya Aclandiae* was exhibited; this has a crimson-purple lip, and sepals and petals blotched with rich brown on a green ground; and *Odontoglossum cordatum splendens*, well named, as it is a finer flower both in colour and size than that of the type. A silver medal was given. The group from Sir Trevor Lawrence, Bt., M.P., Burford Lodge, Dorking, contained a well-grown plant of *Trichopilia crispa marginata*, the flowers deep dull red, with a margin of white; *Cypripedium Stonei grandiflorum*, a large-flowered variety of this handsome Lady Slipper; *Masdevallia Harryana purpurea*, deep crimson-purple; *Cypripedium Wallisi*, bright green flowers, with the long tails of a brownish tint; *C. superciliale*, a neat handsome form; and *Cattleya Mossiae superba*, resplendent with rich colours, especially the gold and purple fringed lip. Mr. B. S. Williams, Upper Holloway, was awarded a silver medal for a well-arranged group in which the leading features were the golden-coloured *Oncidium concolor*, the white *Calanthe veratrifolia*, and forms of *Cattleya Mossiae*. *Vanda teres Andersoni* was conspicuous for the brightness of its colouring, more so than in the type; and there were besides *Cattleya Schilleriana*, a good form of *Oncidium macranthum*, and *Aerides Warneri*, which has a rose-purple lip, and the sepals and petals tinted with the same colour. A very deeply coloured variety of *Lælia purpurata*, named *Blenheimensis*, was shown by the Duke of Marlborough; the sepals and petals were deep lilac-purple, and the lip still richer. Messrs. Page and Sons, of Teddington, had *Oncidium crispum grandiflorum*, which has larger flowers than the type, and very deep in colour. *Lælia Wyattiana*, from Mr. Simcoe, gardener to Mr. G. Neville-Wyatt, Lake House, Cheltenham, was past its best; but we could see that we have here a delicately coloured *Lælia*. From Mr. J. Linden, Brussels, came *Odontoglossum luteo-purpureum Boddarti*, a well-marked variety of strong growth. Mr. H. M. Pollett, Fernside, Bickley, showed *Cattleya Mendeli Bickleyana*; the flower was about the size of that of an average *Mendeli*, clear white, with a frilled lip, yellow in the throat, and in the front blotched with purple. Baron Schröder had the pale yellow *Sobralia xantholeuca*, and the Rev. J. P. Way sent *Oncidium Gardineri*, which has yellow flowers.

There were several large bunches of hardy flowers, chiefly *Iris*, *Rhododendrons*, *Azaleas*, and *Pyrethrums*. Mr. T. S. Ware, of Tottenham, had a large display, for which a silver medal was awarded. *Iris flavescens*, pallida *Celeste*, fine blue, and aurea, yellow; juncea, rich self yellow; ensata *oxypetala*, delicate blue; and the grassy *sibirica* were the best of this class of flowers; and there were also the handsome white-flowered *Lupinus polyphyllus albus*, a grand border plant; *Lilium davuricum erectum*, scarlet; *Anthericum liliastrium major*, one of the choicest of hardy flowers in season; and double and single *Pyrethrums*. Mr. J. Walker, Whitton, Middlesex, had *Iris* as we should always like to see them, large bold flowers representing plants of strong sturdy growth. They were principally of the germanica type, and a few of the best were, Honourable, rich yellow and brown; Imogene, delicate blue; pallida *dalmatica*, also blue; aurea, golden yellow; and Mme. Chereau, white, margined with rich lilac. A silver medal was given, and a bronze medal was awarded to Messrs. Barr and Son, of Covent Garden, who had Pæonies, *Iris*, and Poppies, besides miscellaneous things. The several sections of *Iris* were represented; and in a large display we can judge of the variety of colouring to be found in the *Iris* family; but the kinds with washed-out or dirty white colours should be rejected. *Iris susiana* was especially fine; it is a dark, forbidding, but handsome flower. Amongst the Pæonies were the old crimson, which few can eclipse; *Anemone flore-pleno*, deep crimson; *albiflora*, white, single; and *officinalis* *Sunbeam*, a single Tulip-like flower of a brilliant crimson colour. It seems that the Pæony is rising in favour. We have certainly no flower that makes such a bold mass

of colour in the border at this season than this gay flower.

The hardy Azaleas and Rhododendrons from Mr. Anthony Waterer, Woking, were exceptionally fine. The colours of the hardy Azaleas were almost painful, by reason of their extreme brilliancy, ranging from dazzling crimson to soft yellow. Many a woodland scene might be made bright with a few of the hardy Azaleas. The trusses of Rhododendrons were large, full, and the flowers finely coloured. Messrs. Paul and Son, The Old Nurseries, Cheshunt, had a silver medal for a large collection of cut Rhododendrons and Azaleas; amongst the latter the varieties Sir Robert Peel, deep crimson; Ingrami, delicate lilac-pink; conessum, rich full rose; Marchioness of Lansdowne, rose, upper petals marked with deep crimson; John Waterer, bright rose; were worth a note. The same firm also had a collection of hardy plants, in which were Veronica Lyalli, Saxifraga cochleata, the blue-rayed Aster diplostaphyoides, a handsome Starwort, S. Machabiana, the purple-flowered Thalictrum purpureum, and the beautiful white Linaria anticaria, &c. Messrs. W. Paul and Son, of Waltham Cross, showed hardy Azaleas and Rhododendrons; of the latter Kate Waterer, rich rose; delicatissima, delicate pink; Athene, white; Lefebvreiana, bright crimson; and conessum, were noticeable; and also the golden-leaved Quercus concordia, the almost black-leaved Quercus nigra, and Roses. A silver medal was given.

The double and single-flowered varieties of Pyrethrum shown by Messrs. Kelway and Son, Langport, were evidence of the great perfection now attained in this free and delightful flower. The single-flowered kinds are in favour, and were well represented by such excellent varieties as Mary Anderson, pink; Queechy, rose; ochroleuca, white; Lorna Doone, crimson; Lord Randolph Churchill, deep crimson; and Princess of Wales, rich pink. La Vestale, almost white; Florence, delicate pink; Melton, dark rose; Pericles, salmon tint, yellow centre; and Aphrodite, white, were the finest of the double Pyrethrums. Messrs. Collins, Gabriel and Co., Waterloo Road, also had double and single Pyrethrums, but the flowers should be raised to show off their true beauty. Mr. G. F. Wilson, Heatherbank, Weybridge, had several beautiful hardy flowers, such as the Edelweiss, Cypripedium spectabile, the scarlet Heuchera sanguinea, Primula sikkimensis, P. prolifera, and Hypericum scabrum.

Messrs. H. Low, Enfield, had a group of Heaths, well flowered and dwarf, and were awarded a silver medal.

The collection of plants from Messrs. J. Veitch and Sons, Chelsea, was large and interesting. It comprised cut Rhododendrons of many kinds; a basket of the fiery orange-red-flowered Azalea coccinea major; Styx japonica, white; Aciphylla squarrosa, a spiny, narrow-leaved plant; Grevillea sulphurea, which has a Fir-like growth and sulphur-yellow flowers; the bright rose-crimson Masdevallia glaphyrantha, a hybrid between M. Barlesea and M. infracta; and Gloxinias, representing an excellent strain. Messrs. J. Laing and Son, Forest Hill, showed varieties of double and single-flowered Begonias. It seems that there is to be no climax to the perfecting of the Begonia; the flowers were large, and the colours decided and rich. The Gloxinia named virginalis we admired for the purity of its flowers. Mr. W. Clay, Grove Road, Kingston, contributed a group of well-flowered Pelargoniums.

Amongst the miscellaneous exhibits worthy of note were the Giant White and scarlet Brompton Stocks from Mr. Dean, of Bedford, which have massive spikes of bold double flowers. Mr. F. Ross, gardener to Sir G. Macleay, Pendell Court, Bletchingley, sent flowers of the scarlet Austrian Rose (Rosa lutea punicea) and Fortune's Yellow Rose, both recently noted in THE GARDEN. A bunch of the latter variety also came from Mr. T. W. Girdlestone, Sunningdale, Berks. The Tulips from Mr. S. Barlow, Stakehill House, Manchester, were very rich; and Williams' Intermediate Stock Crimson Gem from Mr. B. S. Williams will be valued for its dwarfness and the rich crimson flowers. Messrs. H. Cannell and Sons had Cannell's Triumph Begonia, a very large rich rose double variety; and

double and single-flowered Begonias also came from Mr. T. Lockie. A large collection of Ivy-leaved Pelargoniums, noticed in last week's GARDEN, was sent from the Royal Horticultural Gardens at Chiswick. Mr. G. Bolas, Wirksworth, showed flowers and leaves of a white Nelmumbium.

The fruit comprised well-coloured Peaches from Mr. Miller, gardener to Lord Foley, Esher, and a seedling Melon of promise from Mr. Gleeson, Work-sop.

Council meeting.—A sub-committee was appointed on June 12 to consider the question of the arrangements of the society for 1889, and more especially to consider certain proposals made by Mr. Veitch, such as the appointment of a botanical lecturer to deliver short popular addresses to the Fellows, and other matters of importance and interest. It was decided to ask certain members of the Stock Exchange to form a committee to work in co-operation with the society. The question of the early revision of the bye-laws was taken into consideration, and a letter from the solicitors was read, promising the revised copies at an early date. The suggestions of the Fellows' Committee in regard to local secretaries were adopted.

Croydon Horticultural Society.—When a tardy act of justice is done, though it ill becomes us to reflect severely on the past injustice, yet facts are facts. The existence of a society called the Croydon Horticultural Society has for years been known to many people, and though it has called itself the Croydon Horticultural Society, it has never yet admitted Shirley cottagers—who all live within the boundaries of Croydon parish—to compete in the cottagers' division. At last this palpable injustice has been set right, and this year Shirley cottagers will be as free to compete as any others in the parish. This is a decided step in the right direction, and we congratulate the authorities upon their resolution to let "Croydon" in future mean "all Croydon." We hope after this that before long we may hear they have also recognised the place which hardy flowers and plants ought always to occupy in English horticulture. "Horticulture" means "gardening," and shows are held to encourage gardening, and it always appears self-evident that to have a gardening show in England and not offer a single prize (or only one in fifty) for any flowers (except Roses) which will grow out of doors in England, is not exactly the best way to encourage gardening. By all means let glasshouse gardening be encouraged, but not at the expense of outdoor gardening. The first object of all such societies and shows should be to show people what a wealth of exquisite flowers and plants, and what an abundance of delicious vegetables and fruits they can have by skilful use of the means at their command. To let people gaze in wonderment at the splendid Palms and Orchids, exotic and stove plants, which they cannot grow with the means at their command, is an excellent, but surely very secondary object. And how many people can afford the necessary paraphernalia and expense of growing exotics? Less than one in a hundred; whereas all, down to the poorest cottager who has only an allotment garden, can strive to excel in the production of such gardening as is suited to our English climate. Let all things be done in order; encourage and stimulate the glasshouse culture which is possible only to the few, but encourage and stimulate far more the outdoor gardening which is possible to all.—W. WILKS.

Railway flower gardens.—The station at Kingscote, in Sussex, again provides travellers with a rich floral display, quite equal to that of previous years. The waiting-room windows are filled with pots of the Sweet Tobacco. Gorgeous banks of scarlet Pelargoniums are arranged beneath the covered portion of the platform, while higher up on the walls on shelves are Fuchsias, good plants, not tied up to sticks, but the long shoots and pendulous flowers allowed to fall down in natural grace and beauty. Other bare walls are fast being draped with some of the pretty small-leaved and choicer Ivies. The fences will soon be veritable wreaths of

Roses, and an archway of Hops shades the steps that lead up to the signal-box. The flowers of the spring are fading away in the borders, though the Honesty and Pansies linger on to form a connecting link with the Pinks, which do so well, spreading out into healthy tufts, always beautiful whether in flower or not. The Sunflowers and the Dahlias are promising well to keep up a unique display till late in autumn. Many people have hobbies, but surely no man ever found a hobby so worthy of pursuit, so elevating in influence, and conferring so much of real pleasure and true enjoyment as the culture of beautiful flowers. Whatever after discoveries might prove, the traveller alighting at this place and finding himself in the midst of an unlooked-for garden would certainly form a good opinion of Sussex, nor would he have to travel far before finding that opinion amply verified by a pretty country with rich landscape, noble and far-extending views, and great diversity of surface.—A. H.

Pelargonium leaves diseased (A. E. Jesse).—From the appearance of the leaves you send, we should say that the house is kept too moist and close. Admit plenty of air and the disease will be got rid of.

Carnations diseased.—I have forwarded by to-day's post further samples of diseased Carnations. In the stem of one was found a sort of grub and nest, but not wireworm. The other plant is only diseased in the leaf; also samples of Chrysanthemums, which are beginning to show signs of being diseased. I am afraid the same disease is showing itself in several other things, and am anxious to hear what is the best remedy.—F. S. MUSGRAVE.

** In reply to the above, the Carnation stem which had been split open had evidently been attacked by the grub of a fly which I have several times seen in the stems and leaves of Carnations, but I do not know the name of the species. The other plant showed no signs of any insects, but from its appearance something had gone wrong at its roots. There were no insects, nor was there any fungus on the Chrysanthemum leaves. I should judge from their appearance that the late changeable weather had affected them. Their growth has probably been checked by cold.—G. S. S.

Destroying the sparrows.—An almost unprecedented attack of maggot has taken place in the Kentish fruit plantations, and nut and Apple crops have been in many instances grievously damaged, if not destroyed. Planters are making vigorous efforts to fight the pest, but the grubs are so numerous that hitherto they have defeated all attempts to get rid of them. The increase of insects is said by the farmers to be due to the scarcity of sparrows, owing to the wholesale slaughter of the birds which has been carried on in the district.

Death of Mr. Thomas Jackson.—This gentleman, the proprietor of the Kingston Nurseries, died on Thursday evening, June 7, from consumption, aged thirty-seven. He was the grandson of the founder of these nurseries, and also of Mr. McNab, so well known to old gardeners as a celebrated Heath grower, and many years curator of the Botanic Gardens at Edinburgh.

BOOKS RECEIVED.

"Choice British Ferns: their varieties and culture." By Charles T. Drury, F.L.S. London: L. Upcott Gill, 170, Strand, W.C.

"The Speaking Parrots." By Dr. Karl Russ. L. Upcott Gill, 170, Strand, W.C.

"Handbook of the Amaryllideae, including the Alstroemeriae and Agaveae." By J. G. Baker, F.R.S., F.L.S. London: George Bell and Sons, York Street, Covent Garden.

"The Principles of Agricultural Practice as an Instructional Subject." By John Wrightson. London: Chapman and Hall, Limited.

"The Book of Bee-keeping": A practical and complete manual on the proper management of bees. Fully illustrated. By W. B. Webster. London: L. Upcott Gill, 170, Strand, W.C.

Names of plants.—*Ixora*.—1, *Adiantum Pacotti*; 2, *Lastrea aristata variegata*; 3, *Nephrolepis exaltata*; 4, *Selaginella Kraussiana variegata*.—*Rubi.*—*Croton*.—*Hembanthe (Hyoscyamus niger)*.—*A. T. W.*.—1, *Cymbidium aloifolium*; 2, *Lissocylus parviflorus*.—*G. Payne*.—*Piptanthus nepalensis*.—*R. M. G.*.—*Pavia macrophylla*.—*E. N. Price*.—*Dracena Draco*.—*Thomas Harrison*.—*Eucharis subdentata*.—*H. H. K.*.—*Valeriana Phu*.—*An Amateur*.—1, *Scilla campanulata*; 2, cannot name florists' varieties; 3, next week; 4, *Quamash (Camassia esculenta)*.—*Mrs. Lawrence*.—Variety of *Iris pallida*.—*A. Leppert*.—1, *Lanum album*; 2, *Pyrus Sorbus*; 3 and 4, apparently the common Cow Parsley; 5, variety of *Iris pallida*; 6, *Iris pallida*.

WOODS & FORESTS.

PINES FOR A BLEAK PLACE IN LANCASHIRE.

IN THE GARDEN, April 28 (p. 400), E. J. Roberts asks, "Would you kindly inform me if Firs or Pines would do well in a cold, bleak place in Lancashire, and if so, what sort would be the best? How thick ought the trees to be planted? &c.;" and again at p. 522, he says, "My soil is chiefly old rotten turf and the sub-soil yellow clay. There is no surface herbage. I want to plant for ornament and shelter."

Cold clay subsoils often contain excess of moisture, and when such is the case, they should be thoroughly drained. The ground itself will afford a proper index or guide as to the number of drains required as well as the places where they are most wanted. Open drains about 20 inches deep are preferable to close drains, as the latter are liable to get choked by tree roots, and prove expensive in opening them up occasionally to keep them in repair. Sometimes a single spring issuing from the side of a hill will keep a considerable area of ground in a wet state. When such is the case a drain of sufficient depth should be cut in order to tap the spring effectually, and in many cases this of itself will dry a large space in a very efficient manner. Open pits for the plants in autumn or winter, and in doing so break up the impervious subsoil and leave on the edge of the pit a small portion of the clay exposed to the weather. By this means the clay will be pulverised and in excellent condition for mixing with the rotten turf at the time of planting the trees in spring. The pits should be opened at a distance apart of 4 feet, 15 inches in diameter and one spit deep. The following trees are all hardy, of robust growth, and when thoroughly established afford excellent shelter as well as variety: *Pinus maritima*, *P. Hamiltoni*, *P. Laricio*, *P. austriaca*, *P. Pallasiana*, *P. Cembra*, and *P. sylvestris*, or Scotch Fir. Let the plants be strong and well furnished with roots and branches, twice transplanted, and about 12 inches high.

When planting the trees in spring, mix them in such a way as to show variety over the surface of the plantation, and plant a Scotch Fir between each pair of Pines. In after years, probably, the most of the Scotch Firs will require to be thinned out to allow space for the development of the other Pines, which would then stand at a distance apart of 8 feet, and as they will be well feathered with branches from the ground upwards, they will afford excellent shelter. At the time of planting mix the clay and turf together, then place a portion of the stuff thus prepared in the bottom of the pit in order to keep the roots sufficiently near the surface. In planting the trees, care should be taken that their roots are properly spread out. It will be necessary to look over the plantation in April, and should any of the plants be blown to one side, they should be set up and the ground made firm around the stems. When thinning becomes necessary, in place of at once cutting out the trees to be removed, the better plan on bleak, exposed situations is to stem-prune or cut back the side branches to allow space for the extension of the branches of the permanent trees. The stem-pruned trees can then be gradually removed in after years as circumstances may direct. The advantage of this system is, that the trees never suffer in health from sudden exposure, and as this is a matter

of the highest importance for the welfare of the trees on bare exposed sites, it should never be neglected.

J. B. WEBSTER.

PRUNING FOREST TREES.

We do not find in the vegetable kingdom anything like a robust branchless tree. The Oak, naturally, is on all sides a wide spreader; even the Poplar, which shoots up to a great height, is clad from the bottom to the top with branchlets; so is every other tree; and it would appear that the office of those branchlets, or rather the leaves which they bear, is to elaborate the sap by exposing it to the light and air, and thus rendering it applicable to the wants of the tree. All men admit this; for perseverance in stripping a tree of its leaves will surely kill it. Excessive pruning, which is merely another mode of removing the leaves, often destroys the object operated upon; and everyone must observe that such trees as are unmercifully stumped, more especially Cherries, no longer give any symptoms of life, and immediately decay. The leaves which a tree bears, then, operate as intimately with the life-giving principle which supports it as the lungs in the human frame do with the air we breathe.

Is the removal of leaves, therefore, under all circumstances an evil? No; for by judicious pruning great evils may be remedied. A tree which is forked, for instance, having two leading shoots contending for the mastery, may, by removing one of them, have the sap which would have been expended in both diverted into a more eligible channel, and thus the tree becomes in every respect more useful. By pruning, however, you weaken the power of a tree to thicken its stem; hence it is that unpruned trees, and such as stand wide apart from each other, have a greater circumference of bole than those which stand close to each other. The removal of a branch at the bottom will, of course, send the sap to parts higher up, and hence a greater elongation of stem. This elongation of trunk is almost in all cases desirable and necessary, for without a bole a tree is of little use either in home carpentry, ship-building, or in any other art. It consequently follows that pruning, or some other means of displacing the side branches, is absolutely necessary. The perfection of pruning is to carry up as much thickness and strength in the bole as you can, and yet to produce in all cases a sufficient length of trunk. A nicer process than this is not to be found in the vegetable kingdom. The leaves are all wanted to draw up the sap, prepare and send it back fit to be taken into the general system, dispersing health, beauty of colour, and rigidity of fibre through all its parts, and yet you want to displace a great part of them, so that the central stem may be heightened, and the same completeness of strength and beauty maintained. How, then, is this delicate and critical work to be performed? Inexperienced practitioners who are sent indiscriminately into the woods consider not how much depends upon the process they are about to perform; and we cannot help again expressing astonishment that those who are ignorant of the first principles of vegetable life should have been so frequently employed in the management of plantations.

We are averse to the ordinary systems of pruning being applied to Pines, Firs, Cedars, Yews, and all other cone-bearing or resinous trees; first, because they are apt to bleed excessively; and, secondly, because when planted wide apart, so as to permit large, healthy branches to proceed from the bottom of the bole, the lopping off of such branches causes a defect in the timber when in the hands of the carpenter. To obviate this, in forming plantations of Coniferae, we should in a great measure follow Nature by planting the trees at first so close to each other as to prevent vigorous lateral branches, and by a process of thinning and lopping off such under spray as grows from the trunk, gradually introduce the air to the stems, so as to render the wood hard and durable. It may be observed that the cutting out of a branch under such circumstances will not cause the stem to bleed, for trees so planted send

out spray at the bottom, which in a season or two becomes dormant and quite useless to the stem.

The season at which all pruning should be performed is winter or very early in the spring, because if deferred until the roots have sent a supply of sap all over the tree, the quantity in the branches to be lopped off will be lost.

Close pruning, or pruning close to the stem, should be invariably practised. When a stump is left on a Pine, which is sometimes done by those who are afraid of the tree bleeding, it generally dies and rots, and in the course of time is covered by the bark, and this gets incorporated with the wood, though generally forming a flaw. A hand-saw and chisel are the best instruments to use in general pruning, and for young trees with a slender bole a large pruning knife is equally efficient.

From what has been said, it must not be supposed that pruning is in any case recommended for such trees as are designed for ornament only. The effect of scattered groups on a lawn, or in any situation where beauty is the chief consideration, would instantly be destroyed were the branches to be removed; and the same remark is applicable to borders of such plantations and woods as come into view in any landscape. We now have to make a few remarks on the pruning of broad-leaved trees, such as the Oak, Elm, Beech, Plane, and Sycamore.

No tree is furnished with more leaves or spray than it absolutely requires to perfect its structure, so that any degree of pruning, however moderate, appears to be hurtful to a healthy tree. But as trees without boles are of little use, it is absolutely necessary that they should be subjected to man, and fashioned as much as possible to his purposes during the period of their growth. The plan to prune, then, and it is one which we have invariably pursued, is to do a little at a time, leaving the tree in possession of as many of its top branches as you can consistently with the required length of bole; but the pruner is not to go regularly upwards with his operations, but he is to take out first the larger branches, leaving the smaller ones to swell out the trunk, which in their turn will be removed when that object is fulfilled. Experienced men know at a glance the proportion a stem should bear to a tree of a given height, and in general it may be stated, for example, that a well-proportioned Larch, 18 feet or 20 feet high, should have a trunk at a foot from the ground of 14 inches in circumference. An Elm 25 feet high should be at least 18 inches at a foot from the ground, and an Oak 15 feet high should have a stem of 14 inches. Soil and situation, and other circumstances, will, of course, alter the relative proportions, as well as the height and thickness of a tree; but in the generality of cases the above dimensions may be considered as approaching to the proper standard. Though it is stated that little should be done to a tree at a time it is not meant that the system of pruning should be kept up, as is too frequently done, till nearly the end of its life; for the sooner the tree can be formed and left to itself the more satisfactory will be its increase. Indeed, there should be no occasion to touch a timber tree for twenty years before it is cut down. As to the manner in which the operation of pruning should be performed, most persons are agreed. The branch should be taken clean out, so that the cut may be level with the trunk. The practice of foreshortening the branches or cutting them off at 1 foot or 1½ feet from the trunk only causes the dormant buds or spray which may be upon the part left to break out, and thus increase the size of that part which has ultimately to be removed. The Lime, Elm, Oak, Willow, Alder, Poplar, and several others almost invariably throw out small spray in this manner, whilst the same parts left on the Birch, Beech, and Larch not unfrequently die, and thus cause a complete barrier to the healing up of the trunk, besides causing an inlet for rain and insects.—*Farmer's Gazette*.

Oak galls.—Have any of your readers noticed a special prevalence of Oak galls this season? In this neighbourhood many of the trees are more thickly covered with marble and Apple galls, especially the latter, than has been the case for a long time.—D. J. Yeo, Lyneham, Wilts.

No. 866. SATURDAY, June 23, 1888. Vol. XXXIII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ALPINE PLANTS AT MÜRREN.

THE neighbourhood of Mürren, a small alpine village within two and a half hours' walk of Lauterbrunnen, and easily reached via Interlacken, contains a large number of alpine plants of great beauty. At the present time (June 14) *Anemone sulphurea* is in full bloom on the outskirts of a small plantation within five minutes' walk of the village, and higher up in the Blumenthal, *Anemone alpina* (mixed here and there with *sulphurea*) is blooming literally in thousands, many of the plants bearing very large flowers. Near or amongst the *Anemones* are large numbers of *Gentiana verna* and *G. acaulis*, the latter in every shade of colour from white to a deep purple. The white variety is, however, very rare, and amongst many hundreds of plants of *G. verna* I have not yet seen a single white flower. On the rocks in the Blumenthal, *Primula viscosa*, a white variety, *P. Auricula*, and two *Androsaces* are in bloom, *viscosa* in quantity, and near these are *Ranunculus alpestris* and the Alpen Rose (*Rhododendron ferrugineum*). Wherever there is a moist spot *Primula farinosa* and *Pinguicula alpina* abound. *Ranunculus aconitifolius*, *Bartsia alpina*, and other commoner plants are in great profusion. Lower down in the vicinity of Gimmelwald, *Anemone narcissiflora* and *Dryas octopetala* abound, while in the woods near, *Cypripedium Calceolus* is in full bloom, many of the plants bearing two flowers.

I noticed the foliage of *Aster alpinus* and two or three of the later flowering *Gentians*, and I am informed that in July and August there is a great profusion of flowers, but I do not think there could be more than at the present time, when the whole place is like a vast garden.

The scenery is very grand, comprising views of the Eiger, the Monch, the Jungfrau, the Silberhorn, and other stupendous mountains. T. MADDISON.

A RAMBLE IN "MY GARDEN."

THE above, the title of a very pleasantly written book by Dr. Smee, the father of the present owner, is a more familiar name to the horticultural world than that of The Grange, which is situated at Carshalton, a pretty rural suburb of London about twelve miles distant from St. Paul's. A ramble round "my garden" is a very enjoyable one at any season of the year. Except round the dwelling-house, there are no trim lawns and gravel walks; there are no geometrical beds in the place, but the whole is a true picture of a wild garden on which judgment has been bestowed to produce the best possible effects in a natural way. The river Wandle flows through the garden, and is the home of numerous water birds, such as the little dab-chick, water-hen, coot, and wild ducks, these last even breeding here, which fact probably may surprise many ornithologists. Ferns just now are exceedingly

beautiful; here are to be found large masses of the Royal or Flowering Fern bordering the brooks, their roots down deep in the water. Here also I observed the Ostrich-feather Fern (*Struthiopteris*) in quantities, and in larger specimens than I ever remember to have previously seen them. These, in conjunction with other North American Ferns and British kinds, form charming glades and valleys in the wooded grounds, which just now are gay with *Rhododendrons* and numbers of other shrubs and trees. The American Maiden-hair Fern (*Adiantum pedatum*), also *Onoclea sensibilis* and many other exotics, thrive admirably in the dells here. *Bambusa Metake*, although it thrives well and does not become disfigured in winter, never spreads, as is its custom in many places. One of the most handsome plants now to be seen here is *Carex pendula*, which in many places forms a bold and conspicuous fringe to the little streamlets, its deep green leaves and spike, with pendent catkin-like bunches of bloom, rendering it very effective, and when cut a charming subject for arranging with flowers in a large vase or in other positions. The place is full of Ferns, hundreds of the varieties of the British kinds having formed unprecedented masses, and in very many instances become unrecognisable. In the sunny spots flowering plants crop up. In a large group is a mixed bed, which has been in the earlier season conspicuous for its Primroses. At the present time its most striking feature is *Columbines*, amongst which are some beautiful forms, the result of natural sowings from naturally crossed flowers. In other places are to be found quantities of the hardy *Orchis* family, *O. maculata* being just now in great perfection. Further on are masses of Lilies, great bushes of the Scotch Brier, and the lovely yellow Harrison's Brier, and hundreds of other things too numerous to note here, but all contributing to form a charming scene far preferable to the modern prim-kept garden, and affording fresh pleasures through every month in the year. "My garden" affords such a happy picture of rural life, that one could easily imagine himself hundreds of miles away from the world's metropolis instead of being within sound of Big Ben. W. H. G.

FLOWER GARDEN.

WILD FLOWERS IN KENT.

THAT the flower season of Southern England is now at its height few will, I daresay, care to deny; therefore, no more appropriate time for penning a few notes on our beautiful wildings could be selected. To one who is only acquainted with the Scottish flora, the wild flowers of this part of England come as a rich surprise, for, go where you will, these in their most varied characters are to be met with in the richest abundance. To me, perhaps, the richest treat of the season was the half acres of the Lily of the Valley that are to be met with in secluded spots here and there in the woods at Holwood. How the plants ramble about when allowed their own free will is truly surprising; now mounting a 3 feet high Moss-covered Oak stub and blooming in such a position with the greatest freedom; again perched on some crumbling log, or, may be, carpeting with the richest of greenery the banks of some long-neglected woodland ditch or watercourse. True, the flowers thus produced are not so large, but quite as chaste and handsome as what one can recall to mind having seen growing in the rich soil of his friend's garden; for all this they are quite as sweet, and, somehow or other, far more precious. Clear a bit of the Oak wood-

land in near proximity to where this flower grows, and in a year or two you will have plenty more—at least such was my experience.

In a semi-neglected patch of ground outside the wood just mentioned grows in the wildest luxuriance that pretty, but rare native plant, *Aquilegia vulgaris*, or the common Columbine. The blue or purplish drooping flowers are thickly produced on stout stems nearly 2 feet in height, and offer a striking contrast to the numerous white and pink flowers that are now so common in our woodlands.

Growing on the roots of the Hazel we may, also, just now meet with small colonies of that somewhat rare and curious-habited plant, *Lathraea Squamaria*, or the Toothwort.

When seen in quantity the plants have a pinky tinge that renders them not at all uninviting, and in appearance not unlike their near allies the Broomrapes, or Orobanches. The Meadow Saxifrage (*Saxifraga granulata*) has just done blooming, but during the past month or more it was one of the richest floral treats that could be conceived. Broad masses, often extending to more than a quarter of an acre, were by no means uncommon in the parks and fields. Once I met with the double-flowered form, but the plant was much dwarfer than that commonly cultivated in our gardens. The wild Vetches (*Vicia*) in nearly every shade of colour are just now noticeable wherever one turns, and impart a beauty to our woodlands that it would be no easy matter to imitate with any other race of hardy plants. Of Orchises there are many, the sweet little spikes, in nearly every shade of colouring, of *O. Morio*, or the green winged Orchis, being unusually abundant and delicious in their perfume. As a contrast to the usual purplish pink of these we have the Tway-blade (*Listera ovata*), with its long greenish yellow spikes of curiously formed flowers, and the tall and stout-growing *O. maculata*, a handsome plant when found in good dampish loam. But the rarest, and to me most cherished, of all our Orchids is the rarely seen *Cephalanthera grandiflora*, which I was fortunate enough to meet in with somewhat plentifully in one of our woods. It would seem to grow best along the fringe of the Beech trees, just where shaded by the branch tips, and in soil of a rather heavy nature, but where annually enriched by decaying vegetable matter. The flowers of this pretty plant are very conspicuous, being of an unspotted white save the lip, which is shaded with a deep sulphur tinge, and, unlike those of the *Epipactis*, stand quite erect, and are so shown off to the best advantage. Frequently there are as many as sixteen flowers to the spike, and these in well-grown specimens are an inch long by fully half an inch in diameter.

How pretty the hedgerows and copses look with, in many cases, their abundance of pleasing creamy flowers of the Guelder Rose (*Viburnum Opulus*), or the less showy Way-faring Tree (*V. Lantana*). Both plants have quite a beauty of their own. Other interesting plants now in bloom are the Herb Paris (*P. quadrifolia*) and Two-leaved Smilacina (*S. bifolia*), the latter, perhaps, introduced, but the former truly wild in several localities. To the botanist both plants are of particular interest, but neither find much favour with those who cultivate for floral beauty alone. The Star of Bethlehem (*Ornithogalum umbellatum*) is plentiful on several parts of the estate, and when in full flower at mid-day a colony of the plants is very beautiful. I also met with several large plants of the Cornel, or Dogwood (*Cornus sanguinea*), growing in an out-of-the-way wood, and charming they looked, being clad thickly

with their pretty cymes of flowers. One of our prettiest shrubby plants is just now in full flower, and that is the Dyer's Genista (*G. tinctoria*). On the waste commons and amongst the wild Heaths and Gorse it delights to grow, and there produces in abundance its small, but attractive yellow flowers. A good-sized patch stands out boldly amongst the brown Heath, and is seen for a long distance.

A tuft of the Strawberry Clover (*Trifolium fragiferum*), that showed its conspicuous pinky heads amongst a quantity of dark-foliaged plants, quite cheated me, for I had fully expected to cull a posy of the deliciously sweet *Orchis pyramidalis*. The pinky tint of the flowers led to the popular name of Strawberry Clover.

The Wood Spurge (*Euphorbia amygdaloides*) when seen in quantity is by no means an uninteresting plant, the peculiarly shaped yellowish green flowers arresting the attention of most passers by.

A. D. WEBSTER.

NOTES ON HARDY PLANTS.

Rheum.—The purple deeply palmate-leaved kind is now one of the most effective of hardy plants. A rich blending of colour is produced by this tall *Rheum* on a sloping bank where a broad mass of Forget-me-not has come into flower with all the vigour of self-sown plants. In planting the ornamental *Rheums*, at least one point should be observed—the crown should not be set too deeply; just level with the surface will do. Small offsets are liable to rot if planted too deeply.

Corydalis bracteata.—This flowers in May, and is one of the most beautiful plants in its season. It is certainly one, if not the most charming of its genus, as *C. nobilis* cannot be compared with it. The individual primrose-coloured flowers are large and stand well out, allowing room on the spike for the display of the beautiful notched bracts, which have given rise to the specific name. But the most charming property of this *Fumitory* is its fragrance, which resembles that of the Citron. The flowers also last a long time, and the foliage is fresh-looking and glaucous. The habit of the plant is also dwarf and erect.

Spiguel (*Meum athamanticum*).—I have before spoken of the Spiguel, and I see no reason why it should not be used more for beds and borders by reason of the singular beauty and freshness of its leaves. What can be named so good in its way? Moreover, the foliage is of a neat character, and the plant is not one to give any trouble whatever. Many on seeing it for the first time are struck with its beauty, and no Fern is so pretty at this season. Its scent is also refreshing.

Spring Bitter Vetch.—*Orobis vernus albus* and the double form of *albus* are both effective spring flowers. The flowers are of an alabaster white, shining, but tipped with pink. Like those of the type, the flowers last a long time. The growth of the plants is more dwarf, and from the way in which the flowers are produced, well-grown specimens make compact tufts of white blossom. Here are two things which might well be taken in hand by those who wish for spring bedding material. They are free in all respects, and a stock of roots might soon be had. They are also suitable for borders or rockwork, the only condition necessary for them being a deep soil.

Anemone sulphurea.—I find there is a marked difference in the quantity and quality of the growth and flowers when the plants are not allowed to seed during the previous season. This is not surprising, for the immense heads of seed must weaken the plants. Last year I had a quantity of seeds sent by a lady who gathered and forwarded them as soon as ripe. I then removed the heads just forming from my own plants, and the results have been largely in favour of the present flowers. I may also add that as soon as the sun gained power this spring, the seeds from the wild Swiss plants which were sown directly they came to hand vegetated like *Cress*.

A. baldensis is a surprisingly beautiful object when in flower. I received roots from Italy that have bloomed, but the flowers are of a different form to those of the better-known type, which is more in the way of *A. stellata*, but certainly not that kind. The narrow sepals are of good substance and the same as those of the true *baldensis*. I always find that these small species of *Anemone* do better in small pots plunged in sand than in the open ground; possibly because they are better protected from slugs and kept watered.

Double white Campion (*Lychnis vespertina alba* pl.).—I only know one way by which this plant can be propagated with anything like certainty and in quantity in a single season. Of course, those who have plenty of big clumps, do not wish for increased stock; but if they did, there would be no difficulty in making it by division, although the plant is not one of the easiest to increase in this way. The two points to aim at in taking cuttings are to get bits of solid stem at a joint and to get them early. This I do in the following manner: Pinch out the points of the flower-stems early in May. Side shoots will soon push out from every joint. These are taken with the solid and thick part of the old stem. They soon root in sandy loam if shaded and kept close for two or three weeks.

Bryanthus erectus.—Many a time we learn to admire a somewhat common flower through having our attention specially drawn to a rarer kind of the same genus. Doubtless this charming miniature shrub deserves all the praise it gets, but I fail to see that it is more beautiful than *B. empetrifolius*—syn., *Menziesia empetrifolia*. Both are well adapted for a sunny aspect on the rockwork, provided some peat is incorporated with the loam. At no time are these dwarf shrubs otherwise than pleasing, and when in flower, in which condition they remain for a long period, they are simply masses of bloom.

Primula sikkimensis.—The advantages are not all on the side of the best, or say properly grown specimens. When the plants are large, as they become in damp or boggy ground, the 2-feet scapes of blossom and long top-heavy leaves are distressed by an hour's midday sunshine. When grown in pots the plants are much smaller, a foot or 15 inches high, and the flower-scapes are of a more wiry texture; the plants not only stand the hot weather much better, but they may be moved at leisure. To my mind the flowers of this species are the most fragrant and pleasant of all outdoor flowers at this time.

P. Reidi.—Not only does this prove hardy, but it is of vigorous growth and a free bloomer. The scapes of bloom that were produced last year were not to be compared with those of the same plant at present. Even the offsets flower the first season. What a delicious and distinct perfume this peculiar Primrose exhales.

Gentiana ornata.—I have just been going over my small stock of this lovely Indian *Gentian*. It is now in bud, but past experience has taught me that early summer is the time to propagate this plant, so at the risk of losing the flowers my specimen has been pulled asunder. The offsets, however, take so kindly at this season to the operation that they seem as if they will flower. I may also state that last year I found one pod of nice ripe seed. This was sown at once, and I see it has now vegetated. If we can get stock in this way no doubt this *Gentian* will soon cease to be rare. It is quite hardy, and loves plenty of sunshine and water in summer.

Woodville, Kirkstall.

J. WOOD.

Megaseas for winter bloom.—I believe there is a good future before the broad, thick-leaved *Saxifragas* (*Megaseas*). When planted out during the months of April or May, if the weather be moist, and lifted about the end of October and potted, or, better still, to have good stools, as Mr. Hartland, of Cork, recommends, placed in large tubs for winter cutting, well developed crowns produce enormous trusses of pink bloom, perfumed of Hawthorn or, probably nearer still, that of *Choisya ternata*. The variety *S. atropurpurea* is a noble plant and the white

varieties are very beautiful, but not hardy. *Megasea cordifolia*, *M. crassifolia*, *M. cordifolia speciosa* and, as mentioned, *atropurpurea* are really magnificent plants treated after this manner, and they can be had in flower in conjunction with Christmas Roses in mid-winter, just when one wants all the flowers possible.—GRANULATA.

A SELECTION OF LILIES.

THE selection of varieties must be settled by the grower in accordance with his personal taste and the amount of space and money he has at command. For a garden of moderate size the twelve species and varieties named below would well represent the whole family and furnish continued bloom from June until September.

LILIAM AURATUM, the golden banded Lily of Japan, is one eagerly sought, because of its large, showy flowers. As a garden flower it has few equals if a magnificent display is the object sought. As a cut flower for house decoration it is the least desirable of any of the family. It is too large to arrange with others, with a due regard for harmony of form and colour, and the fragrance it exhales is truly sickening. Of this species there are many garden varieties, differing only in the markings. In some the golden band gives place to one of bright crimson, which for a day is showy, but the crimson soon fades into a dirty brown and the beauty of the flower vanishes. None of these varieties equal the original type. This is usually considered a difficult subject to manage. Choose the smallest bulbs and those that are heavy and firm, plant deeply, say 8 inches, in the driest part of the border, in partial shade, and the bulbs will last a number of years.

L. ELEGANS is sold in many forms under the name of *L. umbellatum* and its varieties *atro-sanguineum*, *fulgens*, &c. Orange is the predominating colour, with various shades; a few are deep crimson and quite showy; some are a clear citron in colour; some are self-coloured, others deeply spotted. Alice Wilson, a variety of recent introduction, is decidedly the best of its class. The flower is perfect in form, with petals broad, full, and gracefully curved. Its colour is a clear lemon-yellow, deepening towards the centre of the flower to a rich golden yellow. The class is valuable, because of earliness, hardness, and profusion of bloom. A large clump makes a magnificent display. The flowers are generally too coarse for table or parlour decoration.

L. BROWNII, which is also known as *L. japonicum*, a native of China, is remarkable for its long trumpet-shaped flowers, ivory-white inside, and dark purple on the outside. This is usually regarded as a tender Lily, and is not much grown, because of its liability to perish. This opinion is quite erroneous. I know a clump of more than a hundred bulbs, all of which have come from six bulbs planted some ten years ago in a raised bed, which has not since been disturbed. Many of the bulbs furnish eight flowers each, and the display is such as only this stateliest of flowers can make.

L. CANDIDUM, the old and well-known white Lily of our gardens, is the one we could least afford to lose. For graceful habit, stainless purity, and delightful fragrance it has no equal. It is fitted for any place, and for all occasions where cut flowers are desirable. It is about the only flower we do not like to cut, and that because it is too noble and pure to meddle with. This bulb should be removed in August, and not be suffered to remain long out of ground; it commences its autumn growth at the end of August, and upon this growth its next year's bloom depends. A blight has visited the Lily

in many parts of this country, the cause of which no one has been able to discover, neither has there a remedy been found for it.

L. EXCELSUM, or **TESTACEUM** of many catalogues, is another noble Lily closely allied to *L. candidum*, and resembling it in habit of growth. Its flowers are drooping, with reflexed petals of a delicate nankeen colour, with the minor petals covered with darker warty spots. Its fragrance is delicate.

L. SPECIOSUM, or, as it is more commonly known, *L. lancifolium*, is the most useful of all the Lilies. In point of beauty it ranks next to *L. candidum*, and is far more useful when cut. Of this species we should not be content with less than four varieties. The variety *præcox* is a strong grower, producing when well established twelve to fifteen very large, pure white flowers on a single stem, with regular and much reflexed petals often clasping the stem; in the centre of the flower the petals are studded with delicate little projections, like crystal points. The variety *purpuratum* has the same general habit, but is a taller and stronger plant, with dark rose-crimson flowers, whose petals at the base are seemingly rugged with rubies and garnets, while the edges are bordered with white. The form *punctatum* differs in habit of growth but little from those already noticed, its flowers being pure white, delicately studded with light rose-coloured spots. The variety *roseum*, or *rubrum*, is the most common and best known of all the varieties. Much confusion exists in regard to its varietal name. Some dealers call it *roseum*, others *rubrum*, and many send it out under both names. Its colour is between that of *L. punctatum* and *L. purpuratum*. There are nearly fifty varieties of this species catalogued. The four described are fairly representative, and for a general display no more are required, while for a good collection neither could well be omitted.

L. LONGIFLORUM, the trumpet-shaped Lily, is conspicuous among Easter flowers, as it is well adapted for forcing. The popular Bermuda Lily belongs to this species. It thrives well in the open border, but it is folly to plant it unless thoroughly protected against frost.

L. TENUIFOLIUM is the earliest of all Lilies to bloom in the open border and one of the most remarkable, because of its brilliant scarlet flowers, borne in terminal clusters on very slender stems, which are beautifully clothed with Grass-like foliage.

L. TIGRINUM FLORE-PLENO, although one of the much despised Tiger Lilies, is, when well grown, a noble and beautiful plant. I have had a single plant grow more than 5 feet high, with a diameter of more than 3 feet, bearing in a single season more than sixty flowers, and continuing in bloom fully six weeks. The flowers are orange-scarlet and very double.

Finally, let me say, that in making a selection one cannot well go wrong, for there is not a species or variety that is unworthy of a place in the garden. You will succeed if you deserve success, and you will be sure to increase the number of varieties annually. You will also observe that your investment has been relatively small, as plants that are steadily and rapidly increasing in number, though they may cost 4s. each when you begin, are, in the end, much cheaper than those that require to be removed every year, like all the popular bedding plants.—**C. L. ALLEN**, in *Garden and Forest*.

Iberis Tenoreana.—Those in want of a subject to form edgings to paths other than Box could not do better than employ this *Iberis*. I lately saw a piece 20 yards long of it growing, about 10 inches wide, and

the effect can be imagined by those who know the flower. It was a mass of the purest white upon a deep green ground. This variety grows uniformly and compactly. Cuttings put in a cold frame in sandy soil, kept close and shaded for a time, quickly make nice little plants ready to plant out before the autumn into their permanent quarters.—**S.**

Veronica repens.—This little Speedwell is out of flower now, but late in May I saw some carpeting the ground beneath a Rose and bearing a mass of white flowers so abundantly produced, that they pressed one another out of shape in endeavouring to open. Curiously enough, two people early on different mornings passed the bed a short distance from it and both thought the bed was covered with white frost, not a leaf being visible above the snowy mantle.—**A. H.**

A runnerless Neapolitan Violet.—I send you a plant of the Parma Violet—at least it is the plant that I have been growing for the past eleven years as such, and I fancy it is the true kind. The flowers are identical in colour with those of the Neapolitan, but the plants never produce a runner, have flower-stems from 4 inches to 6 inches long, and are the hardiest of all the Violets (ten kinds) grown here.—**F. BEDFORD**.

The old double Daffodil.—"J. C. B.'s" experience agrees with mine about this Daffodil. I have had the old English variety come with an entire and firmly-packed trumpet, and have also had it so completely cut back to the perianth as almost to be like a Balsam or a Rose. Again, some of another variety of trumpet Daffodil (the *N. cernuus plenus*) which had an unbroken, straight trumpet last year have this year become much more rose-shaped. I have noticed that the entire trumpet flowers come from the poorest soil and shady places, while the broad, rose-shaped flowers are found to preponderate in the best soil and open sunny situations. Daffodils of all kinds do splendidly in this county (Devon).—**D.**

Canterbury Bells in pots.—It is not often this old-fashioned and delightful Bellflower is grown in pots, but that this method of culture is correct, we can tell from a batch of plants in the Maida Vale Nursery of Messrs. Hooper & Co. The specimens are just opening their flowers and are crowded with bloom, so that scarcely a leaf is visible. When in full perfection, it would be hard to find more showy or interesting specimens. The seed was sown in the spring of 1887, and the plants were planted out during the summer, but lifted before winter, during which season they were kept in a cool house. Now an abundant harvest is gathered for the labour given.

Dwarf Wallflowers.—Golden Tom Thumb and Blood Red are two excellent strains of dwarf Wallflowers. The first named is very telling, and grows not more than 1 foot high. It seems to be well fixed, for in a hundred plants I do not see a rogue. For spring gardening where masses and lines of distinct colours are needed this will be found useful. The Blood Red kind grows taller, and has good solid spikes of bloom. As regards habit, it comes very true and forms a level mass of colour, that when the plants are grouped is very rich and effective. Some of the plants, however, give blooms of a lighter shade. To get the best results in Wallflower culture, seed should be sown annually in early spring. If sown thinly in the open air on good ground useful plants will be available for putting into any desirable positions in the autumn. Such plants have generally a more leafy and attractive appearance than old specimens, and they certainly produce finer spikes of bloom. The check that they get by removal diminishes their succulency and better enables them to resist hard winters. Transplanting should be done early in October and the check is then given just at the right time.—**J. C. B.**

Spring-flowering Crocuses.—During the spring Messrs. Barr & Son staged at one of the meetings of the Royal Horticultural Society a large and representative collection of spring-blooming bulbs; among them were some pretty species and varieties of *Crocus* that deserve a record, and more especially so just now, as this is the season of the year when bulbs can be obtained. Among the species were *C. sulphureus concolor*, pale yellow; *C. sulphureus striatus*, with slight stripes on the exterior petals; *C. Oliveri*, deep pure yellow; and *C. stellaris*, deep yellow, with slight exterior stripes.

Then there were *C. azureus*, the common large yellow *Crocus* of the seed shops; *C. vernus Emperor*, a very fine large purple variety; *Ne Plus Ultra*, a delightfully distinct variety, purple tipped with white; *Ira Aldridge*, pale lilac flushed with white; *C. versicolor obscura*, deep lilac, with broad white stripes; and *C. biflorus argenteus*, a form of the well-known *C. biflorus*, but with a pleasing silvery-lilac interior. These pretty harbingers of the pleasant spring-time are worth a place in any garden where there is the convenience to grow them.—**R. D.**

SUMMER CREEPERS.

THERE is a great deal of effectiveness and beauty among the annual creepers and climbers which may be obtained at a trifling expense. There is no other plant that will give just the effect produced by the Canary Creeper when not too closely trained. A sixpenny packet of seeds, sown as soon as the weather breaks along the foot of a south wall, or close to a rustic arch or trellis, a few lengths of twine strained up the wall for the plants to cling to, and the foundation is laid for a very interesting and attractive feature in the summer.

CORÆA SCANDENS is less showy, but not the less desirable, as it is capable of very great things in the way of growth. The seeds are broad and thin, and vegetate best when thrust into light soil in a pot edgewise, not laid down flat; but I never have any difficulty in getting good seeds to grow. The *Coræa* should be allowed plenty of space on a south aspect. It will ramble over a rustic summer-house or a small cottage. I saw in a mild part of Devonshire two years ago a cottage completely covered with it, even to the chimney tops. When seen covering a large space it is very effective.

CONVOLVULUS (Morning Glory).—These are well known and appreciated everywhere, and are very suitable for covering rustic work. I saw last summer a large raised rustic bed edged with different varieties of *Convolvulus*. The bed was elevated 18 inches from the ground, and the *Convolvuli* were trained down to cover the wood support, save where they were intended to flower.

LOPHOSPERMUM SCANDENS.—This is a handsome pink-flowered perennial creeper. If the seeds are sown now in the hotbed, and good cultivation given until the first week in June, and then planted out, the plants will flower very well this coming summer. This is a pretty plant for furnishing the edges of large vases, permitting the shoots to hang down over the sides. Perhaps the best way of getting stock of this is to take a few cuttings in autumn, and keep them through the winter in the greenhouse. It makes considerable growth when planted in good soil. I have covered a wall 20 feet high with it in one season. It will not bear much frost.

MAURANDYA BARCLAYANA is a very elegant little summer creeper for covering tasty little wire trainers, either in the greenhouse or out of doors. Sow the seed in a hotbed, and prick off when large enough to handle.

The large-growing *Tropæolum* is a valuable plant for producing massive effect. If we want to embellish a lot of rough common shrubs in summer, there is no better or cheaper way than to sow a row of seeds of the tall *Nasturtium* along the edge. They will require no inducement or encouragement to climb, and they grow best when not interfered with.—**E. H.**, in *Field*.

SHORT NOTES.—FLOWER.

Veronica Lyalli is a free-flowering, neat-growing Speedwell; the flowers pale lilac. It is one of the best of its class in bloom now.

Spatium (*Lewisia rediviva*) is a remarkable rock plant now in bloom. It is only about 1 inch high and has a tuft of narrow leaves, while the flowers are nearly 2 inches across and white.

Pæonia anemonæiflora is a grand variety, the Anemone-shaped flowers being of the richest crimson. A spreading specimen of it on a wide border at Chiswick shows its great value.

Campanula abietina is a choice Bellflower, flowering in the alpine house at Kew. It has small leaves, and a stem about 6 inches high, carrying lilac-purple flowers with narrow divisions not of the usual bell form.

Double white Brompton Stock.—The true type of this fragrant, robust, pure white, double Stock is represented by a batch of flowering plants in Mr. Dean's seed ground at Bedford. This form has a spike of great firmness and strength, the flowers large, double, and deliciously fragrant, but there is a greater proportion of single varieties than double. The scarlet Brompton more often comes double, and is a rich purple-crimson flower, powerfully fragrant, and as robust as the other. We wonder that such charming Stocks as these are not grown more for small beds or for planting here and there in odd spots, especially when an excellent selection can be obtained.

PROPAGATING.

HIMALAYAN RHODODENDRONS.—These can be propagated either by seeds, cuttings, or by grafting on allied species. When they flower, most of them seed freely if they are fertilised with their own pollen, and it is by no means necessary to have large specimens before good seed can be obtained from them, as I have had small starved plants, not more than a foot and a half high, that produced a cluster of blossoms, and yielded a quantity of good seed from which numerous plants have been raised. Those that I have obtained in this way are *R. carophyllum*, *R. Dalhousiae*, *R. Edgeworthi*, and *R. fulgens*. After fertilisation takes place, the plants should, if possible, be kept in the greenhouse, where the seed will take some months to ripen. As the pods approach maturity a sharp look-out must be kept upon them, otherwise they are apt to burst during a sunny day and shed their seeds, which, from their light and minute character, are quickly scattered by the wind. When the pods are ready to shed their seeds they open slightly, but not sufficiently to allow the seeds to drop. This indication of approaching maturity is readily detected if the plants are examined from time to time, and at the first sign of ripening precautions should be taken to prevent the seed being lost when the pods open. They may be either enclosed in a bag of muslin, or a paper collar may be so arranged as to catch the seeds when they drop. Besides this, no harm will happen if the pods are gathered just as they are on the point of bursting and laid in a dry place to open. Though the seed will germinate in a cold frame if well protected from frost during the winter, the young plants make far more rapid progress if kept in a gentle heat during their earlier stages. A temperature rather above that of an ordinary greenhouse is the best for the seeds, as they germinate quickly and grow away freely. Whether pots or pans are used, they should be well drained, and filled to within half an inch of the top with fine sandy peat, pressed down moderately firm and level. This having been well watered, the seeds may be sown at once, and just covered with fine sandy peat. After this, a pane of glass laid on the top of the pot will be a great advantage, as it will prevent too rapid an evaporation and thus keep the soil always just moist enough. Besides this, when protected in this way, they will not need to be watered so frequently as they would without the glass, and in watering such minute seeds as these there is always the danger of washing them to one side of the pot. Care must also be taken that the sun does not shine upon the pots. The seeds that ripen up to the end of August may, if there is a good place to keep them during the winter, be sown at once, but after that time it is far better to keep them until spring before sowing than to run the risk of losing the young plants during the dull winter days. In sowing, care must be taken that the seed is not too thick together, as if the young plants are at all crowded it is often necessary, in order to prevent decay, to prick them off very early, and that is, indeed, a delicate operation. After the seed germinates, the young plants should be kept in as growing a state as possible, in order that no time may be lost. Another way of increasing these plants is by means of grafting, which may be carried out as well at this season as at any other time. The scions may consist of the current season's shoots, which will be by now partially ripened, while the stocks must be established in pots, and

should be as young and fresh as possible. When grafted, I always stand the plants in a close propagating case in a structure kept at an intermediate temperature, when a union soon takes place. Given a close case and proper attention in the matter of shading, no wax will be needed, though if the place be at all draughty it is as well to cover the point of union with some air-tight composition. The stocks should be placed in the intermediate temperature a fortnight or so before they are grafted in order to get the sap in circulation. Whip-grafting may be employed for the purpose, and if necessary the head of the stock can be shortened back, but not removed altogether. The great consideration is to have the bark of the stock in a clean, healthy condition, and also that the graft fits neatly in its place. One great advantage possessed by grafted plants over seedlings is that those increased by the first-mentioned method flower much sooner than seedlings, but the same advantage can also be claimed for plants struck from cuttings, by which means indeed I have propagated a great many of the species. The small-leaved kinds strike root more readily than those with larger foliage, and in all cases shoots that are produced under glass, and are consequently somewhat weakened, root quicker than those taken from the open ground. The slender-growing class represented by such as *R. Blandfordiae* take but a little time to root; while those that I have found the most difficult are *R. Falconeri* and *R. argenteum*, but I have struck them both. The method I adopt is, at this season, to clear a close case in the intermediate house and give it a thorough cleansing for the reception of the cuttings. The stouter ones I put singly into small pots, and those that are more slender are put four or five around a pot 4 inches in diameter. In either case the same practice is carried out, viz.: Select the cutting of the current season's growth before it becomes woody, cut off clean at a joint, and dibble firmly into the soil. A very suitable compost is sandy peat, with an admixture of small broken crocks, the cutting pot being finished off with a layer of sand on the top. In putting in the cutting care must be taken that the soil is well closed around the base, as this is a most important consideration. After a thorough watering has been given the cuttings are placed in the propagating case (not plunged in bottom heat) and kept close and shaded. They are less liable to damp than many subjects, but at the same time if kept too close and moist the leaves sometimes drop. After they are rooted the young plants must be potted off and as soon as possible brought into a lower temperature. Where no propagating appliances are at hand other than a cold frame, the better way to treat them is to put them in pots as above recommended, stand in the frame, and cover with a hand-glass. They take much longer to root this way than in a gentle heat.

CLEMATIS.—The many beautiful kinds of Clematis now in our gardens are generally propagated by grafting portions of the young growing shoots on to pieces of the root of the common Traveller's Joy (*C. Vitalba*). This operation is carried out in early spring, the stock plants having been brought forward under glass for the purpose. Shoots so produced will also strike if taken at that season and put in as cuttings, while fairly satisfactory results may be obtained with no more protection than that afforded by a frame if the young growing shoots (the weaker ones) are now taken and dibbled into pots of sandy soil. Of course, the percentage of struck cuttings will not be so great as if they were put in heat early in the season, but by putting in the young growing shoots during the summer they may be taken from the open ground without disturbing the stock plant in the least, so that such a proceeding has the great merit of simplicity. Of course the frame must be kept close and the cuttings well shaded when necessary until they are rooted.

CACTUS.—The grand display now afforded by the many forms of *Cereus speciosissimus* serves to call attention to the ready means of propagating this beautiful class of plants, for which purpose no shading or other protection is necessary. All the

is needed is to break off any of the smaller branches and put them in a soil consisting of loam, broken brick rubble, and sand, and stand the pots on a dry shelf, giving the plants water occasionally.

PALMS FROM SEED.—As mentioned on p. 541, the seeds of some Palms take a much longer time to germinate than others; indeed, it frequently happens that when seed of only one kind is sown some of the young plants will make their appearance very quickly, while the remainder are some time before they germinate. The reason of this is, I think, to be found in the length of time which has elapsed between the ripening of the seed and the sowing of it, for I have had seeds of several Palms, a part of which were sown directly they were received, and they soon grew, while the rest of the seed which was kept for three or four months remained dormant for a much longer time before the young plants appeared above ground. The percentage of those that grew was considerably less than in the case of those that were sown at once. From this it will be seen that it is a great advantage to sow Palm seeds directly they are received, and with regard to potting them off I prefer to do it just as the first leaf is fully developed, as I find that the removal affects them less when they are in that stage than at any other time. As the seeds of some Palms quickly lose their vitality, it is often a great advantage to know the quality of the seed before sowing, and this is best determined by taking two or three average samples and cutting them until the germ becomes visible. Then if the germ is plump, so that it entirely fills the cavity, the seed may be considered sound, but if very much shrivelled the chances are that it will not grow. No hard and fast line can be followed in such cases, as I have had apparently sound seed that would not grow. I was once consulted with regard to the germinating power of a quantity of seeds of *Areca lutescens*, and pronounced it too shrivelled to germinate, but to my astonishment it grew well. Still for all this such an examination can be generally relied on, and after finding the germ on one seed it is easy to drop on the exact spot when testing others. A sharp knife will be needed, for many Palm seeds are very hard.

SELECTING CUTTINGS OF DIFFERENT SUBJECTS.—Generally speaking, very stout shoots should never be selected as cuttings, even in the case of plants that strike easily, as they are far more liable to decay than those of medium strength. Another thing that influences greatly the striking of cuttings of all kinds is the treatment the plant has received from which the cuttings are taken. Thus, if the shoots are taken from highly-fed plants, even such things as *Fuchsias*, *Bouvardias*, and that class strike root very badly compared with those that have been grown under more normal conditions. I once had occasion to investigate the non-success in striking a collection of *Bouvardias*, as the cuttings were almost a failure, and found that the old plants had been fed up with artificial manure, which fully accounted for the difficulty in striking them, as directly a few plants were obtained that had not been manured so heavily, the cuttings from them struck readily enough. T.

The finest hardy plant introduced to this country for many years is undoubtedly the red *Heuchera* (*H. sanguinea*), now becoming popular, and deservedly so. Though it has been in this country but a few years, one meets with it in distant country gardens, and everywhere its beauty is extolled. In gardens about London it has this year been extremely fine, and perhaps nowhere finer than at Kew, where, in a warm border sheltered by a wall, there is a large plant that is carrying a large sheaf of tall spikes, each being profusely covered with tiny coral-red bells. The spikes being tall and slender are most graceful, and the evergreen foliage of a deep green helps to show off the splendid flower colour. The plant is rapid in growth, and continues in bloom for a long time—several weeks, in fact. It is perfectly hardy, for even in the cold midland districts it grows to perfection. At Brookfield Manor, in the heart of Derbyshire, Mr. Cammell grows it now as a common border plant, and it never

fails to produce a fine crop of bloom, but always later than about London. Too much cannot be written in praise of this charming plant, which I should like to see in cottage as well as large gardens.—W. G.

NOTES OF THE WEEK.

Sweet-scented Tobacco (*Nicotiana affinis*).—I have, at the present time, a plant of this in bloom. It is 8 feet high, and had between 200 and 300 blooms open at one time. Some of the leaves are 2 feet 10 inches in length by 1 foot in width.—Mrs. R. M. KING, *Ashcott Hall, Bridgewater*.

Mesembryanthemums.—I send blooms of two varieties of the above plants which are now in flower in the open air here. Some plants have stood out without protection since 1882. *M. edule* covers several square yards.—JOSEPH HALL, *Torquay*.

*** Flowers large and of bright colour.—ED.

WE have received from Messrs. Laing and Mather, Kelso, N.B., blooms of *Carnation R. H. Elliott*, but it is difficult to judge of a variety unless we see it growing. There also came the old double yellow Rocket, a flower we seldom see now-a-days; it has in branching spikes a mass of small double yellow flowers.

Ozothamnus rosmarinifolius.—This against a south wall in Mr. Hartland's garden at Temple Hill, Cork, is now very lovely. It can be grown in the open to perfection in the south part of England and Ireland, and as a white spray of bloom we know of nothing better for the formation of wreaths, &c.

The Copper Austrian Brier often varies considerably in colour, but to-day (June 19) a branch bearing seven or eight normal scarlet flowers bore also one clear self yellow exactly similar to the blossoms of the species *R. lutea*. On another branch was found a flower with three scarlet petals and two pure yellow.

Cattleya Sanderiana.—I now have *Cattleya Sanderiana* with seven blooms on the spike. This is the first time this has been achieved in England. The Comte de Germiny showed a plant on July 14, 1885, at the Royal Horticultural Show, with seven flowers. My plant in 1886 bore five blooms; six in 1887, and seven now. It was bought in 1883. The largest bloom is 9 inches across, though not fully developed.—DE B. CRAWSHAY.

Rose Chateau des Bergeries (Lédéchaux, 1886).—This new Tea Rose, now in flower, is a pretty variety, and if it prove large enough will be a most valuable addition. The plant is free and the growth quite erect, so that the flowers, which are of a rich yellow colour, and well formed with substantial petals not likely to stick together in dull damp weather, are well displayed upon the plant.

Pyrethrus from Langport.—Messrs. Kelway and Son have sent us a gathering of single and double *Pyrethrus*, rich in colours and of faultless shape. It will be hard to improve upon either the single or the double varieties, as they seem almost to have reached the fullest perfection. We owe much to Messrs. Kelway for having in a great measure popularised and perfected this useful and beautiful class of flowers.

Fabiana imbricata.—Seeing an illustration in THE GARDEN [last week of this, I send a specimen for contrast. About 18 square feet of the wall of my house are covered with these wreaths. The plant is going out of flower, and the specimen I send is not so fine as it might be.—R. J. LYNCH.

*** A very fine specimen, over 1 foot in length and wreathed in bloom, accompanied the above note.—ED.

Phyllocactus crenatus.—I have now in bloom thirty plants of *Phyllocactus crenatus*, each plant bearing thirty or forty flowers, and they make a splendid show. I have sent you a plant of it from which you will see the profuse way in which it flowers with me. I have several other varieties in bloom, and no plants could appear more beautiful than these in an intermediate house.—A. CHAPMAN, *Westonbirt, Tetbury*.

*** Accompanying this note was a fine, well-grown specimen of *Phyllocactus crenatus*, bearing about thirty of its large, handsome, sweet-scented flowers, which are creamy white in the centre, the outer petals being more yellow. It is undoubtedly a thoroughly useful plant.—ED.

A seedling Tacsonia.—I enclose two flowers and some leaves of my hybrid seedling *Tacsonia*. It is a seedling from *T. insignis*, crossed with pollen of *T. Van Volxemi*. The plant is a free-bloomer in a pot, and is very handsome, and reflexes its flowers more like a *Passiflora*. It will be more

suitable for small houses than many of the *Tacsonias*.—WM. SMYTHE.

*** Flowers of the richest crimson and of a good size, and when seen in a mass must be very effective. A very useful addition to the *Tacsonias*.—ED.

A fine Carnation.—We have in the conservatory here a fine plant of the bluish variety of *Souvenir de la Malmaison* which has several very fine blooms, the largest of which measures 6 inches in diameter and 18 inches in circumference, and is a perfectly shaped flower. The plant was raised from a cutting two years since, and is now growing in a 10-inch pot in fibry loam, in which it has made capital growth some 2½ feet in height, and well furnished with healthy foliage down to the soil.—W. SCAMMELL, *Wilton*.

Roses from Ireland.—I send you some *Gloire de Dijon* Roses as a sample of what we have been cutting in the open air here for the past six weeks. When cutting those sent, I counted on the two trees fifty fully expanded blooms, several of them over 4 inches in diameter. The two trees in question I turned out of 9-inch pots a little more than two years ago, and planted them against a wall facing south. They now cover a space on the wall 14 feet by 16 feet, which space they will far exceed this summer after the first crop of flowers is over.—A. B. LIMERICK.

*** Handsome flowers of this old favourite.—ED.

Arabian Star of Bethlehem (*Ornithogalum arabicum*).—For a greenhouse at this season this kind has no equal in the way of bulbous plants. Its tall spikes crowded with large pearl-white flowers with rich black centres are extremely handsome, and the pleasant fragrance adds to the value of the plant. In the greenhouse at Kew it has now a fine effect in a mass, the spikes being about 2 feet high and densely flowered. It is valuable for cutting, as the flowers last so long in good condition. It is essentially a greenhouse plant, it being too tender for successful open-air culture, except in the mildest districts. As a pot plant it certainly deserves much attention, and now that it may be bought cheaply, it should become common.

Venidium.—These are amongst the most charming annuals we have, and are easily managed in the open air. We, however, find them so useful for pot culture that we sow the seed early in March in a heated house, pot on as required, and use weak liquid manure. The plants produce fine heads of flowers in such profusion as to render them very attractive even at this time of year. For the open border we simply sow at the same time as the other annuals, thinning out to 3 inches or 4 inches apart, and leaving them alone. The finest perhaps of the two best known to us is *V. hirsutum*, sent out a year or two as *V. speciosum*; the flowers are about 2 inches in diameter, orange-yellow with a blackish disc. *V. fugax* is our old friend *V. calendulaceum* of gardens. The flowers are a trifle smaller, otherwise much the same. Both are natives of the Cape.

The Pyrenean Ramondia (*R. pyrenaica*) is just now at its best, and is certainly one of the very prettiest alpine flowers in flower at the present time. With us, near London, it thrives exceedingly well, growing into larger individual plants than it is commonly met with in its native wilds. It loves a cool position, like most alpine, but especially at the roots, and if these can penetrate between large stones the plant will be found quite at home. We have seen it on the top of a wall, and although scorched and burned up in late summer and autumn it always produced its quota of flowers as the season came round. The variety *alba* shown at the Drill Hall the other day is certainly to be commended, although by no means equal to Forster's plant. In the above the flowers have just a tinge of purple, while the stamens are identical with those of the type. In *O. Forsteri* the flowers are much larger, pure white, and the anthers jet-black, making a charming contrast, which shows up well against the rough dark green leaves.

The white Wood Rush (*Luzula nivea*) is a pretty plant, much neglected. It is charming by the side of a wood path, with its silvery white

flower-heads, more flower-like than those of almost any grassy plant. They have a beautiful waving motion on their slender stalks about 2 feet high. The flowers sent are past their best, and have lost something of their whiteness.—G.

Scotch Briers, red, pink, white and yellow, are now beautiful; it is only to be regretted that their flowering time is so short. Their parent, the Burnet Rose, which flowers a little the earliest, has been a beautiful mass of bloom, well established on a rocky bank. Where does the double white Brier get its globular form? the red and yellow seem never to have it. When replanted, they take some time to become established, making all their growth underground for the first two years.—J.

White Iceland Poppy Mrs. Davidson.—This fine variety came first as a seedling in the hands of the lady whose name it bears, and was further improved by Mr. Poë by means of good cultivation and careful selection. It may be considered as fixed, as the seedlings show a very small proportion of rogues compared with those of the other colourings. Among the flowers sent is one very slightly tinged with lemon colour, which is beautiful in the open air. There is also a clear light lemon-coloured one, of which some small flowers are enclosed, a pretty colour worth keeping distinct.—G.

Hybrid Rock Pinks are now in great beauty, and seem to delight in our sandy soil. They vary from seed in a most interesting way, every year bringing some fresh surprises and pretty new forms. The parents of those sent, two or three generations back, were from the collection of Mr. Wolley Dod. They are probably all within *cæsius*, *superbus*, *fimbriatus*, *alpinus* and *deltoides*—a range of origin that may well give plenty of variety. I find it best to grow from those with short stalks (good flowers of course understood), so many are apt to take a long weak-stalked habit. These are rejected in favour of the sturdy ones.—J.

Fortune's Yellow Rose has never flowered so well with us as this year; the flowers are in crowded wreaths and masses and highly coloured, doubtless owing to last year's hot summer thoroughly ripening the wood. Hitherto our trees of this lovely Rose have had a trick of shedding about three-fourths of their leaves in May, but this year this has not happened. It is a bad Rose to handle or train; the sharply-hooked prickles are irritating to a sensitive skin, raising lumps like a Nettle sting, and causing the same painful irritation.—G. J., *West Surrey*.

*** Flowers superb in colour and good in form.—ED.

Iris Pavonia (the Peacock Iris).—This is very beautiful just now in select positions on rockwork in my grounds. I have always been made believe it would not succeed out of doors, and that it should be classed as a Cape bulb and be grown in cold pits. I have never before seen it do so well in the open, and it only requires a free, sandy loamy bit of soil and a good position on a sunny rockwork, particularly in the south of England or Ireland. It is a regular gem among small Irises. I should like to know if it can be grown out of doors in the Isle of Wight.—W. B. HARTLAND, *Cork*.

Iris pallida.—The noblest in growth, the most charming in colour of all the bearded Irises is *I. pallida*, a kind not at all common in gardens, and not the most easily obtainable from nurseries. It is a lovely plant as you see it with two or three spikes; but imagine a large mass of it with hundreds of spikes, each carrying several huge flowers of the most delicate mauve! Such is the sight one may enjoy at the present time in Mr. Anthony Waterer's nursery at Knap Hill, where one would hardly expect to find in quantity such a grand hardy plant. It is, Mr. Waterer tells me, a remnant of a fine collection of hardy plants that used to be grown in the olden days at this nursery before special nurseries for hardy herbaceous plants sprang up. Here it is a great favourite and is grown to perfection, as its broad, tall foliage of a bluish grey tint indicates. It was a favourite plant with the late Mr. Gibson, and that is why one sees it so plentiful in Battersea Park at the present time. One first-rate Iris such

as this is worth more than a dozen of the dingy-coloured sorts one sees in a collection of bearded Irises. What more beautiful plant for a lawn group than this, and what plant requires less attention to grow it well?—W. G.

Schoenia Cassiniana.—A very pretty "everlasting" plant is now flowering in the Cape house at Kew. It reminds one of *Rhodanthe Manglesi*, but it is quite different in growth. It has slender stems about a foot high, narrow leaves, and a branched head carrying many flowers, each about the size of a shilling, and of a soft pink colour. Judging by their texture, they are as "everlasting" as those of *Rhodanthe* or *Helichrysum*. It is an annual, and is presumably easily raised and grown. It comes from Australia, and has been rarely, if ever, seen in flower before at Kew.

The Cape Balsam (*Impatiens capensis*).—For some weeks past this pretty plant from the Cape of Good Hope has attracted a good deal of attention in the stoves at Kew. From ordinary kinds of *Impatiens* it differs considerably, especially in colour. It is dwarf and compact in growth, has small leaves, and bears a profusion of small flowers of curious shape with trilobed lips. The colour is a delicate soft mauve, and, therefore, extremely pleasing. It is presumably a perennial, as it has been in flower so long, and promises to continue in bloom for some time. It is as worthy of general cultivation as its popular relatives *I. Sultani* and the new *I. Hawkeri*. It is one of the plants brought from the Cape by Mr. Watson.

The narrow-leaved Kalmia (*K. angustifolia*).—This pretty little shrub is always in flower a fortnight or so before its relative the great Kalmia, or Mountain Laurel (*K. latifolia*). The small one is now in full beauty, its stem being densely clustered with deep rosy red flowers of that exquisite saucer shape peculiar to all the Kalmias. A single plant of it in flower is pretty, but to see it in perfection one must see it in large masses, as in the great Surrey nurseries just now. At Knap Hill, the other day, I greatly enjoyed the sight of masses of it. The colour of the flowers varies from an intensely deep rosy red to that of quite a pale tint. It is a valuable small Evergreen, and particularly useful for planting the margins of *Rhododendron* or *Azalea* groups, or for fringing a mass of *K. latifolia* with its relative *K. glauca*, also a beautiful little Evergreen.

The golden-leaved Acacia.—The golden-leaved variety of *Robinia Pseudacacia* named *aurea* is one of the most striking amongst ornamental-leaved trees at the present time. The masses of elegant foliage look like clouds of gold, so rich and bright is the colour. It is unquestionably one of the finest of all golden-leaved hardy trees, and planted in a tasteful way is capable of producing most beautiful effects. I saw it one day last week in the Knap Hill Nurseries both in groups and as solitary specimens, and I thought I had never before seen a golden-leaved tree I liked so much. It is of quick growth, thoroughly hardy, and always graceful in or out of leaf. It should be placed so that its foliage will harmonise with that of a light green, such as that of the common *Acacia*, or with dark foliage, such as that of *Conifers*. It is certainly a tree for every garden, but, of course, care must be taken not to repeat it too often, or its charm is in a great measure destroyed.

Hemerocallis Dumortieri is not so robust as *H. flava*, and has pale leaves, but the flowers are richer and deeper orange.

Saxifraga rotundifolia glandulosa is a neat compact plant with rounded leaves and a mass of white crimson spotted flowers that remind one of the Foam Flower in the way they are produced. It is in bloom at Kew.

Lilium odorum is the name of a very handsome Lily now flowering with Mr. Bull. It is somewhat slender in growth, and in its habit somewhat resembles *L. auratum*. The flowers are tubular and pure white, through which runs a tinge of pale green. It is very fragrant, and is altogether a decided acquisition to our hardy Lilies.—W. H. G.

Australian Pitcher Plant (*Cephalotus follicularis*).—There is a thriving specimen of this curious little Pitcher Plant in the Maida Vale Nursery. A bell-glass is kept over it the whole year round, and the plant is kept in the same house as the *Odontoglossums*,

being also well supplied with moisture and live Sphagnum. Potting is done when necessary. It is an interesting plant for those who like this class.

CHRYSANTHEMUMS.

E. MOLYNEUX.

NOTES.

AFTER the final potting a few plants are generally left over. These instead of being thrown away may be planted on an open space of ground in rows about 2 feet apart, treading the soil firmly about the roots to prevent a gross growth, and consequently a soft and sappy one. Disbud the number of branches to two or three on each plant, place a stake to each to secure the branches from accident, remove all lateral growths as fast as they appear, restricting the plants all the while to the number of stems selected when planted. The tops of these plants taken off early in August will provide capital cuttings for growing on singly in small pots, and later on producing a single flower to each plant. If choice can be had of varieties, reject those with weak peduncles (such as *Novelty*, an incurved sort), as they require so much support to keep the flowers in a position to be seen easily. Stout growing varieties, such as *Baronne de Prailly* and *Belle Paul* among the Japanese, are the type to select for this mode of cultivation.

Single varieties that were planted out some time since also for the production of suitable cuttings, which will be struck, say five cuttings in a 4½-inch pot, will very soon be making their first natural break. When that takes place select six or eight shoots to each plant, tying them loosely to stakes as fast as they grow, or they quickly get bent, and in this manner never make such useful plants as they do when kept in an upright position.

Plants of *Mme. Desgrange* and its two sports, *G. Wermig* and *Mrs. Burrell*, which are being cultivated to produce a limited number of flowers upon each plant early, so that they may be used and the plants removed to make room for the general stock in November, will be growing freely. Having formed extra branches after being topped when a few inches high, they should have attention in the matter of allowing plenty of room between each that they may grow stocky, and in no way drawn up weakly. Place to each branch a separate small stake for safety rather than tie all to one, as more space can be given to this section than can be allowed to others later on; remove all lateral growths as fast as they appear, concentrating the whole energy of the plant into the shoots selected to produce the blooms. If the next natural break does not form before the middle of next month, the flower-bud then set must be retained and will develop early. As all plants do not show the buds at the same time, a longer season of flowering is obtained. Those plants which set a bud before the time named should have such buds rubbed out and the next taken advantage of. The variety *Sour Melanie*, grown in 7-inch pots, if topped once at 4 inches from the soil and allowed to grow naturally, afterwards breaking into numerous fresh shoots, makes one of the most useful plants for decoration that it is possible to find. The great advantage of this sort is the simultaneous manner in which it opens its flowers; therefore in cutting the central flower the side buds are not sacrificed, as all open at the same time. Plants of this variety are now growing away vigorously, their only requirements being plenty of space and a sufficiency of water as required. Being of a stiff habit of growth, few supports are necessary

to secure the plants from breakage. A single stake in each pot, to which the largest of the branches may be looped, is sufficient for this variety.

Lady Selborne is a capital variety to grow for early large flowers, which are very useful for harvest thanksgiving services, &c., as they come in about that time. If treated with that object they form a succession to *Madame Desgrange*, and being quite white and of a drooping character are much admired. The plants should be treated in the same manner as those of the general collection for large blooms in all the details, excepting that more shoots may be retained at the first natural break at this time. As many as six growths may be selected, each one producing a large bloom. After the selection of this number of growths, treat the plants in the same manner as the bulk of the other varieties.

In a former note I advised the insertion of cuttings of new or scarce varieties as they appeared, and a likelihood existed of there being a difficulty to obtain a sufficient stock of any particular variety next autumn. Now is the time when cuttings commence to grow from the base of some plants. Instead of discarding these as useless, insert them singly in small pots in sandy soil, placing them in a cold frame, and shading from bright sun until roots are formed, when they may be gradually inured to the open air and afterwards potted into 5-inch pots. If restricted to one stem and given plenty of sun and space, they will develop later on one bloom on each shoot, and during the following December an abundance of cuttings.

Chrysanthemum hæatomma.—This lovely *Chrysanthemum* from the sea cliffs and rocks of the Bugio, in the island of Madeira, is perhaps the most charming even of this large group of plants, though, unfortunately, not likely to stand the rigours of our uncertain winters. We had a plant growing out all last summer, which became well established, made strong stems, and survived until late in the spring of this year. It then, however, succumbed, owing only, we believe, to the prolonged cold and drought. It strikes readily from cuttings—a fact which we took full advantage of. Large plants put out about the middle of May will begin to flower almost directly, and continue to bloom profusely until the end of July or August. This *Chrysanthemum* grows from 2 feet to 4 feet in height, with somewhat the habit of *C. pinnatifida*. The flowers, from one to four together, and from 1 inch to 2 inches in diameter, produced on stalks of various lengths from the ends of the branches, are whitish rose and very striking. Of the above plant, Lowe, in the "Flora of Madeira," says: "A bush of this species on its native black or grey and barren crags—one mass of lovely rose-pink flowers and conspicuous from afar like a *Camellia* or *Rose bush*—is a truly splendid and surprising sight. The flowers, however, are very inconstant in intensity of colour, and removed from the neighbourhood of the sea the leaves also lose their extremely rigid, fleshy character." So far with us, however, in the neighbourhood of London, it has retained much of its true character, and although the flowers have lost somewhat of their depth of pink, still retain enough on a well-grown plant to make a beautiful sight such as described. The leaves are quite fleshy now. This plant will, we believe, prove a useful addition to our summer-bedding subjects, having none of the rigid character of the majority of plants in use for this purpose at the present time.—K.

"THE GARDEN" Monthly Parts.—Our readers are informed that this Journal is published in neatly bound Monthly Parts. In this form the beautiful coloured plates are preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. The June part contains coloured plates of *Clerodendron nutans*, *Urcolina pendula*, *Azalea Deutscher Perle*, and *Euphorbia jacquiniiflora*. Price 1s. 6d.; post free, 1s. 9d.—Address, THE GARDEN Office, 37, Southampton Street, Strand.

FERNS.

W. H. GOWER.

SMALL-GROWING POLYPODIUMS.

THE plants here introduced belong to the suspensum group of the genus. The illustration represents one of the many small-growing species which are to be found in tropical countries, and which often are sent home inadvertently with epiphytal Orchids and frequently overlooked by those who have only a taste for orchidaceous plants, or, if not overlooked, are consigned straight away with the *débris* which is to be found in every importation of plants. This system, however, is very reprehensible, as it causes the loss to cultivation of many veritable gems of the Fern flora, and it is with a view to draw attention to these beautiful small-growing species that I have introduced them to the readers of THE GARDEN. Of these plants I had accumulated, in the nurseries of the Messrs. Rollisson, of Tooting, a considerable number of specimens, which, however, were dispersed with the other plants in 1879, and I question if many of them could be found at the present time. My method of growing these plants was to fix them upon blocks of wood, with a little Sphagnum Moss, in a similar manner to the small-growing epiphytal Orchids, and to always keep them moist and in somewhat heavy shade. Many of them will also thrive when planted in crevices of rockwork, but they will not succeed long if treated as ordinary pot plants, as their roots cannot endure much soil about them.

The following are a few kinds which are more frequently to be met with amongst newly imported plants. It is really much to be regretted that the demand for them is not greater in order to answer the purpose of collectors to gather and send home more of these little beauties.

P. CULTRATUM, the subject of our figure, is a native of Brazil and Guatemala; indeed, it is found throughout nearly the whole of South America. It is of tufted habit, and the fronds are pendent, growing from about 6 inches to a foot, or even more long; the pinnae bluntly decurved, thin in texture, and clothed with soft brown hairs.

P. DECIPiens is a sub-erect plant of tufted habit. The fronds attain a height of from 6 inches to a foot, and, with the exception of a few hairs about the crown, are quite smooth. The frond is divided into long, narrow segments, which, although cut nearly down to the rachis, are really pinnatifid. The sori are large and conspicuous for such a small plant. It comes from the West Indian Islands.

P. GRAMMITIDES.—This would appear to be a common Fern in New Zealand judging by the frequency with which it arrives in this country in the company of Filmy and Tree Ferns. It has a short, stout rhizome, and produces a dense tuft of fronds which vary from a few inches to a foot or more in height. It is deeply divided into long, narrow segments, which are, however, winged to the rachis; the pinnae are coriaceous in texture, deeply lobed, in some instances becoming again pinnatifid, especially towards the upper part. It is an elegant plant and thrives in a cool house.

P. MONILIFORME.—This species is remarkable for the stiff rigid texture of its fronds. The rhizome is stout and creeping, clothed with dun-coloured chaffy scales; fronds from 6 inches to a foot high, about a fourth of which is bare stem; the fronds are cut nearly down to the stem, leaving closely-set smooth rounded pinnae. It is a common Fern in the Andean region.

P. ORGANENSE.—A small-growing species, which came home with Orchids sent by Mr. Blunt when collecting for the Messrs. Low, of Clapton. It is a small-growing elegant plant; the fronds, which are erect and seldom exceed 6 inches in height, are narrow and divided into small blunt pinnae, which gradually decrease in size towards the base. The

upper surface is deep green; beneath, the sori are conspicuous. It is found in various parts of Brazil.

P. PENDULUM.—This is a larger-growing plant than any of the preceding kinds, producing pendent fronds a foot or more long and about $1\frac{1}{2}$ inches wide; these are divided into simple pinnae, which are largest at the base, winged to the rachis, somewhat thin in texture, and pale green. Its pendent habit renders it a beautiful object when surmounting some small rocky prominence in the fernery. It comes from Jamaica, &c.

P. SEMIADNATUM.—A variety producing pendent fronds from 1 foot to 2 feet long; the fronds are pin-



Polypodium cultratum. Engraved for THE GARDEN.

nate, the pinnae being closely set, somewhat waved on the edges, and furnished with a few long downy hairs. Native of Ecuador.

P. SUSPENSUM.—This is another species well adapted for draping the face of prominent pieces of rockwork, but it requires somewhat heavy shade. Its fronds are pendent, from 1 foot to 2 feet long and 2 inches in breadth, pale green in colour, soft in texture, and clothed beneath with numerous long rusty hairs. It appears to occur in most parts of South America.

Fern for large vase (J. W.).—Perhaps the very best Fern for planting in your vase in the centre of the conservatory would be Woodwardia

radicans. It is a member of a small genus, having representatives or allies in North America, the East Indies, China, and Japan. This species, however, is found wild in the Canary Islands and Madeira, as well as in Northern India, Mexico, and California. It produces a magnificent effect when strong and well grown, assuming a bold, vasiform appearance; the fronds are from 3 feet to 6 feet in length by about 18 inches in breadth, beautifully arching, and cheerful green in colour; the pinnae are broad and lanceolate in outline, the divisions being of the same shape and toothed on the edges. A young plant is mostly developed near the apex of the frond, and if afforded the opportunity soon roots into the soil, when it may be detached without injury to the health or the appearance of the old plant. Another species of somewhat similar habit, but scarcely so hardy, is *W. orientalis*, bearing very broad fronds from 4 feet to 6 feet or more in length, of a rich bright green, the upper surface producing an immense quantity of little plants; the fronds, however, require to be pegged on the surface of the soil in order to allow them to root and develop into useful plants. This variety may be used in similar situations to *W. radicans*, viz., in a stove or warm house. It is a native of Southern Japan and Formosa. These plants should be potted in a mixture of about two parts loam to one of peat, adding some sharp sand, but not sufficient to impoverish the soil. They enjoy an abundance of water, therefore should be well drained and should have plenty of light; consequently shading is only necessary during strong sunshine.—W. H. G.

FRUIT GARDEN.

WASTE OF FORCE IN PRUNING AND TRAINING.

MANIPULATION and training are necessary and very important operations in the cultivation of all fruit trees, whether growing under glass or in the open air. The particular form of training which is adopted must to a certain extent depend upon the space at the disposal of the cultivator. For all young trees some people advocate a free and unrestricted growth called extension training, a system which has its advantages, if not carried too far, as the allotted space can be filled in a short time and a quick return in the shape of fruit obtained. There must, however, come a time of restriction, and if the trees have been allowed to grow without due regard being given to having the bases well furnished, a difficulty will be experienced in keeping a supply of fruitful wood in the body of the tree. It is not, however, the merits of any particular form of training that I wish to discuss at the present time, but to point out the time and manner of performing the operation best suited to promote the well-being of the trees.

With this object, all disbudding and pruning should be performed at such a time and manner as will result in the least possible waste of force to the trees. This important point does not always receive sufficient thought and consideration; but where roots and branches are confined, it is a matter of great moment that the trees should not be permitted to waste their energies upon superfluous growth only to be removed as soon as made. The removal of shoots in any quantity whilst the trees are in active growth has very injurious effects; therefore, the point of the shoots intended to be stopped should be taken out when quite small, and not allowed to grow until the knife has to be used. I am no advocate for any strict system of stopping all shoots at a certain point, but like to see a little free growth where it can be accommodated without doing any mischief. I would allow a Vine shoot, for instance, to extend six or seven leaves beyond the bunch, but

I should stop it before it had grown half its length, leaving it to lengthen out afterwards, as if in health and vigour it will double its length after being stopped if the extreme point only is taken out.

The Vine being a rapid grower will soon accumulate a mass of shoots if neglected, or if from lack of time or other causes it is not regularly attended to, and if these shoots are cut off by the armful, a considerable check is given to the Vine, as they when thus severed represent so much waste force which with advantage might have been directed to the improvement of the fruit and the condition of the Vine. The ill-effects of removing a quantity of succulent shoots at once is not always apparent at the time, but we should not always rest contented because the harm done is not visible at the moment, but should consider how much better the crop would have been if such a check had been avoided. If, by neglect or an error of judgment, growth does accumulate beyond what is required, it should be removed gradually so as not to expose too quickly to the powerful influence of the sun's rays the foliage, which has not substance enough to stand the flood of light thus suddenly let in amongst it. The resources of the Vine are also taxed beyond endurance before it has had time to recover from the mutilation it has suffered. Ample growth should always be encouraged, but crowding avoided. What I consider ample is when the leaves, being full grown, the glass will only be visible occasionally from the inside of the house. Any vacant space at the sides and along the front may also be clothed with growth, and will help to improve the crop and maintain the vigour of the Vines if not cut away before the foliage begins to ripen. Peaches often suffer by overcrowding of the shoots, double the number required for next season's crop being encouraged to grow only to be cut off, thereby robbing the remainder of strength and solidity, besides obstructing from the fruit light and air—two elements most essential to high colour and good flavour. The manipulation of the shoots best suited to the Peach is not at all difficult to learn, and any young gardener whose heart is in his work can soon master its details. When he has done so and is sure of which shoots to leave, and only leave those to extend their full length which are intended for next year's fruiting wood, stopping or removing all others, training will be a simple matter compared with the practice of leaving a forest of shoots, which must either be cut off or tied upon each other. If this is done gumming will not often occur.

Trees which bear their fruit principally upon spurs require careful treatment to maintain an even balance between wood and fruit. Fruit spurs cannot form upon branches crowded during a greater part of the summer with shoots and suffered to remain until the winter pruning; neither are fruiting spurs produced by the use of the knife when the trees are dormant, but by the attention bestowed upon them during the season of growth.

It is better to have too few branches if they are furnished throughout with firm growth than to have too many. I am speaking of trees which are restricted to a given space, and to which the production of superfluous growth is waste of force. With trees having plenty of head room it is not well to let them grow their own way entirely, but commence while they are yet young to remove a few branches and regulate the shoots. They will, by such attention and without wasting their energies upon useless growth, make shapely

trees and bear fruit over the entire length of their branches. The practice so often followed is to leave the trees alone until they become thickets of wood, when a severe thinning out takes place, from which they are several years in recovering, and will then never equal those upon which a little timely attention has been bestowed, and which have not wasted their substance upon superfluous growth.

Hindlip.

A. BARKER.

STONELESS GRAPES.

I HAVE a vinery containing six Black Hamburgh Vines planted about twenty years ago. The house is heated by a common flue, and the Vines growing in an outside border are pruned on the spur system. They bore good crops and the berries coloured well until the last two or three seasons. The bunches, one of which I send you, are all covered with small berries. I shall be glad of any advice in the matter.

J. DAVIES.

** If a score of gardeners tried their best to produce a bunch of Hamburgs upon which the whole of the berries should be stoneless, and although not larger than very small Peas, evenly covered with rust, I question if one out of that number would succeed, and yet a fair sized cluster of this variety and in this condition is now before me. The Vine from which this remarkable bunch has been supplied was planted in an external border in North Wales about twenty years ago; the house is heated by an old-fashioned flue; the Grapes until within the past two or three years have always been very satisfactory, but the owner suspects that the roots have betaken themselves out of the border. This is a fair statement of the case, the sum and substance of the information by which readers of THE GARDEN are to be guided in their attempt to show this unfortunate correspondent the cause or causes of his complete failure. Had he stated in his letter how this external border was treated as to mulching and watering through the rainless periods which characterised the summers of 1886 and 1887, or given a short outline of his internal management since the last leaves fell, one might have some facts to stand upon. But in the absence of these, the remarks I am about to make may fall wide of the mark, or they may reveal to "J. D.," first, the cause of sterility; second, that of rust upon every berry, as no one, I believe, will imagine that the two defects can be traced to one error alone in detailed management.

If the water famine which prevailed in North Wales prevented giving a liberal supply of water to the roots, it is more than probable that they have found their way into a dry subsoil or dry surroundings in search of the moisture denied them at home, but these surroundings being as arid as the border itself, all the fibres may have perished, and, notwithstanding the fact that the bunches were formed, the vital force of the Vines may have been completely exhausted by the time they came into flower, when, owing to the lack of pollen, fertilisation could not take place. This is one theory, the which reduced to practice may have been contributory, inasmuch as want of water prevented the Grapes from setting; but another must be found to account for the rust. I once saw a house of very fine Muscats shanked to every berry by internal and external drought, but there was no sign of rust, and all Grape growers have seen the most perfect bunches of Grapes of all kinds badly rusted when there was no sign of stoneless berries or shanking. This being so, we must, I think, turn to internal management, certainly for the rust, and it is just possible for a mistake or mishap when the Grapes were in flower which prevented them from setting. Assuming, then, that the roots have got into bad condition, and are quite unequal to the proper performance of their functions, vigorous flowers with perfect stamens could hardly be expected; but supposing that the flue was defective and sulphurous fumes escaped, that sulphur mixed with the limewash was applied to it, or water was poured or syringed over it when very hot and the Grapes in flower, why, then, we

have not one, but a plurality of defects which might contribute, not only to this collapse, but to the loss of the Vines into the bargain. "If "J. D." will examine his border and his flue and ascertain all he can about the management of the house, these remarks, will, I have no doubt, guide him to the true cause or causes of his failure. Then, if he will communicate with me again, not privately, but through the pages of THE GARDEN, I shall have great pleasure in trying to help him out of his difficulty. Meantime I would advise him to remove all the stoneless bunches, and treat the Vines precisely as though they were carrying a full crop of good Grapes; also, he must make his flue smoke and sulphur proof, and avoid wetting it when hot. Last, but not least, the border must be examined, well mulched, and restored to a proper growing condition by repeated waterings, if at all dry; otherwise, spider, thrips, and mildew may put in an appearance and run riot in spite of his best internal management. When examining for drought he will most likely ascertain the condition of the roots, also whether they are deeply seated in the drainage or subsoil, or whether they have gone quite away in search of pastures new. Either of these conditions will justify lifting and relaying the roots in new compost, but, considering their age (twenty years), the state of the foliage and wood of the current year must determine whether they are worth the trouble and expense, or whether a clearance, preparatory to a new start with young ones, will not be the most prudent course to follow.—W. C.

FRUIT PROSPECTS.

IF bulletins as to the general condition and prospects of our market fruit crops could be issued from week to week from the time of blooming until the close of the season, they would prove to be very variable, yet instructive reading. Somehow, even when prospects look ever so rosy, we find that we are always in the wood, and rarely get out of it. An absolutely perfect fruit season and crops would indeed be a marvellous rarity. A season of sore worry and of promise dashed by extraneous causes seems now to be the normal state of things in connection with hardy fruit culture. It is a fact that all who embark in fruit growing in this country, after they have made their estimates as to probable results, and have regarded prospects from the usual optimist aspect, should then deduct 20 per cent. from all contingent profits, to discount unlooked for, but still absolutely certain losses incidental to the evils to which fruits are heir. But the other day and the reports as to the Gooseberry crop were most glowing; indeed I can vouch personally for the wonderful set of berries there was originally, leading to hopes which, naturally, it was thought would be fulfilled. Now all is gloom, for the Gooseberry crop is universally reported a failure, the berries having either dropped or become blighted, or injured by cold winds and frosts, or because the blooms were eaten by the sparrows, or the bushes injured by caterpillars. In one large orchard here of 36 acres with Gooseberries for the chief bottom crop, every hand but the foreman has been discharged, and the usual contingent of Shropshire women-pickers has been stopped because the report is, no fruit. That may be an extreme case, but it is certain that Gooseberries after all are very thin. Even farther I hear that the berries are so blighted, that they soon smell objectionably when in the baskets. Such seems to be the general state of one of our hardiest and usually most reliable of bush fruits. Both Black and Red Currants bloomed wonderfully. The fruit crop so far indicates that about one-third of the bloom will have proved fruitful, but Currants are always uncertain until they begin to colour, and the real nature of the crop will be better estimated later. Still it is but too evident that it will be a light one.

Turning to Strawberries, on which there has been apparently a good bloom, yet we now hear of an unusually large percentage of the plants being blind; indeed, in some cases the blind ones exceed the bloomers. When growers state that it would not pay to mulch the plants, of course, little more need

be said. Possibly the Strawberry crop, especially if we should have some good showers of rain, may prove to be better than anticipated, for somehow a big crop of such soft perishable fruit seems to be hardly a blessing to anyone, except the jam-makers. Blindness in the present case seems less due to defect of strain or stock than to the drought of last year, as in many cases the plants materially failed to produce crowns sufficiently strong to carry bloom. So far there does not promise to be any great quantity of outdoor ripe fruits before the end of June. Possibly in southern districts they will be earlier. Top fruits have suffered this year in an unwonted degree from caterpillars. The cluster or cobweb hairy caterpillars have been abundant, almost beyond precedent, but these may be destroyed if the trees be looked over occasionally, their presence being so manifest. Still further, their destructive labours are somewhat localised, and may be checked before great harm is done. The chief depredator on hardy trees, Apples especially, and bad also on Pears, is a small greyish green caterpillar or maggot, about three-quarters of an inch in length. This has locally the curious appellation of "ladle maker." I was taken the other day to see a fine orchard of 10 acres, the trees about thirty years old, with Gooseberry bushes, Violets, Wallflowers, &c, beneath. The trees were chiefly Apples and Pears, good market kinds, stout and robust, but all too thick—indeed, in some places, forming a perfect mat of growth overhead. "This orchard," said the tenant, "I have now for the third year at a rental of £10 per acre, or a total of £100 per annum, and I shall not get fruit enough from off the whole to pay the labour. I dare not cut a tree, as I am bound by my agreement not to do so." And yet it was evident to anyone that so thick were the trees that if fully one-half were removed the remainder would have a chance. Row after row of Juliens, Keswicks, Quarrendens, Kentish Fillbasket, Wellingtons, all of which should have been carrying fine crops of fruit had not even a whole green leaf left on them; in fact, the whole of the orchard was fast being devastated by this pestilential caterpillar. It was a sad and sorry sight, and the position of that unfortunate tenant might well evoke sympathy. Not only had the caterpillars cleared the top trees, but they had fallen upon the Gooseberry bushes also, and set to work apparently more to devour the fruit, what there was, than the leaves, for the visitors were not of the true Gooseberry depredator type. Usually, these leave the fruits intact, though after the foliage has been eaten, quite useless, but these predatory ladle makers were found with their heads bored into the Gooseberries, and scooping out the insides. This is, again, an extreme case, perhaps, but, none the less, this caterpillar is fearfully prevalent, heavy washing rains being sadly lacking, whilst dry, cold east winds seem to have generated the insects wholesale. Generally evidences of the existence of these pests are plentiful on all Apple and Pear trees, and although there is a fairly good set of fruit on the latter, I observe many which have been eaten, or excoriated by the caterpillars and which will presently no doubt fall.

I have just read in a daily paper that in Kent, where this maggot is also very prevalent, the growers attribute its abundance to the raids made on the sparrows in former years. That is a pretty good example of the way in which people will rush hastily to conclusions. Here, in Middlesex, sparrows are as plentiful as the most ardent bird-lover can desire, for they are comparatively unmolested, and yet the caterpillars are in such great force. I fear the sparrows may exclaim, "There is no pleasing these human beings; when in cold weather we find food on Gooseberry flowers, or in tempting seeds, we are shot mercilessly, and when later the caterpillars eat up the fruit crops, then our absence is deplored." Troublesome as birds may be in some directions, I fear outdoor fruit culture would soon become impossible, arising from the terrible multiplicity of insect pests were the birds totally destroyed. Of the two evils, the birds seem to be by far the least. With respect to the cause or causes of this exceeding prevalence of maggot on the trees it remains an open question whether the chief ones arose from

the exceeding dryness of last summer, or to the long continued low temperature of what are usually termed the spring months. Probably both have helped, but it is certain that the lack of rain which has prevailed during the past few weeks has materially helped the progress of the maggot, whilst some good heavy showers would have largely checked the progress of the insect. With respect to the average nature of the year's fruit crops, reports are yet too unreliable to be of use. Fully another month must elapse ere we shall be able to state with exactness what the season's prospects are. Between now and then there will be considerable thinning from various causes, but much must depend upon the nature of the weather which will prevail for the next few weeks. A. D.

PEAR GRAFTING.

SOME persons highly extol the advantages of grafting Pears on the Pear stock, or even of growing them on their own roots. It is just as well to warn novices in horticulture that this practice is not attended with satisfactory results on every kind of soil. Here Pear trees grown on their own roots generally produce short crops of fruit, and the fruit is of small size and inferior quality. A good many years ago I suffered from this mistake myself, having planted at my place in the country in prime, but clayey garden soil some Pear trees grafted on the Pear stock, all of which in a few years turned out to be only good for firewood. When a Pear grafted on the Quince stock gets on its own roots here it is condemned. I may mention here that one of my father's tenants having taken some scions from garden trees and grafted them on wild stocks in the hedges, every one of the varieties so grafted produced only sour, gritty, and small-sized fruit, while perry varieties of Pears, grafted in the same way turned out very well. The only dessert varieties which do well in the hedges here, in the vicinity of Nantes, are the Bezi de Quessoy and the Bezi d'Hery. These two varieties, however, were raised in these parts. The Bezi d'Hery, I may add, far surpasses every other variety in its suitability for making preserved or marmaladed Pears, the fruit being always melting, buttery, without grit, and having a slight aroma of the most agreeable kind. It would be a distinct advantage if in those districts where Pears are made into marmalade the people would grow the Bezi d'Hery instead of those wretched very gritty varieties which one always finds in this preserve as it comes from the grocers' shops. This Bezi d'Hery is a very old variety, for it is recorded that when King Henry IV. made his *entrée* into the town of Nantes he was presented with a basket of these Pears. However, as this occurred in the month of May, it is probable that they were preserved fruit.

As the dessert varieties of Pears are so very far removed from the wild type, it appears to me that they will not generally succeed when grafted on it in the hedges or in uncultivated ground. Pears have also been tentatively grafted on the Hawthorn. The few fruits of these which I have tasted were rather sour for dessert varieties; but in our district, near Nantes, great numbers of perry Pears are grafted on the Thorn.—*Revue Horticole*.

Australian Apples.—I lately asked a market salesman, whose Apple trade is extensive, whether we should be likely in time to receive large importations of this fruit from the Antipodes. His reply was a decided negative, the expenses incurred by so long a transit being so great that in a general way the grower would barely find the balance on the right side. About 500 cases were sent to Covent Garden, each containing about 1½ bushels. These were sold at 18s. per case, which was, of course, a good price. Deducting the expenses, it was calculated that the colonial grower would have a surplus of not more than £10, and unless the Apples can be grown without expense of any kind, this is not a return that is likely to make Australian growers go into the export trade very extensively. So far as quality goes, those best calculated to form an opinion from a commercial point of view do not

complain, the only fault being that of a want comparatively of the crispness which distinguishes the best English Apples grown under favourable conditions. That, however, would be no bar to a ready sale if they are of a bright colour. To bring these Apples over successfully special accommodation is necessary, as they have to be put into a cool chamber that can be kept at about the same temperature throughout the voyage. For this reason small lots cannot be brought over.—J. C. B.

FRUITS UNDER GLASS.

CUCUMBERS.

WHERE Cucumbers are extensively grown and several compartments or pits can be devoted to them, there is nothing like frequent change, as the clearance of plants which have been longest in bearing leads up to thorough cleansing preparatory to a fresh start with clean healthy stock. Fire-heat for the next three or four months is not absolutely necessary, but where bottom-heat is obtained from hot water, the pipes should be well covered with fermenting material composed of sound Oak leaves and well-worked stable manure, which should be kept constantly moist by frequent sprinkling with diluted liquid. Upon a good layer of this material we frequently place single sods of turf as sustaining and intercepting pedestals through which all liquid must filter on its way downward, and stand the pots or boxes upon them, sometimes, but not always, mounding them round with leaves pure and simple, to mitigate the constant labour of giving water—no small matter as we approach the dog days. Fire-heat at all times is an evil; therefore, when it can be dispensed with altogether or largely supplemented by solar influences, the material I have just recommended should be kept constantly on hand for this purpose, as it contains all the most suitable elements of food, and being rich in ammonia, spider and mildew rarely make much headway. In large houses containing pits much wider than are absolutely necessary, compost and labour may be greatly economised by forming sharp narrow longitudinal ridges, or setting two planks on edge 18 in. apart for the reception of the soil. When this plan is adopted a small number of maiden plants placed quite 4 feet apart and trained upon the extension principle cover the trellis quickly, and so long as space is open their manipulation is as simple as the results are satisfactory. As plants intended for trellis training do not require stopping until they have covered two-thirds of the distance from base to ridge, they should be grown along freely from the seeds, which, by the way, may be sown singly in small squares of light turf and kept near the light in a nursing frame until their permanent quarters are ready for them.

Plants put out earlier in the spring and now in bearing will require dressing over at least twice a week, not only to prevent waste of vine, which should never become crowded or entangled, but also to give every leaf full exposure to the sun. Ply the syringe freely to the walls and other surfaces early on fine mornings, but avoid wetting the roof foliage and fruit, and give the plants a thorough bath after the house is closed in the afternoon, when the temperature from solar heat alone may range from 80° to 90° with perfect safety. Fruit of quick growth being sweetest and best, the house should be kept quite close for three or four hours, but night air, whenever it can be admitted, will add greatly to the health, vigour and insect-proof condition of the plants. In course of time these summer plants will require cutting over to give them a fresh start; also they will be the better for a bi-weekly evening washing from the outside, when weak soot or clear sulphur water may be used with advantage. Top-dressing little and often as the roots creep through is an important factor, and so is diluted liquid from the frame-ground tanks, but on no account should solid manure be used, as it encourages worms and fosters a fleeting grossness of foliage and unfruitful vine. Where rich, fibry, mountain turf can be secured, thin consecutive layers of this laid Grass-side downwards will keep the plants in perfect condition for many months, but lacking this, as the majority of Cucumber

growers do, good ordinary loam, corrected with rough charred refuse and plenty of old lime rubble, will be found an excellent substitute.

Pits and frames from which bedding plants have been removed should be well scalded to clear them of green-fly before the plants are put out. A little fresh fermenting material, if at hand, will then be essential to a quick kind growth; when mowings from the lawns, mixed with almost anything of a mild, but bulky nature, will suffice for linings. A good start with clean plants in a clean sweet frame is very important, but should fly put in an appearance, mild fumigation late in the evening and when the foliage is dry must be resorted to. I have a great dread of the fumes from tobacco paper, which, by the way, is not so good as it used to be, but of two evils it is right to choose the least, and this can be secured by the introduction of a light volume of the vapour at short intervals from Bloxham's handy fumigator. When frames are fumigated they should be kept quite close through the night, not otherwise, and syringed very early the following morning. As growth after the first stopping at the fourth leaf proceeds, more good, sound, but not over-rich soil must be added to the hills or ridges, and into this the joints of the vines may be tightly pegged, to take fresh root as they proceed outward to the extremities. When within a foot or so of the sides, stopping will induce lateral growths, and as these will show fruit at every joint, daily manipulation, to prevent waste of strength and an accumulation of useless vine must be practised just before the lights are closed and the plants are syringed over. Here, as in the house, quick growth is the secret of success in the production of clean, straight fruit, which should always be cut young, and this end can be most cheaply and best secured by closing very early, with full sun-heat and an abundance of atmospheric moisture.

MELONS.

To keep up a good supply of young plants, free from checks or spider, a few seeds should be sown once a fortnight, the oldest plants not wanted being as regularly thrown away to make room for the succession. By this method red spider is kept out of the nursing frame at least and vigorous plants are always forthcoming, two very important points in summer culture, now, by the way, as well understood as the pot culture of Tomatoes. As Melon seed from this time forward will germinate in any warm pit or frame, I give preference to the latter, placed upon a solid bed of manure covered with a thick layer of old tan or coal ashes for keeping back steam, and forming a level base for the pots or turves to stand upon. Whether pots or sods are used, the young plants should be transferred to their fruiting pots as soon as they have made one rough leaf, but they need not be put into the fruiting compartment at once, as nothing is easier than growing them for a fortnight in a succession house whilst the crop they are to succeed is ripening. By adopting this plan, and overlapping a fortnight with each set of plants, three crops of fruit can be secured from each compartment in the course of the summer, and then it will not be too late to commence with winter Cucumbers. Small fruiting pots, say 12-inch, are best, as they are quickly filled with roots, when fertility and free-setting, under very ordinary treatment, become a dead certainty. Watering, too, at all times before and after the setting stage can be indulged in with impunity. A good body of fermenting leaves for giving bottom-heat and keeping the atmosphere moist answers best, but some assistance at times, especially when the Melons are setting and ripening, being necessary, the bottoms of the pots resting upon sods of turf should be placed immediately above or within the influence of the hot-water pipes used for giving bottom-heat. If good stiff loam adapted to Roses or Strawberries is corrected with old lime rubble, charcoal, or a dash of crushed bones, and rammed when dry into the clean, well-crooked pots, the plants will make short-jointed growth without the aid of animal manure, the thick, leathery leaves will be fringed with beads of dewdrops on fine mornings, and ventilation being judicious, they will require very little syringing. When thoroughly established

and growing freely in a temperature ranging from a minimum of 70° to a maximum of 90°, night air should be given along the front from 9 p.m. to 6 a.m., when it must be shut off for the vapour bath only, as few varieties will stand morning syringing. If the morning be dull, the house may be kept quite close for some time, but as soon as the mercury begins to rise, airing for the day must be commenced by slightly opening the top ventilators, and in due course those along the front, the great secret being a steady rise until the maximum from 12 till 2 p.m. is reached. On hot, calm days the top and bottom lights may be opened pretty freely, but the wind being strong, the outlet must be small, otherwise the circulation will be converted into a draught and the foliage will suffer. When pot-bound plants come into flower the supply of water need not be greatly reduced, as more is lost than gained by the mistaken practice of reducing them to a flagging condition, especially when a turn of the valve will maintain a bottom-heat of 80°. The atmosphere of the house, however, may be kept somewhat drier, but not one hour longer than the swelling of the young fruit renders prudent. A pair of fruit of uniform size and age is sufficient for each plant to carry to maturity; some leave three, but in the aggregate they do not weigh more than the two, and being less likely to run well together, I give preference to the smaller member. The first watering after the fruit is set should be a continuance of the pure element; the second may be tinged with liquid manure, and so on until full size is reached, when there must be a return to pure water. When managed upon rational principles, Melons never require a stitch of shading, and, provided the foliage can be kept free from spider, one syringing per day, and that in the afternoon during the time the fruit is swelling, will be found ample. When ripening Melons crack it is time to inquire when and how the plants received a check, and why, at some time or other, they have been deprived of a regular supply of water.

Frames.—When plants in hotbed frames have been stopped and fruit-bearing laterals begin to push, it will be necessary to look well to the external linings, also to give one good watering round the extremities of the bed to carry them through the setting period. A sharp top and bottom-heat being imperative, the linings should be well turned and made up back and front alternately, and the better to maintain an even temperature a little extra dry covering should be provided during the time the plants are in flower. When fertilising the female flowers it is a good plan to draw the laterals up above the foliage and there leave them fully exposed to the sun, repeating the operation from day to day until a full crop is secured. Thinning out, pinching, and elevating upon inverted pots will then complete the critical portion of the work; liberal supplies of weak liquid, good syringing, and judicious airing will carry the fruit rapidly forward.

CHERRIES.

When all the fruit has been cleared from the early house, the trees, be they in pots or planted out, must be copiously washed with the hose to free them from accumulations of dust and insects and keep the foliage fresh and healthy. A moderately dry condition of the soil and house generally having been brought about, the walls, floors, and borders must be properly moistened, the quality of the liquid being regulated by the weak or vigorous condition of the trees. Having a long period of summer weather before them, the trees may have all the fresh air that can be admitted for the present, and in due course, the roof being movable, they may be stripped entirely. Summer rains and dew will then refresh the foliage and keep the borders moist and cool, but in the event of a long dry period the hose charged with cold water every night will be of great service. If pot trees require a shift, now is the time to perform this operation. After potting they should be returned to the house and be kept rather moist, but not too close, until the roots have taken to the new compost. They will then be fit for removal to the open air, where, plunged to the rims of the pots in a light airy situation and regularly attended with water, they may remain until

they are again wanted for forcing. Bigarreaus and other late sorts now ripening or approaching that stage must no longer be syringed, otherwise the finest fruit will crack. Moisture in moderation may be given over the walls, floors, and mulching, which, by the way, should be increased by the addition of some dry litter, for the two-fold purpose of keeping in existing moisture and disposing of the demand for more. When the fruit is fully ripe and keeping is the object, a dry, sweet atmosphere with an abundance of ventilation and shade from bright sun will best suit the Cherries and trees. Birds, it must be borne in mind, are terribly destructive in Cherry houses when netting the ventilators is neglected.

PLUMS.

As these do not come on so fast as Cherries, trees started at the same time will still have some weeks' work before them. Indeed, Plums have the virtue of refusing to be hurried, and for this reason, if possible, they should be grown separately from the Cherries. When this cannot be managed, the Cherries should be confined to pots or small tubs, a mode of culture which favours their removal to other quarters to finish off, when the space recently occupied by them will give more breathing room to the Plums. Pot trees will now take unlimited supplies of weak liquid manure, also good top-dressing, and they may be syringed twice a day; the first time soon after six a.m., and again when the house is shut up about four p.m. Soft water only here, as in the Peach house, answers best, as it is free from sediment, and, provided every part of the fruit is made quite wet, it does not spot or damage the delicate bloom. No one, it is hardly necessary to say, drives the water into a fruit-bearing tree as he would into a colony of red spider, but rather he allows it to descend as from the clouds, and in this way the spotting which rewards the nervous hand is prevented. All growths upon pot and trained trees must be kept well pinched, and leading shoots in the latter tied in to the trellis. If green-fly is persistent, mild smoking when the trees are dry will settle it, but black-fly, which hermetically conceals itself in the curled leaves, can only be destroyed by repeated dipping in rather strong tobacco water. The temperature in the Plum house may now range from 56° by night to 70° by day, and a few degrees higher under full ventilation. The minimum just named is low, if not lower than the external night air, but I have fixed upon this figure to show that a suitable temperature with full air, a very important matter, can be maintained without the aid of much fire heat. When early Plums begin to ripen the pots should be placed upon kerbs or borders in dry, light, airy houses where the fruit will colour more quickly, and carry a heavier bloom than can be secured under moister treatment.

W. C.

Roadside plantations of fruit trees.—One of our correspondents, M. Joseph Sommen, gardener at Vandervange, near Saarlouis, informs us that in that district all the roadsides are planted with cider varieties of fruit trees, which are in a thriving condition. He also adds that, very properly, only such varieties of Apples and Pears as form a pyramidal head are planted, as these give sufficient shade without being the cause of an excess of moisture, which would have been detrimental to the roadway.—*Revue Horticole.*

Apple Waltham Abbey Seedling.—I merely wrote my experience of this variety of Apple on the dwarfing stock, and deduced from that experience that it was unsuitable for planting to fruit in a young state. The trees were twenty years old when I left Loxford, and never bore freely. This statement "A. D." terms "a singularly odd objection." There are plenty of far better varieties of Apple than Waltham Abbey Seedling that will not only bear freely when old, but will also do so in a young state. I stated in a previous number that we had three trees of Winter Peach Apple each about ten years old, and that not one had a blossom on them, while all the other trees blossomed freely. I take it that these notes are useful as a guide to others, and may also be the means of eliciting useful information from other cultivators for or against. In our gardens we want fruit trees that are generally

good and free-bearing in all classes of soil, and that will bear freely in quite a young state as well as when they are half a century old. The list of varieties in every fruit catalogue is numerous enough—far too numerous—and a dozen good free-bearing kinds, six of a sort, are better than seventy-two varieties, half of which may be shy bearers, or of indifferent quality. I may say that the blossoms have not set well this year.—J. DOUGLAS.

ROSE GARDEN.

T. W. GIRDLESTONE.

ROSE EUGÉNIE VERDIER.

EUGÉNIE VERDIER (Guillot fil, 1869) is one of those Roses which has been unfortunate enough to

has the erect habit of growth, smooth wood, and handsome foliage characteristic of the well-known type of a now numerous family, and it also follows its parent in refusing to thrive as a cut-back on Manetti. It is a thorough autumnal, either as a maiden or as a cut-back, and very often late in the season the blooms are exceptionally beautiful in colour, being of a deeper shade of rose throughout than in the early summer, when the margins of the petals are generally paler than the centre of the flower. The flowers are large, well formed, and more globular than those of Marie Finger, as the engraving well shows, and though it has often been said that Marie Finger is the better grower, there is no doubt about Eugénie

Victor Verdier family this stock is fatal; so that those who would grow the beautiful Eugénie Verdier to perfection should secure plants budded on seedling Briers.

The colour of this Rose is one in which some strong-growing additions would be very welcome. A good many varieties have appeared since 1869, including sports from Countess of Oxford, which, however, although vigorous, lack refinement of form; but, with the exception of Marie Finger, few have been of the highest value, or any advance upon the earliest raised Eugénie Verdier, whose own sport, Caroline Swailes, different in being distinctly paler in colour, is at once the most recent and among the prettiest.

It seems as if this bright rose colour was only to be obtained through the influence of the Teas, which of course is likely to involve a lack of hardiness; but this is a difficulty which the skill and care of raisers will, no doubt, be able eventually to overcome as soon as they turn their serious attention to the elaboration of pure and brilliant rose colours.

Where Roses are budded annually, it is always worth while to bud a few stocks with Eugénie Verdier, as the amount of blooms furnished by maiden plants (even on Manetti) throughout the autumn, especially if a cool one, is in excess of that afforded by almost every other variety, except one or two of the freest Teas.

Thus it will be seen that while maiden plants of Eugénie Verdier on dwarf stocks provide an invaluable supply of cut flowers at a time of year when coloured Roses are getting scarce, good cut-backs may be had and will endure if only they are worked on seedling Brier, and these will afford the most beautiful and perfectly formed bright shaded, rose-coloured flowers in the early summer.

THE RAIN AND THE ROSES.

SELDOM have the rains proved more welcome, or more wholly and only beneficial to the Roses than this season. The Roses were not only late, but a great many of them broke weakly and made very slow progress afterwards. Just in this state of doubt—when the most sanguine could hardly prophesy with certainty whether the shoots should prove sufficiently strong to produce perfect flowers—a succession of timely rains has done much indeed to pull the Rose shows up to strength as well as to time. As to the latter, should genial weather succeed the showers and last for a reasonable time, there will still be more Roses in June than most rosarians anticipated a fortnight since. Then it seemed doubtful if the June fixtures could be allowed to stand. Now with the aid of the Teas, and such semi-Teas as La France and a few others, many show stands may be made up in June. But the sudden development of vigour on the heels of the rains is even more important than the whipping them up to something approaching normal time. It could hardly be that Rose roots were too dry, unless in abnormally dry situations, though we have had less rain this winter than for a period of a dozen or twenty years. But assuredly as the rain sank into the ground there was almost an immediate increase of vigour and strength perceptible in Rose trees and bushes, more especially and immediately in the case of dwarfs. One could almost see the Roses grow, not only in length, but in vigour.

The rains also came in time to check the incursions of aphides, rust and mildew. It was too late to moderate the plague of maggots, which have been very troublesome; but since the rain, rust and mildew, that had made an appearance, seem either to have been washed off or out-grown. It matters little which so long as we are rid for a time at least of those three troublesome pests. Were a fourth and more disastrous than either—the east wind—also gone for good till the time of Roses be over, we should probably have a thoroughly good Rose see-



Rose Eugénie Verdier.

have a "double," and which therefore has of late years run considerable risk of going altogether out of cultivation. There is no doubt that Eugénie Verdier and Marie Finger are "too much alike" to be easily distinguishable under certain conditions; but they are not identical, and in a season in which one is not available, it not unfrequently happens that the other is ready. Eugénie Verdier was the first of those delightful bright rose-coloured varieties (of which there are still too few) in which there is no lilac or bluish shade, for it was sent out some years before Marie Finger. Raised from Victor Verdier, it

Verdier thriving exceedingly well on the seedling Brier.

If only all the Victor Verdier Roses were cultivated on no other stock than the seedling Brier, but little would be heard of their delicacy or lack of constitution. Six or seven-year-old plants on seedling Brier are still as good as in their first season, while innumerable plants on Manetti that have been planted in their immediate neighbourhood at various times since have either disappeared or are moribund.

As a general rule, all smooth-wooded Roses fail as cut-backs on Manetti, but to all the

son, albeit later and probably a little weaker, and therefore the Rose blooms smaller than usual.

So far as the harvest of early Tea Roses, such as *Maréchal Niel*, *Gloire de Dijon*, *Rubens*, *Safrano*, *Marie Van Houtte*, and other early kinds is concerned, it seems to be about the usual character. The harvest of old-fashioned Roses, such as *Mme. Plantier*, *Coupe d'Hébé*, *Charles Lawson*, *Banksian*, *Ayrshire*, *Boursault*, and other climbing sorts, *Austrian Briers*, *Chinas*, *Noisettes*, and *Bourbons*, threatens to be scantier than an average one.

Teas at present promise to be the Rose crop of the season. The first shoots promise more and more Roses every day, and these develop an amount of vigour that is already breaking into the promise of second shows far ahead of the first.

With more and yet more rain, and with a few weeks' genial weather afterwards, we shall probably have an average bloom on the later perpetuals, and may have also on these a better autumnal than summer harvest of fragrance and beauty. D. T. F.

Scotch Roses from Waltham Cross.—Messrs. Wm. Paul and Son, of Waltham Cross, have sent us bunches of some of the best varieties of these delightful Roses that are of delicate colours and fragrance. *Transparens* we like for its lovely blush tint; *Eugeneus* is a brilliant Rose, and scrambling over a trellis or arbour must be exceptionally gay; *Lass o' Gowrie* is a variety with a salmon tinge; *Neptune*, creamy white, full in the bud, and sweet. The double red *Duchess of Bedford* is of a rich carmine-rose colour, very free and handsome; and the double white *Scotch* is of the purest white and a most charming variety, the bud full and graceful; the yellow *Scotch* is more of a white, but the rich yellow anthers give it colour; *Scotia*, pink; *Eurisides*, bright crimson; *Dido*, pink; and *Diogenes* were also in the gathering. We have in a good selection a considerable variety of soft colours, and a scent as delicate as that of the English wild Rose of the hedgerow. The Scotch Roses deserve to be planted in every garden where there is room for them to grow naturally, as it is then that we have sheets of flowers that when cut and bunched loosely look well in ordinary jars and bowls.

SHORT NOTES.—ROSES.

The variegated *Rosa microphylla* is a pretty little dwarf Rose with variegated leaves and a rosy coloured flower.

Madame Chedane Guinoisseau is unsurpassed among the Tea Roses for bouquets and button-holes, the long clean yellow buds adapting themselves admirably to such employment.

Rose Persian Yellow is very bright, the flowers glowing yellow and semi-double. Both this and *Harrisoni* are in bloom in the Coombe Wood nursery of Messrs. Veitch. They are just the varieties for a mass of colour.

Fortune's Yellow is undoubtedly the glory of the Rose garden at the present time, the myriad red and gold flowers being unique, not only in colour, but also in their exquisite form and fragrance.

Rosa sinica.—At the Royal Horticultural Society's meeting, on the 12th inst., Messrs. Paul and Son, of Cheshunt, exhibited a bunch of cut blooms of this lovely large white single Rose, which deserves a conspicuous position on a south wall.

Laurette Messimy (Guillot, 1887).—This new China Rose is a pretty variety with flowers almost of the colour of that prettiest of Roses, *Camoens*, viz., bright glowing rose with yellow base. The plant appears very vigorous and free blooming.

Amazona is another yellow Tea Rose whose graceful yellow buds, often sun-painted externally with bright red, make charming button-hole bouquets. The blooms of *Amazona*, however, may be easily grown large enough for exhibition; it is not merely a bud Rose.

Socrate.—The rich apricot and deep rose-shaded flowers of this Tea Rose are already expanded. Were they far less attractive than is the case, the variety would be worth growing for the sake of its powerful characteristic fragrance, which is hardly surpassed among Roses, certainly not among the Teas.

A seedling of *Rosa multiflora* now blooming for the first time has flowers far larger than those of the type, and in size not unlike those of the new variety *grandiflora*, but of a pale buff-yellow tint. The colour is deeper in the buds, and on first expanding becomes almost white as the flowers fade.

Madame Etienne (Bernaix, 1886).—This new Tea Rose is now blooming, and appears very promis-

ing. The flower is large and very full, with good petals of a bright fresh rosy colour, shading to almost white at the base, while it possesses a characteristic Tea fragrance, and is eminently distinct from other Tea-scented Roses.

The yellowest of all Roses.—The yellow *Austrian Brier*, so seldom seen, although it deserves to be in every garden, is now in great beauty. Large bushes of it covered with blooms of the richest possible yellow are most striking in appearance, and as the plant requires absolutely nothing in the way of culture, it is most astonishing that it should be so undeservedly neglected.

Max Singer, the Rose raised by Lacharme from the crossing of *Rosa multiflora* and *General Jacqueminot*, is fulfilling its promise of being a valuable red climbing Rose. It was good last year; this year it is better. The flowers are very full, well formed, and of tolerable size, produced in clusters (not singly, as at first described by the raiser), of a bright cherry-red colour and most abundant.

Roses at a railway station.—The good old *Gloire de Dijon* was in flower on the wall at East Grinstead station during the first week in June, being much earlier than in many district gardens. A station platform perfumed with Roses seems to be the ideal of Mr. Mitchell, who, with plenty of work and great responsibility, somehow manages to realise his ideal, and adds to the pleasure of the many who use this station.—A. H.

Great bushes of *Rosa punicea* (miscalled the "copper" *Austrian Brier*) are now ablaze with their vermilion flowers, lighting up the whole garden. It was satisfactory to see that Mr. F. Ross staged this gorgeous Rose beside his bunches of *Fortune's Yellow* at the Royal Horticultural Society's meeting on the 12th inst.; and it is to be hoped that growers will not relax their efforts to make these unique *Austrian Briers* better known.

Rose Maréchal Niel.—I am sending a few blooms of *Maréchal Niel* Rose cut from a tree budded on a standard *Brier*, and which is growing at the base of a south wall. The plant has borne flowers like those sent for six years. The foliage suffered much some time since from winds which have caused it to be very poor. The plant has shown slight signs of canker, owing to which it has not made much growth the last two or three years. Still it continues to flower freely.—E. M.

*** Magnificent blooms, of large size and of a rich golden colour.—Ed.

—The growth and promise of bloom of this on multiflora (*polyantha*) stocks is finer this year than in the case of plants on *Brier* or on their own roots.—W.

Rose Princess Beatrice.—Mr. H. Bennett, of the Pedigree Rose Nursery, Shepperton, has sent us flowers of one of the most charming Tea varieties he has yet raised. We have seen it several times this season, always in the best condition, and as lovely a flower when fresh and half-expanded as one could wish for. Its beautiful shell-like petals are of the very palest cream-yellow, becoming deeper in the centre, where there is a bright, shining rose-salmon tint to the margin, this colour disappearing almost entirely with age. Its full, yet graceful contour, without a trace of coarseness, and delicate colours should give a place amongst the finest of fragrant Tea Roses. Mr. Bennett remarks that it was sent out last June, and the flowers were cut from plants in the open ground that have had no protection during winter.

Rose Climbing Devoniensis.—I was rather surprised to find the above in a list of nine Roses, five of which were singles, in bloom on June 1 this season. *Maréchal Niel*, *Rubens*, and *Souvenir d'un Ami* are decidedly early bloomers; but with us *Devoniensis* pure is seldom among the first lot, while the climbing variety is mostly considerably later than the type. By the way, on the whole, the type is considerably the best, though we once had the climbing variety clothing a hothouse chimney with a prodigality of beauty and fragrance perhaps seldom equalled by this variety. As the heat killed the Rose in the end, it may be taken for granted that this particular one was in advance of most others, though it was mostly ten days or a fortnight behind *Maréchal Niel* or *Safrano* on a south wall without any artificial warmth. The *Maréchal* is considerably later than usual this season, and the buds are, on the whole, smaller, and present a more weather-

beaten, rugged aspect. There is also a greater disparity of size among the buds than usual. But this last is a great merit of this splendid Rose, as much of the disparity arises from the different ages of the buds. Thus it comes about that the *Maréchal Niel* affords a longer season of bloom from the same plant than any other Rose, and by having a succession of plants on different aspects and in different forms, it is possible to cut this golden glory Rose in the open air from May to November.—D. T. F.

STOVE AND GREENHOUSE.

EARLY-FLOWERED LILIES.

WHERE Lilies are grown under glass it is months since those two beautiful kinds, the *Madonna Lily* (*L. candidum*) and *L. Harrisii*, unfolded their earliest blossoms, while the first that expanded here in the open ground was the greenish yellow *L. pyrenaicum*. This species, which is often sold under the name of *L. pomponium*, is a strong, sturdy growing form, the blossoms, however, being no larger than those of the common *Martagon*, and of much the same shape. When established in the open ground this Lily makes a handsome clump, but on no account must it be taken indoors, as the heavy disagreeable smell of the flowers becomes in a confined atmosphere quite unbearable. This character is also very marked in some near allies of the Pyrenean Lily, especially in the common *Martagon* and its varieties, in *L. pomponium*, and in *L. monadelphum*. For this reason they should not be selected for pot culture; indeed, they are, apart from their smell, ill-suited for such treatment, as they need to become established before they will bloom well. For this reason little reliance can be placed upon the first season's bloom from these Lilies, for though a few good spikes are occasionally pushed up, generally speaking, the flower-stems make but little headway, as they usually die down after having attained a height of a few inches. The best way to succeed with these Lilies is to plant them in such a manner as to allow of their remaining several years in the same position, and not to be discouraged by the small returns in the shape of flowers the first season, as in all probability by the following year the plants will begin to show their true character and will gain in strength each season. One of the finest of the crimson-flowered Turk's-cap Lilies is the *Siberian L. tenuifolium*, which is also one of the earliest to bloom. A class of early-flowering Lilies that are of easy cultivation and make a grand display when in bloom are the different varieties of *L. umbellatum* or *davuricum*, for they are classed sometimes under one name and sometimes under the other. They are all characterised by a stout, sturdy stem, thickly furnished with leaves, and terminated by an umbel of cup shaped blossoms, the prevailing colour among them being a kind of orange-red. Some of the forms of this Lily attain a greater height than others, but, generally speaking, a well-developed specimen will reach a yard in height. These varieties of *L. umbellatum* are largely grown by the Dutch and imported in considerable numbers into this country, for they find a ready sale amongst those who are called upon to keep up a succession of flowering plants at all seasons. To such they are certainly a good investment, as they are cheap, and when received in the autumn the bulbs can be potted, placed in a bed, and covered with coal ashes or some such material until they start into growth early in the spring. In potting it is a very good plan to put three bulbs in a pot (one about 6 inches in diameter being sufficient), as they then form very effective specimens when in

bloom. After flowering, by far the better plan is to plant them in the open ground without disturbing the roots in any way, and if not required for flowering again they may be allowed to remain, when they soon form good clumps. There are a great number of varieties to be met with in the various lists, but the nomenclature is in such a confused state that little reliance can be placed upon the names, as each dealer seems to have his own ideas upon this matter. One of the finest kinds is Incomparable, which has a very deep velvety crimson flower. Rather later in opening than *L. umbellatum* is the old orange Lily (*L. croceum*), and a very showy border plant it is. This Lily is of good constitution, and may be often seen in the shape of healthy clumps far from favourably situated in the smoke and dirt of London. A Lily that comes in about the same time as croceum is the dwarf-growing Japanese *L. elegans*, or Thunbergianum and its numerous varieties, some of which are very distinct from each other. A few well-marked forms are—Prince of Orange, orange-yellow; fulgens, glowing crimson; cruentum, the deepest coloured of all, being very deep blackish crimson stained with yet a darker tint; bicolor, a kind of orange-apricot; staminosum, semi-double flowers of a rich crimson colour; and venustum, a distinct late-flowering kind with apricot-coloured flowers. A little delicate group of these erect-flowered early-blooming Lilies is represented by *L. concolor*, *L. Coridion*, and *L. pulchellum*, of which the last is the most showy, and a very pretty Lily it is. This kind does not exceed a foot in height, while the flowers are of a rich sealing-wax crimson. *L. pulchellum* flowers rather earlier than either *L. concolor* or *L. Coridion*, and the bulbs are more robust than those of the other two. In mentioning the early-flowering members of the Turk's-cap Lily group, I omitted to note the Japanese *L. Hansoni*, a most beautiful Lily, and one worthy of more extended cultivation. It is, however, rather expensive at the present time. *L. Hansoni* has flowers about the size of those of the common Martagon, but of a beautiful clear yellow, spotted with brownish crimson. Besides this, the texture of the petals is thicker than in any other Lily, seeming, as they do, to be almost cut out of wax. It differs also from Martagon in being without the heavy disagreeable smell; and, besides this, it does not resent moving to the same extent as the others of its class, for bulbs of *L. Hansoni* imported from Japan will flower beautifully the first season. H. P.

Good Ivy-leaved Pelargoniums.—The carefully compiled list of double-flowered Ivy-leaved Pelargoniums given on page 540 undoubtedly represents the finest varieties of this now popular class of plants. Still, to it I should be inclined to make two additions, viz, Furstin Josephine Von Hohenzollern, heavily handicapped as it is by such a ridiculous name. This variety has very double flowers of a scarlet-crimson shade, and is by many much admired, for it is, as far as I know, the deepest-coloured flower among Ivy-leaved Pelargoniums. The other, Souvenir de Charles Turner, has a flower of a most beautiful shade of rose-pink and of enormous size. This last partakes rather more of the zonal character in habit and foliage than the others; therefore, though eminently fitted for growing in pots, it is less suited for window boxes, baskets, &c.—H. P.

Gloxinias in the Chelsea Nursery.—The Gloxinias in the nursery of Messrs. Veitch are just now in great beauty, and it can be seen at a glance that the strain is one to be commended, owing to the great variation in the colours of the flowers, their massiveness, and the excellent habit of the plants. There are a great many seedlings, but also several named varieties, a few of which are the following: Vulcan, deep velvety crimson, shading to

lilac-purple; Cygnet, large creamy white, margined with lilac; Firefly, deep crimson, but small; Rajah, deep purple-violet, fine; and The Moor, which is of a darker shade; Estelle is a variety spotted with purple on a white ground; and Sunbeam, crimson-scarlet, Orestes, crimson-scarlet, shading to a lighter tint, are also very rich. We are obtaining strains of Gloxinias now that have a robust habit, a free display of flowers, and colours of all shades and depths.

Zonal Pelargonium Apple Blossom.—There is something very pleasing about this variety, the flowers really bearing a sufficient resemblance to those of the Apple to warrant the name. It is a compact-growing kind, and blooms with much freedom. Like the double and semi-double-flowered kinds generally, two-year-old plants seem to bloom best. Now is a good time to put in cuttings of the double kinds. If grown in the open they will make fine plants for any purpose the following year, but especially for blooming under glass in spring.—J. C. B.

Brownea Ariza.—The following is a clipping from a London paper (*The People*) of June 10:—

If human beings still lived to the age of Methusaleh, the Brownea Ariza would be a delightful plant to grow. This Palm only blossoms once in fifty years, and the flowers fade within 48 hours, so that the happy possessor does not get much return for his outlay. But it is a proud thing to be the owner of a Brownea Ariza; you fix your dates by its blooming, even as turrits fix theirs by great racing events. Moreover, the Palm attains great size, and is believed to live for several hundred years. Clearly it was intended for the Methusaleh age.

However witty the writer may consider the paragraph, there is not much truth in it, and, before setting up as an authority upon Palms, it would have been well to have taken a few lessons before coming into print to mislead the public. This Brownea is not a Palm, but a member of the great family of Pea Flowers (*Leguminosæ*), belonging to the section which has regular corollas. It forms a tree from 30 feet to 40 feet high, bearing leaves upward of a foot long, which have some six or eight pairs of leaflets; the flowers are scarlet, borne in large heads, somewhat resembling the trusses of a Rhododendron. It is a native of the forests of Bogota at some 1400 feet elevation, and was first flowered in cultivation by Dr. Moore, of the Botanic Gardens, Dublin, who sent a head of flower in 1879 to Sir Joseph Hooker, to be figured in the *Botanical Magazine*, with the information that his plant was then 14 feet high, and flowered profusely every year. There are several other species of the genus Brownea in cultivation, such as *B. grandiceps*, *coccinea*, *Birschelli*, and *macrocarpa*, all beautiful stove shrubs. Brownea *macrophylla* was figured in THE GARDEN on May 31, 1879. Where sufficient space exists to accommodate these plants, they should be more frequently grown. Ariza is the vernacular name of the plant, but I am ignorant of its meaning in English.—G.

SHORT NOTES.—STOVE AND GREENHOUSE.

Paulinia thalictrifolia is a climber with Maiden-hair-like leaves of great beauty and elegance. It would make a pleasing feature in the stove.

Lobelia Miss Hope is used as a basket plant at Kew. It is a trailing, elegant variety, the dangling stems covered with large pure white flowers. It should be often seen.

Anthurium Scherzerianum is a feature in the nursery of Messrs. Veitch at Chelsea. The plants are in robust health, and a mass of the crimson spathes that are of large size and very bright.

Hydrangea paniculata is a first-rate pot plant, as one can see from the fine specimens of it in Covent Garden. In the Coombe Wood Nursery it is grown as a standard. The plants are simply allowed to grow on.

Salpiglossis in pots.—I lately saw some plants of *S. sinuata* growing in pots, and they were when in flower very attractive. The seed had been sown in a rich compost in the autumn, 4-inch pots being employed. The plants were wintered in a cool house, and were from 1 foot to 2 feet high, and self-supporting.—S.

Schizanthus retusus.—The varieties of *S. pinnatus* are amongst the most beautiful of greenhouse annuals, as the growth is free and the flowers brightly coloured and pencilled. *S. retusus*, which was recently in bloom in the Chelsea Nursery of Messrs. Veitch, is just as elegant, but the flower is of the brightest car-

mine, with the lip of a yellow colour. Unfortunately, the display is fleeting. It is hard to account for the general neglect of the *Schizanthus*.

Caladiums at Maida Vale.—The Caladiums seem to be in favour again, and certainly have claims upon the gardener as foliage plants of the highest order. In the Maida Vale Nursery of Messrs. Hooper & Co. there is a good selection of varieties, most of which are brightly and variously coloured. The following are worth describing: Baraquinii, dull red shades with very light green; Candida, white, veined with green, keeps the colour well; Charlemagne, dull red and deep veins; M. A. Hardy, splendid leaves, rich red, mottled green and white; Mme. Lemoine, pale yellowish green foliage, pinkish centre; Perle de Brésil, delicate pink tint in the leaves, veined with green; Aurora, bright red with a broad margin of yellow. There were also a number of the useful, bright-leaved *C. argyrites*.

WORK IN PLANT HOUSES.

GREENHOUSE.—**KALOSANTHES.**—Coming in, as these plants do, at a time when the greater portion of the occupants of the greenhouse have done flowering, they are doubly valuable. They are easily grown, and are certain bloomers if they are rightly treated during the year previous to their flowering. The principal thing is to get the growth thoroughly matured; this can only be done by lengthened exposure out of doors. The plants should be stood in an open situation, where they will be fully exposed to the sun from midsummer until the end of September. This is necessary for either large or small specimens, even when grown in the best constructed houses, where there is an abundance of light and without the use of any kind of shading material, otherwise only a partial crop of flowers will be produced. If the plants are small, it will be better to plunge the pots in coal ashes, as then the soil will not dry so quickly. Attention must be given to keeping them well supplied with water, for if the roots are allowed to get too dry the lower leaves are liable to suffer.

ERICA DEPRESSA.—Although this species, in common with most other Heaths, is now comparatively little known, still it has few equals for greenhouse decoration, as its bright yellow flowers will last in good condition for two months. Like the *Kalosantes*, it must have a long season of exposure out of doors under the full influence of sun and air. The plants should at once be stood out, and see that the sides of the pots are protected from the sun. With fair treatment this Heath rarely gets out of condition, so that it is no unusual thing to meet with specimens in full vigour that are from twenty to thirty years old. Young plants that are not yet large enough to bloom are as well kept under glass until later on in summer, as in this way they make more growth.

ERICAS.—**GENERAL ATTENTION.**—Most of the varieties of Heaths are as well under glass for some weeks yet, as they do not require so long a process to get their wood matured as *E. depressa*. Small plants should now be stood on fine coal ashes, sand, or shell gravel, which should be kept a little damp, not wet. In this way they will grow better, and there will be less danger of their going off suddenly in the manner that Heaths are somewhat liable to than if placed on dry shelves or stages. Any plants that are under-potted and have the soil full of roots require closer attention in the matter of water during this and the following months than at any other time of the year, as in the case of all the early-flowering kinds. They will now be in full growth to an extent that taxes the roots severely; consequently if allowed to get too dry they are likely to suffer. Plants of the hard-wooded varieties that were repotted early in spring should by this time be growing freely, and will be in a condition to take more water than it was safe to give them for some weeks after they were moved, but when they have a body of new soil not yet fully occupied by the roots they will not require watering so often as when the whole mass of soil is closely packed with active fibres.

SOFT-WOODED WINTER-FLOWERING ERICAS.—Plants that were cut back after blooming and sub-

sequently potted will now be better in low pits or frames where they can have the lights drawn off them in the daytime, tilting them during the night so as to admit plenty of air. In a short time they will need to be exposed altogether.

EPACRIS.—The early-flowering varieties of *Epacris* that are intended to bloom in the autumn and winter should now be stood out of doors. As soon as fully exposed they begin to set their flower-buds on the young growth already made, and as the shoots extend up to the autumn buds will be formed. The large growing kinds that flower later, such as the different varieties *grandiflora*, *miniata*, *Eclipse*, &c., had better be kept under glass for a few weeks longer, as if required to flower late in spring they will come in before the time they are wanted if put out of doors too soon in the summer, for immediately they are in the open air they will commence to set their buds. Plants that have flowered late and afterwards had their shoots shortened will by this time have begun to make new growth, and if they require repotting may now be shifted. In potting use nothing but the best brown fibrous peat of medium texture, neither too light nor too heavy. The black hard peat sometimes advised to be used for these and other hard-wooded plants is to be avoided, except in the case of a few of the slowest growing, hardest-wooded *Heaths*. Peat of the description advised usually contains little or no sand and should have proportionately more added to it. In potting, ram the soil quite firmly; this is the more necessary if the peat happens to be light and open, as if left at all loose in the pots it will hold more water than the roots require. Though *Epacris*, when well managed, make much more growth annually than most kinds of hard-wooded plants, they do not require so much root room as many species; but when large specimens are confined to comparatively small spots they must be assisted during the time they are making their growth with manure in some form. Syringe the plants overhead each afternoon, for though *Epacris* are so little troubled with insects that water overhead is not necessary to keep these pests in check, it yet so far benefits the growth that it is advisable to syringe them.

EPIPHYLLUMS.—Those that bloomed early will now be done growing. They should be stood where they will get all the sun that can be afforded them, as the better the shoots are ripened the better they may be expected to flower. Plants of the large-flowered kinds that have bloomed should now be encouraged to make growth. They ought if possible to be kept somewhat warmer for a few weeks than ordinary greenhouse stock; at the same time they should be stood well up to the glass and not have any shade over them. Their thick, fleshy stems require all the direct sunlight that can be given them in our cloudy climate. On this depends much of their ability to bloom, as unless the growth is well ripened the flowers will not be plentiful. This state can only be secured by the plants being placed under the most favourable conditions during the time that their growth is being formed. No amount of exposure and sun-roasting after the growth is completed will make up for the plants having insufficient light whilst growth is going on.

CYTISUS.—Large and medium-sized examples of *Cytisus*, that after flowering early were cut in, and in the case of such as required it were repotted, will now have made a considerable amount of growth. These may be turned out of doors shortly, as they are naturally free growers and will keep on extending their shoots up to the end of summer in the open air. By giving them a long season out of doors their growth will get better ripened, so as to enable the plants to produce more flowers. Young plants that are intended to bloom for the first time next winter had better be kept under glass for some weeks, during which time they should be stood in a house or pit that will afford them plenty of light, with only a thin shade over them in bright weather. In all cases when the pots are full of roots liquid manure may be given.

ACACIAS.—The different sorts of *Acacia* that are grown in pots for winter flowering, including the useful *A. armata*, may, where a fair amount of

growth has been made, be now stood out of doors. This kind requires its wood to be well matured to induce it to bloom freely. *A. Drummondii* is another desirable sort now seldom met with, but nevertheless an effective and easily grown plant. It may be either forced so as to have it in flower during winter, or it will bloom in a greenhouse about April. All the above plants are better for being stood at the north side of a wall, the shady side of trees, or a tall hedge for a few days before being exposed to the full force of the sun, which if this precaution is not taken often injures the leaves.

STOVE.—GESNERAS.—The summer-flowering sorts of *Gesnera*, of which *G. Cooperi* may be taken as an example, will make a second growth after they have produced the first crop of flowers, which will appear towards the end of summer. But to induce the plants to do this they must not be stood where they will get chilled during the time the first set of flowers is open. As soon as the second growth begins to move manure water should be given, and this is necessary to help the roots which will have exhausted considerably the soil in which they were potted before starting them into growth. The easy culture and profuse flowering habit of the *Gesneras*, coupled with the little room they occupy, make them well worthy the attention of plant growers.

WINTER-FLOWERING GESNERAS.—Plants of the winter-flowering *Gesneras* should now have all necessary attention. Give more room as the roots fill the soil in the pots they are already in, yet in shifting them it is well to bear in mind that the plants when in bloom look best in the shape of small specimens with from one to three stems each. Much may be done to give the requisite vigour by the use of weak manure water given frequently when the pots have got fairly filled with roots. A close look-out requires to be kept in seeing that mealy bug and thrips are not allowed to get established on them, especially in the case of the tinted-leaved sorts, as the insects if allowed to make any way upon them quickly destroy the beautiful markings of the leaves, from the hairy glands of which it is difficult to remove the pests. These *Gesneras* are particularly effective when stood whilst flowering amongst *Orchids* that are in bloom, along with *Adiantums* and other suitable Ferns. The flowers and the foliage of the *Gesneras* afford an agreeable contrast to those of the *Orchids*. T. B.

TIFFANY SHEDS.

THIS is the name given by nurserymen to temporary erections covered with tiffany canvas, or any material that will serve as a screen from the great heat of the sun, whilst not excluding light overmuch. For newly-transplanted hardy seedling Ferns that are benefited by shelter for a time from a scorching sun, and for propagating hardy shrubs and trees from cuttings, these tiffany sheds are found very serviceable. For hardening off grafted plants that have been "worked" under glass, and as a protection for a time to hardy things that have been in warmth for supplying cuttings, they are equally valuable; indeed, it would be difficult to enumerate the use to which these canvas-covered sheds can be put. There are many things grown in pots that are very much improved by getting an extra allowance of pure air for a month or two after growth is completed. They cannot, however, bear hot sun and drying winds, so that in many gardens it is difficult to find suitable situations for them in the open.

A "tiffany shed," if but a small one, would be found a great help in every garden where pot plants are grown. Plants that have been forced and have to go from cosy quarters into the open would thus be spared the hard trials that they have to undergo. *Spiræas*, *Lily of the Valley*, *Christmas Roses*, *Dentzias*, *Azalea mollis*, and the many hardy things that are brought along early in the year often get no better treatment after blooming than to be thrust away under trees or put at the foot of a wall. The check they thus receive they do not recover from for a couple of years; indeed, after a fortnight's exposure in this way they are often fit for

nothing but the rubbish heap. The quantity of bulbous flowers that is annually ruined in this way must be enormous. For *Hyacinths*, *Tulips*, *Lilies of the Valley*, *Solomon's Seal*, and similar things there are always uses after they have done good work indoors. If they can be saved from the blighting influences of our English spring, they will soon recover and come in well later on to supply cut bloom. Frames cannot often be spared to shelter them, but a tiffany shed can be erected so cheaply, that there is no excuse for exposing tender things in the way that is often done. J. C. B.

GARDEN FLORA.

PLATE 654.

ARUM LILIES (RICHARDIAS).

(WITH A COLOURED PLATE OF *R. ÆTHIOPICA*.)

THESE plants, like the majority of the *Aroid* family, are indebted for their beauty to the spathe which surrounds their floral organs, and not to the flowers themselves, and this is one of the reasons that enables them to continue in full beauty for such a lengthened period. *R. æthiopica*, the subject of our present illustration, although an inhabitant of our gardens in this country for upwards of 150 years, is, at the present time, a more popular plant than ever it has previously been, the striking contrast of its rich deep green leaves, with the snowy spathe, and the rich yellow spadix which supports the flowers, rendering it very pleasing and elegant. This, in conjunction with the ease with which it may be grown into grand specimens, renders it always welcome, and the plant is eagerly sought after and held in great esteem by everyone. Even the cottager, with no glass accommodation other than the window of a sitting-room, can indulge in the luxury of this African beauty. It is popularly known as the *Arum Lily*, *Trumpet Lily*, *Nile Lily*, &c., all of which are names referring to its spathe, and all are characteristic, although the plant is in no way related to the Order *Liliaceæ*.

The present is an excellent time to repot and to divide the plants if necessary. I find them produce the largest spathes when confined to a single stem. They may be grown in small pots, and in this state they are best suited for all purposes of indoor decoration. However, where larger and more massive specimens are required, they should be grown in the open air during the summer months, in trenches similar to those prepared for the growth of *Celery*, but the sides will not require to be earthed up round them, the object being to provide a receptacle to hold water. The bottom of these trenches should be filled in with rich stiff loam and rotten manure. An abundant supply of water is necessary during the period of growth, while in addition a thorough soaking of liquid manure will be highly beneficial if applied about once a week. Treated thus, the plants will make strong growths, and may be lifted about the middle of September, and if the loam used has been slightly clayey, they may be cut out to fit the pots they are intended to flower in. After potting keep the plants in a shady place until they have recovered from the removal. If there is no convenience for the planting-out system, the plants should be grown in the open air in pots, shaking them from the old soil when they are dormant and repotting them into the compost recommended above. Select some sheltered spot in which to grow them, and always bear in mind

* Drawn for THE GARDEN in Messrs. Cannell's nursery at Swanley by H. G. Moon, January 25, 1888, and lithographed and printed by G. Severeys.



ARUM LILY (RICHARDIA ÆTHIOPICA)

that as pot plants they will require a greater amount of attention in watering than when planted in the open ground. These Arums also thrive well when grown in water, but it must be soft, for if the water is what gardeners call hard, the plants do not thrive. Green-fly, which are very fond of this plant, usually attack it after its removal indoors in the autumn, and if not destroyed greatly disfigure it and materially rob the plant of its strength, thus affecting the vigour of its blooms. If required to bloom very early the plants should be placed in the stove in autumn, keeping them near the glass and always well supplied with water.

R. *ÆTHIOPICA* is a bold-growing plant; it has a thick, fleshy root or corm; the petioles of the leaves are stout and fleshy, and, like the large sagittate leaves, are bright cheerful green; the large trumpet-shaped spathe stands up above the leaves and is snow white, lasting long in perfection. This variety may often be seen bearing a double spathe. The figure affords an excellent idea of its beauty. It is a native of Africa, extending from Egypt to the Cape of Good Hope.

R. *ALBO-MACULATA* is a native of Natal; it resembles the typical plant, but is scarcely so robust in habit of growth, the leaves are thinner and the green is darker, whilst the entire surface is thickly studded with irregular shaped spots of white. The spathe is also smaller and more erect, whilst the colour is creamy-white.

R. *HASTATA*, sometimes called the yellow trumpet Lily, somewhat resembles the preceding, but its dark, green leaves are entirely destitute of the spots which are such a conspicuous feature in *albo-maculata*. The spathe also is shorter and more open, the colour being of a greenish yellow. Like the before mentioned kind, however, when opened it reveals a dark spot at the base.

R. *MELANOLEUCA*.—This is very similar in habit of growth to *albo-maculata*, and its leaves also bear the same kind of white spots. In its manner of flowering, however, it appears to be quite distinct from any other kind yet introduced; the spathe is broad, with a recurved point, open to the base, and of a pale yellow, exposing to view at the base a large purplish blotch, which appears to be common to the three last kinds, although in *albo-maculata* and *hastata* it can only be seen by artificially opening the spathe. It is a native of South Africa.

In addition to the above varieties, travellers have told me of the existence of a yellow-spathed and a form with bright red spathes, but hitherto they have not yet been introduced. Either or both (especially the latter) would, in all probability, become extremely popular, and would well repay the lucky introducer.

W. H. G.

LANDSCAPE AT THE ACADEMY.

THERE is great justice as well as force in your criticism in THE GARDEN, June 9 (p. 523). The Academy might take at least one useful lesson from the New Gallery to so hang the pictures as to murder none by either grounding or skying. This would also prove almost a certain cure for Academy head and neck-ache. But surely an evil eye comes over the academicians in the matter of hanging. No ordinary person, for example, who knows a picture from a pitchfork would ever have dreamed of skying Mr. Fisher's landscape above "Lord Nelson and his Sailors." Height and distance might have lent some enchantment to the view of the latter, while the former invites, and would well reward close inspection. And such examples of perverted hanging abound throughout the Academy to such an extent, as to warrant the statement that names rather than merit command the best places. Surely it would be almost as considerate to reject landscape or other pictures as to so sky or ground them that no Fellow nor common person can by any possibility see them or their merits.

As to the general question of landscape pictures, it seems more than doubtful whether our finest landscapes look best on canvas. Some may go further, and say that few of them have yet been painted. Landscape artists have been too much hampered by stereotyped ideas and ancient types of picturesque landscapes. They have been conceived and moulded on the leading idea of forming a pleasing, telling picture. Starting thus on the wrong track, it is little wonder if not a few landscape painters fail to reproduce the most charming and natural scenery in garden, woodland, and mead.

CELESTE.

KITCHEN GARDEN.

FRESH VEGETABLES.

A GARDEN is considered a luxury by many, and I am not disposed to dispute the fact of its being such. But if a luxury, it is not necessarily an expensive one, there being many much more so, and those who have once possessed a good garden and have been well served ought to be able to show that the balance is not all against the garden. It is true, those spending the greater portion of the year in or near to a large town can obtain all they need in the shape of vegetables either direct from the markets or shops, but dwellers in small towns and villages are not nearly so fortunate in this respect. In any case, if we are to believe impartial evidence, those who own a good garden have a decided advantage on the score of freshness, and this in vegetables is of the greatest importance, as largely affecting the quality. Not only does the private gardener, as a rule, procure superior varieties to cultivate, but he is not called upon to supply vegetables by weight, and consequently does not, or ought not to keep them until they are overgrown and past their best before sending them to the table. As it happens, however, there are a good many growers who seem to think more of size than they do of freshness. Such, by their ignorance or indifference in this respect, do not hold the advantage they ought to have over the market gardeners who, as a rule, are perfectly careless as to whether their produce is of excellent quality or not so long as they can get good prices.

Changing from generalities to particulars, we will first allude to the humble, yet popular spring Cabbage. Not many years ago very few of these found their way to the dining rooms of the wealthier classes, but now-a-days, thanks to the improvements effected, and, I may add, a better judgment exercised by those whose duty it is to supply the kitchen, many more are eaten, sometimes even in preference to late Broccoli and Cauliflowers. Large, close, and much blanched hearts of these are not by any means the best, nor is it wise to delay cutting till there is a great quantity fit to cut. Better by far grow the plants rather thickly, and commence cutting when the hearts are quite small and tender. These, when properly cooked, are of delicate flavour, and by thus beginning to cut early a long succession is obtained, and an undesirable glut of hard, overgrown hearts avoided.

Cauliflowers, which ought also to be in season now, are at their best when nearer the size of a cricket-ball than a foot-ball. The earliest varieties are naturally rather small, but these, as well as those much larger, ought to be kept closely covered over with leaves, and cut before the "curds" are opening or become green in any way. Cut early, cooked and served entire, they are much superior in quality to any that have to be trimmed or divided prior to being boiled. The Aspa-

ragus season is now drawing to a close, and I will only remark that even a superficial observer must have detected a great difference in the quality of the shoots cut and used the same day to any that have been kept for two or three days. The former is by far the most succulent and delicately flavoured.

Peas will shortly be plentiful, and these again should be used as fresh as possible. In the case of the early round-seeded varieties the seeds ought not to be really full grown, or the chances are they will be a day too old, and hard and flavourless in consequence. In many good families large Peas are never sent to the dining table, but although I am not a devotee of the cultivation of extra large-seeded varieties, I am yet of opinion that prejudice or habit has something to do with this custom of excluding large sorts, as many of the latter are quite equal in point of quality to any smaller varieties. All in a dish should be as nearly as possible of one age and one variety, and if properly cooked and served, no fault can hardly be found with them. Broad Beans ought to be gathered when the seed is about three parts grown, though some prefer them even younger than that; then, if served with their skins removed, they are almost equal to, and a good change with, Peas. French or Kidney Beans soon become old and stringy, and those forced especially have to be kept closely gathered. Unfortunately, when stored with their stalks in water, they lose in flavour, and are also less tender. When there are plenty outside, there ought to be little difficulty in selecting a sufficiency of pods of one age for a dish every day if need be, and these ought to snap off sharp when tried with the thumb and fingers. If they fail to do this they are not fit to send to the table. Much the same remarks apply to runner Beans.

Few need be told that quite young Carrots are the best, these rightly being a much-prized vegetable in most establishments. The beds may well be drawn from when the roots are no longer than Radishes, this in many instances being the only or best form of thinning adopted. At this time of the year, only quite young Turnips are fit to serve as a vegetable, those nearly or quite full grown usually being both tough and hot. A few varieties of Potatoes may be lifted when about half-grown, the old Ashleaf, Mona's Pride, and Veitch's Improved Ashleaf all being fairly dry and good at that stage. As a rule, fully matured medium-sized tubers are the best, and the sooner they are used after they are out of the ground the better. Exposure for a few hours to daylight has the effect of greening and quite spoiling new Potatoes, and they ought therefore to be lifted only as required, or at any rate to be kept closely covered after they are out of the ground. Quite fresh Tomatoes are always very superior to any kept several days after they have coloured properly, and, it is very certain, old, flabby, and seedy Cucumbers are neither good nor wholesome. Lettuces and other salading are most crisp and pleasing when cut a short time before being eaten. Salading will certainly become fresher when immersed for a time in water, but at the same time it is not so good as when first cut. Globe Artichokes will soon be abundant, but I do not advise cutting the very young heads unless to avoid a glut, as those fully grown, but not old, are the most succulent. Better use quite young heads than any that are old, dry, and tough. Very large Mushrooms are not much in demand, the preference being given to buttons and any about half grown. In any case, to leave them longer on the beds is to risk their becoming maggoty and useless.

W. I.

THE CAULIFLOWER CROPS OF LEON (FINISTERRE).

On this subject we find in the *Bulletin de la Société des Agriculteurs de France* a note from M. des Jours de Kéranroué, the following extract from which will, no doubt, be interesting to our readers:—

For the last fortnight 17 or 18 wagon-loads of Cauliflowers (each load weighing at the least 4 tons) have been every day sent off from the railway stations at Saint-Pol-de-Léon, Roscoff, and Plouévan to all parts of France and Northern Europe. One year with another this rate of export continues for two months. Hence the following calculations: Four tons of Cauliflowers \times 17 wagons = 68 tons daily, which, multiplied by 60 days, is = 4080 tons. Now 1000 Cauliflower plants weigh about a ton (French, which is 40 lbs. less than the English ton), and fetch from 70 francs to 100 francs (from £2 16s. to £4), according to the season, when sold on the ground to the wholesale dealers, who purchase the crops from the market gardeners three, four, or five months in advance. Whence, the average price of one ton of Cauliflower plants being 85 francs (or £3 8s.), the sum of 346,800 francs (or £13,872) would be received for 4080 tons. The wholesale dealers sell these Cauliflowers again at the rate of from 2½ francs to 4 francs (from 2s. to 3s. 2½d.) per dozen. Now as one ton contains 1000 plants, 4080 tons will contain 4,080,000 = 340,000 dozen plants, which at the average price of 3½ francs (or 2s. 7d.) per dozen, would bring in a sum of 1,105,000 francs (£44,200).

The data of this calculation are in no wise exaggerated, for these daily consignments of 17 or 18 wagon-loads by railway continued for three months last year (1887), without taking into account the quantities sent by road to various markets in Brittany, and also to be shipped at Mordax in boats from Bordeaux, Havre, and Weymouth.

At the commencement and end of the season the retail dealers, it is said, sell these Cauliflowers at the rate of 6½d. a head.

M. des Jours de Kéranroué concludes his communication with some interesting remarks on the wide difference between the prices which are paid to the market gardeners and those which are pocketed by the brokers. It is the same perennial old story of the "middleman," whom, however, it is far easier to abolish on paper than in practice.—*Revue Horticole*.

THE POTATO CROP IN WEST CORNWALL.

SEVERAL of the market gardeners at Gulval, Marazion, and Ludgvan have commenced to dig early Potatoes; but it is doubtful if all of them will be able to continue this kind of work throughout the week, for it is only in the most sheltered and favoured spots, which escaped the late frosts, that the Potatoes are in a fit condition for the market. In places unvisited by frost the Potatoes are fairly good in size and quantity. In others the crop is not equal to appearances or expectations. But, in these days of keen competition, no one likes to be behind his neighbour, while the good price which can at present be obtained has, doubtless, induced many to dig up Potatoes which would be better if they were left in the ground for at least ten days or a fortnight longer. Next week, however, Potato digging will have become general, and, if only fair prices can be obtained, our market gardeners this season may hope to be remunerated for their outlay. While on this subject of crop prospects let us say a word or two on the difficulty of a reliable opinion on the subject. The ordinary onlooker passes through the fields, generally and very properly by its pathways only. He sees an even growth of hardy stem and healthy leaf pleasantly covering the brown soil beneath. Not a speck on the foliage gives rise to fears of the recurrence of that dreaded disease. If the pathway be quitted, a few unsuspected gaps in the rows may be seen, but very little to influence the impression that before the amateur inspector (untimely frost being afar and fertilising showers and genial sunshine near) lies spread a bounteous crop. The experienced eye, made keen by oft disappointment, shows you stalk after stalk that is taller than its neighbours. Its leaves are small and curled, so that the market gardener calls it and its fellows "Curleys." Its blossom is about to expand. This is an additional

deception, since you think there are ripening tubers beneath. The practised Potato grower will tell you that not only is there little produce under this well-looking haulm and leafage, but there never will be. The curley is a sign that the Lincolnshire Myatt is "going out." Its predecessors suited well, as also did many other kinds. But the Cornish soil, weakened by the Potato and Broccoli crop unintermittently for so many years, though fed and revived by abundance of homestead and artificial manure, is unfriendly to the same sort of seed too oft placed in it. A change of seed is needful ere these curleys disappear. In the meantime their presence lessens the average crop from 25 to 5 per cent. Even where the Potato plant is evenly good, and the judges of the probable yield have experience, it is surprising how their opinions vary. There seems little certainty about it until the tubers are in the market, and as little about profit or loss until the cash for the Potatoes is in the grower's pocket.—*Cornishman*.

KITCHEN GARDEN NOTES.

LEES.

THESE rank among the hardiest of vegetables, and there are few establishments where a good supply is not fully appreciated. If extra fine produce is required, seed ought to have been sown at the same time as the earliest Celery, the seedlings being duly pricked off in boxes, or on a shallow bed of manure and soil, and eventually transplanted to the open ground early in June. These early batches especially, should be planted in narrow trenches 2 feet apart, manured and otherwise prepared as for Celery, and on poor or hot soils it is also advisable to prepare for the main crop in a similar manner. Those plants that have been pricked out can be moved with a good ball of soil about the roots, and being set in trenches about 9 inches apart and watered occasionally, will soon grow strongly. They ought to receive liquid manure in common with Celery, and as they also require to be moulded up in order to properly blanch the stems, the Lees may well be grown by the side of the rows of the former. A serviceable crop can, in the majority of gardens, be obtained by heavily manuring and deeply digging a breadth of cool ground, or say an east or north-east border, putting out the Lees 9 inches asunder in rows 15 inches apart. The plants in this case should be forked out of the seed bed so as to save as many roots as possible, and dropped into holes formed with a stout dibber, and about 6 inches deep. One watering will wash sufficient soil down to the roots, and as a rule little further trouble is needed beyond keeping the ground free of weeds, as the roots being deep, find plenty of moisture, while the soil closes round the stems sufficiently to ensure the necessary blanching. The Lyons and Prizetaker grow to a great size, and the better-known Musselburgh and Ayton Castle Giant rarely fail to do well.

CHELSEA GEM PEA

raised under glass and planted out yielded good dishes during the first week in June, a close succession being obtained by sowing the same variety on a warm border between rows of taller varieties early in February. We find it quite as early and a much better cropper than the variety American Wonder, and it has superseded the latter accordingly. Not only is it the best early Pea, but it is also most suitable for late sowing. Seeing that a vigorous growth is desirable, and not easily brought about in hot summer weather, it is advisable to sow new seed, this invariably germinating more strongly than old seed. Directly William I. or other early varieties are available, all the pods still left on the rows of Chelsea Gem should be reserved to produce plenty of good seed, this being sown in July or as soon as ripe. A warm border newly cleared of Potatoes, Kidney Beans, Cauliflowers, or other early crops is suitable for this late crop of dwarf Peas, this in our case being merely levelled over, the ground having been well manured for the preceding crop. Drills are drawn 15 inches apart and 3 inches deep, and after a good watering has been given the seed is sown and the ground raked over. The plants need water in dry weather, as well as a mulching of some kind, and

may well be lightly staked. In the autumn they may be protected if need be with either frames, mats, blinds or branches of Evergreens. Good late rows of William I. are sometimes obtained in much the same manner, but with us it is fully a fortnight later than usual, and it may be the seed will not ripen early enough to sow this season.

VALUE OF EARLY POTATOES.

In small, or comparatively small, gardens not nearly enough early Potatoes are grown. A few may be seen on a warm border, and perhaps a solitary patch in the open, and the supply of eatable tubers is exhausted long before the second early varieties are really fit for lifting. It is not because the owners of these gardens do not appreciate a good early supply of Potatoes, but more often than not because they are too closely used up, none being left for seed. What are saved are usually the smallest tubers, and in consequence, unless fresh sets are purchased, the stock becomes weaker and the crops lighter every season. Even those who do not begrudge an annual outlay of new seed would do well to save more of their own. Stored thinly in a cool room or shed, protected from frost, and prevented from sprouting prematurely, the Ashleafed varieties will form stronger haulm and proportionately heavier crops than do sets purchased, and which have unavoidably been stored under less favourable conditions. The value of these early varieties is very well known and cannot well be over-estimated, but I may perhaps be excused for calling attention to some of their good qualities. Not being of rank growth they can be planted rather closely, or, if preferred, may be given more room, and a successional crop to stand the winter planted between. Those set more closely together may be cleared off early, or in time for a second crop of some kind, and though the majority are far from being good disease-resisters, they not unfrequently escape owing to the crops being matured sufficiently for lifting before disease is prevalent. Some of them, notably the Old Ashleaf, Mona's Pride, and Veitch's Improved Ashleaf, are really fit for the table before they are fully grown, while the last-named and Myatt's Prolific may be used early, or stored for winter use. Instead, therefore, of growing so many second early and late Potatoes, a much greater proportion of the early maturing varieties should be planted both in large and small gardens. This season we have set not less than 4 bushels of the Old Ashleaf, and still more of Myatt's, a good quantity of Veitch's Ashleaf also being planted as well as Mona's Pride, by way of comparison with the others. The last-named is very difficult to obtain true to name, other varieties frequently being substituted for it by the seedsmen. The good Old Ashleaf is already available in quantity on the open borders, the earliest (only slightly sheltered) being lifted on June 9.

STORING EARLY SEED POTATOES.

It is rather early to advise upon this subject, but unless we look well ahead we may easily miss the proper time or the opportunity for doing what is necessary. For instance, those who lift all the early Potatoes for present consumption without giving a thought as to the necessity for storing a quantity for planting next season, will have to be content with the best they can purchase; whereas, as I have just tried to prove, home-saved seed is the best. If they cannot possibly be saved, then as many as are required for planting next year should be bought early in July in preference to waiting till the winter. This would also meet the case of those who believe in a change of seed being advantageous. Neither home-grown nor bought seed tubers should be laid on the ground to green before storing, as this entails the risk of losing many of them from disease, the delicate skins not being proof against the insidious fungus spores. A light airy shed or shelf is the best place to keep them, and at no time ought the tubers to be laid in heaps. The best results attend planting sound, well-formed, medium-sized sets, the lightest or least profitable crops being obtained from small or weakly tubers. If there is not sufficient shed room for storing seed Potatoes, a few rows between Brussels Sprouts or

Broccoli may be left undug, and a capital lot of planting tubers will be available when wanted next spring. If it is intended to grow a few early varieties of Potatoes in pits or frames for lifting in the late autumn and early winter months, save some of the best sets from the earliest crops lifted from a warm border. These being duly ripened in a light, dry position may easily be induced to sprout when required.

WATERING AND MULCHING.

Thanks to repeated heavy downfalls of rain, the ground is now in a well moistened state, and crops generally are thriving admirably. As yet the watering-pot and hose have not been much needed. It is during dull showery weather that liquid manure or some kind of artificial manures are most effective. The soil being in a fairly moist state, quite moderate supplies of manure applied from the surface will permeate the whole and render it most conducive to the healthy or strong growth of the vegetables occupying it. Liquid manures have a most stimulating effect upon Peas, Beans, Cauliflowers, Artichokes, and other gross-feeding subjects, but it is almost useless to apply these after the plants give signs of exhaustion. This should be anticipated and not waited for. The value of a good mulch of some kind can hardly be over-estimated, and this again ought to be applied early or it will be of little avail. On shallow or hot soils a much is needed to keep in the moisture, and it will be of good service even in a wet season. Heavy or naturally cold lands we would not mulch if a wet season could safely be considered inevitable, these requiring warmth rather than moisture. In dry hot seasons, however, heavy lands are liable to crack badly, and as this state of affairs is most injurious to the vegetable crops, it ought always to be prevented as much as possible by mulching. Plenty of strawy manure is perhaps the best form of mulch for the rows of Peas, Beans, Marrows, Artichokes and other coarse growing crops, but for Onions, Carrots, Beet, and other root crops, spent tan, leaf soil, peat, short Grass from the mowing machine, and even fresh dry soil are preferable. Any of these may also be substituted for the strawy manure when the latter is scarce. If no mulching is applied to advancing crops, the least that can be done is to keep the flat hoe going over the surface of the ground, this preventing the rapid evaporation of moisture and cracking, and otherwise proving most beneficial. W. I. M.

MARKET GARDEN NOTES.

MARKET gardens are now looking well, every part being cropped to its utmost capacity, while the welcome rains that have lately fallen have given a freshness and vigour to all the crops. Seldom have crops of all kinds looked more promising than they do now; the long protracted spell of dry, cold weather retarded everything beyond its usual time, but now that it is both mild and wet, growth is exceptionally rapid.

EARLY CABBAGES are now the staple green vegetable that is being sent to market, and although later than usual in forming good hearts, they promise to be of exceptionally good quality, owing to the season being now much more propitious than it has been for the last year or two. Rapid growth favours succulence, and since the genial weather set in the growth of the Cabbage crop has been extremely rapid.

Spring-sown plants are being put out in quantity, also Early London and Autumn Giant Cauliflowers and Brussels Sprouts.

LETTUCES are now so abundant as to be quite a drag on the market, and the price is very low. Although the winter was long and severe, Lettuces stood well on the well-drained, stony land in this neighbourhood. The Brown Cos and hardy white, with the never-failing hardy Cabbage sorts, are all equally good. The majority of these Lettuces are sown thinly and allowed to grow to full size without any transplanting.

EARLY POTATOES are now most luxuriant, and promise a good crop, the recent heavy rains having allayed any fear as to drought affecting them. Warm, sunny weather is now the one thing needed

to check over-luxuriance of haulm. The cargoes of old Potatoes now arriving from the north are being sold out as quickly as possible at very much reduced prices. With the arrivals of cargoes of new Potatoes and the prospect of plenty of home-grown ones shortly, the outlook is not cheering for those who have old stocks on hand, while the abundance of green vegetables that is likely to increase under the present favourable atmospheric conditions all tend to reduce the demand for old Potatoes.

RUNNER BEANS, late sown, are a favourite crop with many market growers, as they come into bearing after the glut of Peas, Cauliflowers, and early sown Beans is over, and generally are far more profitable, as they set their flowers more freely, and realise better prices when there is not such a number of other good vegetables on hand.

TOMATOES are being largely planted both under glass and on every vacant spot on walls or board fences. A great many Tomatoes are grown in the open air, trained to stakes or trellises. By having strong plants to put out at the end of May and by keeping the growth well thinned out, good crops are secured in ordinary seasons, while in exceptionally hot and dry summers, Tomatoes are one of the most profitable crops that can be grown. The earliest sorts to mature and with fine, smooth-shaped fruit are the ones most in favour, and although there is still plenty of foreign competition in this, as in other branches of the trade, the home growers are able to hold their ground at least with the Tomato.

FRUIT PROSPECTS are not so promising as the late spring led many to expect, as the Apple trees, especially the large old orchard ones, bloomed very sparingly. With only a partial failure of the Apple crop, the season of 1888 can hardly be one of the great fruit years. J. G. H.

MARKET GARDENING PAST AND PRESENT.

It is a remarkable fact, and one that forcibly demonstrates how deep a hold the love for flowers has taken on the people of this country, that during a period of deep depression, which has exercised a disastrous influence on many industries, the culture of fruit and flowers for profit has enormously increased. Contrasting, for instance, the cut flower trade twenty years ago and at the present time, the advance that has been made during that period is little short of marvellous. It was then customary to say that we were behind Continental nations, that the popular employment of, and universal love of flowers was not so great with us as in France and Germany. It cannot be said that we justly incur such a reproach now, and I much doubt if statistics would not prove that the amount of money spent on flowers in Great Britain averages more per person than in any other country. At some seasons of the year it seems almost impossible to glut the markets with certain kinds of flowers. There is a well known demand for particular things; the supply of these is yearly increasing, but the great metropolis swallows them up, none being returned on the grower's hands. The question is, Will this continue? Is this but a period of abnormal prosperity for the flower grower, that will in due time be followed by one of depression? As regards the popular love of flowers, that will continue and increase. The joy that beautiful flowers afford will endure as long as the hills. But we must take into consideration that a somewhat unnatural stimulus has been given by fashion to the cut flower trade, and we know what a fickle lady Dame Fashion is. The great, or indeed excessive, use of flowers at the dinner table, in the church, at weddings and funerals, is the principal cause of such enormous quantities of flowers finding an easy outlet at certain periods of the year. Time was when not a flower was to be seen in a churchyard. Now

every relative and friend of the deceased must send a wreath, and graves are often kept constantly dressed with choice hothouse flowers all through the year. An instance occurred in this village where a London florist's bill for the flowers at a funeral amounted to £60. No doubt a better taste will in time veto such displays, but I cannot think that the practice of using flowers moderately in connection with religious ceremonial will ever be discontinued.

Not twenty years ago the amount of cut blooms brought into Covent Garden was so moderate, that no one thought it worth while to make a trade of selling them. The special flower salesmen had no existence a few years ago. If you had flowers to dispose of you must either send them to a Central Avenue florist, who limited you to quantity, or you must get some grower in the flower market to sell, unless you took a stand in the flower market and sold them yourself. At the present time the grower of cut blooms may easily dispose of any quantity, and when I mention that there are nearly a dozen salesmen who occupy themselves specially with the sale of cut flowers, readers of THE GARDEN will be able to justly estimate the proportions to which this branch of market gardening industry has attained in recent years. As regards pot plants, the inspection of one of the large market gardens in the vicinity of London would strike anyone acquainted only with those of a quarter of a century ago with wonder. Plants that were then grown by the thousand are now produced in hundreds of thousands. It is not uncommon to see 150,000 of one particular plant in one place, and so accurately does the grower gauge his powers of sale, that it is seldom any remain on his hands. Prices sometimes range low, but the trade goes on, and if the profit per plant is small, large quantities are disposed of.

It is owing to the facility for disposing of a large number of plants at small profits that the glass area devoted to this form of market culture has increased so wonderfully during the last few years. Although plants were grown very well for market a quarter of a century ago, the quality certainly averages much higher at the present time. The old lean-to houses in walled-in gardens have given place to low span-roofs with large panes of glass, and the market grower of to-day cares but little for shelter so long as he can get an abundance of light. In a light structure quite away from buildings or anything that may keep off light and sun he grows his plants in a manner that was not practicable under the old conditions. In no one thing is the effect of this change more striking than in the Pelargonium. Plants are now brought into Covent Garden in April in a condition that would have been thought to reflect high credit on the grower of twenty years ago two months later. Not only is quality higher, but there is much greater variety. The old favourites generally have held their own in the competition for popularity with new comers; some, indeed, have advanced several steps. The Cyclamen, in the days when Mr. Bruce and Mr. Drew were about the only growers, existed only in the form of a small-pointed petalled flower, the brightest tint being a dull pink. It is not much more than twenty years ago that Mr. Wiggins, who might justly be termed the father of the present race of this flower, obtained his first break from the old stereotyped forms. Could the Cyclamen growers of a past generation see the change effected in this flower they would consider it as little short of miraculous. The nature of the Bouvardia was then so little understood that it was treated as a stove plant,

where it grew up a couple of feet high, carrying a few small trusses of bloom, but often giving none at all. It took a good many years for the capabilities of the *Bouvardia* as a market plant to be discovered. Another plant that suddenly obtained a high position is the tuberous *Begonia*. I doubt if any plant ever attained to such great popularity in so short a time.

Two plants that were a few years ago much thought of seem, however, to be in a great measure driven out of the field. These are the Cockscorn and the herbaceous *Calceolaria*. The former is very little grown now, the latter comparatively to but a small extent. I remember when it was one of the most important market flowers, well-grown plants making a good fair price, but within the last few years I have seen it offered at 4s. per dozen, and no buyers. I suppose that it does not do well in the dwelling, not being able to resist for any time a dry atmosphere, and as there are plenty of things that will do so it has had to give way to them.

In Grape culture there is such a change that no one would have expected a few years ago. The *Hamburgh*, which once mainly supplied Covent Garden through the winter, is hardly worth growing. What seems so strange is that the merits of the late-keeping kinds should be so tardily recognised. After a long period of neglect they came to the front with a bound, and for this we have to thank Mr. Thomson, who showed at Clovenfords what are the capabilities of the late black Grapes for supplying our markets through the winter and early spring. That such an exceptionally good keeping and imposing looking Grape as *Gros Colman* should have remained in obscurity for so long shows how prone market growers are to follow in the footsteps of their forefathers. The ability to bring this Grape in good condition into the market through the early spring months has in a great measure destroyed the early forcing trade. The late Mr. Rochford, who was about the best Grape grower round London, used to bring *Muscats* into Covent Garden in March, when they were worth 25s. per lb., but with a good supply of black Grapes at 8s., they are not wanted. The extension of Grape culture during the last ten years is wonderful, and the wonder is where the enormous quantities of this fruit go to. It does not seem so very long ago since Mr. Wilmot, of Isleworth, used often to bring a score of good *Pine-apples* in a morning to Covent Garden. It was a sad loss to many when *Pine-apple* forcing received the death blow, which seemed to foreshadow serious and damaging changes to our home industry. English growers shook their heads, and prophesied the collapse of the market culture of fruit in this country, but how little their gloomy forebodings have been realised is shown in the ever-increasing amount of glass devoted to this branch of it. The fact is, that no sooner does one particular phase of culture die out than another springs from its ashes to take its place. There is probably more money now made from *Tomatoes* alone in one year than was got from the *Pine-apple* in half a decade. That we have suddenly become a *Tomato-eating* people is one of those surprises of which there are probably more in store for us, and that will keep the game going for our market gardeners. With outdoor fruits we have made good progress of late. Our *Plums* and *Damsons*, for which there is always a heavy demand, we no longer take to any great extent from the foreigner. *Strawberries* are produced in enormous quantities; also *Raspberries*, *Currants*, and *Gooseberries*, to the great benefit of the industrial classes, who now stand a chance of getting real fruit jam in-

stead of the vile concoction that formerly did duty for it when the supply of small fruits was so much less. Would that so much could be said of the *Apple* and the *Pear*. Here we seem, especially in the case of the latter fruit, almost at a standstill. Whether we have *Apples* that can be made to supplant the famous *Newtown* I cannot say, but undoubtedly the capabilities of our English *Apples* have never been thoroughly tested; and this is the more to our discredit, seeing that we have, fickle springs notwithstanding, just the climate for this fruit. The *Pears* for our climate have, in my opinion, to be raised.

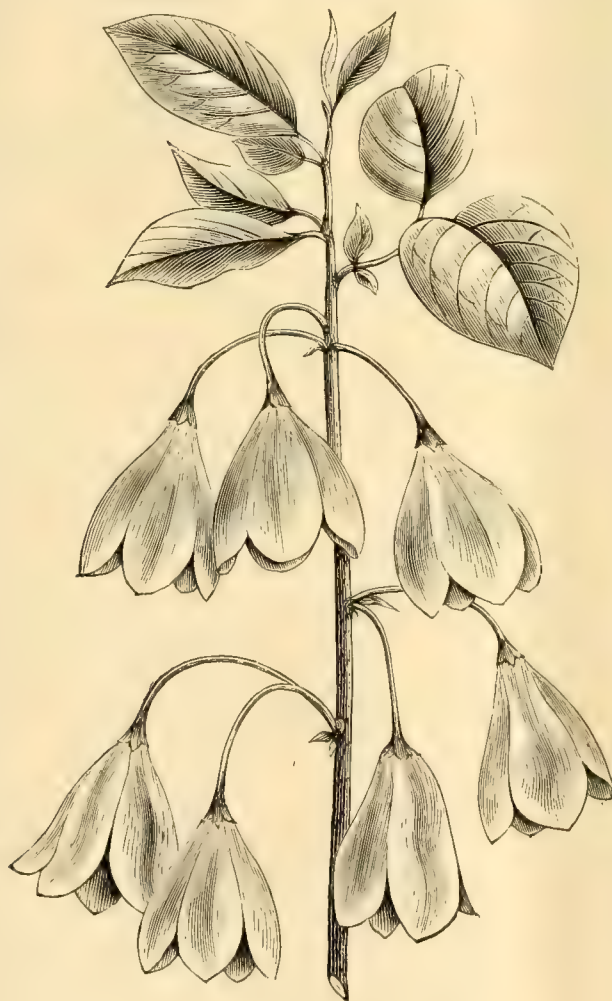
J. CORNHILL.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS. (Continued.)

Halesia (Snowdrop, or Silver Bell Tree).—A small genus of North American deciduous trees of small growth, and quite hardy in this country.



The Snowdrop Tree (*Halesia tetraptera*).

The commonest species is *H. tetraptera* (an illustration of which is here given), which is one of the most ornamental of flowering trees. It grows in England from 20 feet to 30 feet high, has a rounded head, with pointed and sharply toothed leaves. In spring, generally in the early part of May, it is covered with a profusion of small, pure white blossoms, which in form resemble the *Snowdrop*, hence its popular name. It is of moderately rapid growth, and

flourishes in any good garden soil. As it grows naturally by river banks, it enjoys a moist, but not waterlogged soil. In some parts it ripens its seed in abundance. A similar species, distinguished in having but two wings to the seed-vessel (tetraptera having four), is *H. diptera*, of smaller growth than the preceding, and not such a suitable tree for this climate; neither is *H. parviflora*, which, like the others, has small bell-like flowers. As a lawn tree, or planted near the margin of a lake or stream, *H. tetraptera* is very ornamental, being at once uncommon and attractive.

Halimodendron argenteum.—A small, dwarf-growing deciduous shrub belonging to the *Pea* family. It has elegant foliage, silky and whitish, the flowers being purplish pink and produced in early summer. This, a native of Asiatic Russia, is perfectly hardy, and grows from 5 feet to 6 feet high, but sometimes is grafted on to the tall stems of the *Laburnum*.

Hamamelis (Witch Hazel).—As the *Witch Hazels* flower in the depth of winter, they have a peculiar value as ornamental shrubs, and one species at least is worth planting in all good gardens. This is *H. arborea*, or *Tree Witch Hazel*, though in this country it does not rise generally above 8 feet high, and has the appearance of a shrub. In January, and sometimes before, its leafless branches are covered with a profusion of flowers which have singularly twisted, bright yellow petals and crimson calyces, so that a well-flowered specimen has a very pretty appearance. It is a perfectly hardy Japanese shrub, and thrives in most kinds of soil, but must have an open, sunny situation. The leaves succeeding the flower crop are similar to those of the *Hazel*. Another Japanese species is *H. japonica*, a smaller and dwarfer plant than *H. arborea*, and bearing flowers of a lighter yellow colour, while that called *H. Zuccariniana* is very similar to it. Of less value for ornament is the North American *Witch Hazel* (*H. virginica*), which has small yellowish flowers, produced in winter, and sometimes in autumn. Though not so showy when in flower as the Japanese species, it is a pretty and interesting shrub, and, like the others, thrives in any soil, but prefers a moist spot fully exposed.

Heimia salicifolia.—A pretty half-hardy shrub from Mexico, useful for planting against a dwarf wall unsuitable for tall climbers. It has narrow Willow-like leaves, and bears in late summer an abundance of small yellow flowers. It grows from 3 feet to 5 feet high, but may be kept dwarf by pruning.

Hibiscus syriacus (Syrian Mal-low).—A beautiful and invaluable shrub (see illustration), because it bears its large showy blossoms in late summer and autumn when shrub-beries would be otherwise flowerless. It is a very old favourite, and in strong, moist soils where it grows to perfection it rises 6 feet and even 8 feet high and as much through. It is a miserable shrub on dry poor soils, and only attains perfection in deep, fairly rich, and always moist ground. The typical form has bluish purple

flowers with crimson centres, but now there are numerous forms representing every tint from pure white (*totus albus*) to crimson and purple-flowered varieties, while the blooms of one sort (*Celeste*) are almost pure blue. There are also

plenus, *Duc de Brabant*, *albus plenus*, *puniceus plenus*, and *anemonæflorus*. A few bushes grouped nicely on a lawn with one or two taller trees or shrubs make a pretty feature, and if placed under the partial shade of trees the

the Japanese *H. paniculata grandiflora*, now well known in most gardens. Its massive clusters of pure white blossoms that terminate every shoot in autumn are very beautiful, and few finer effects can be seen in the garden in



Holboellia (Stauntonia) latifolia.

sorts with double flowers of varied colours. A selection of the best dozen kinds, single and double-flowered, would include the following:



The Virginian Witch Hazel (*Hamamelis virginica*).

Totus albus, *Celeste*, *Violet Clair*, *Leopoldi*, *bicolor*, *roseus plenus*, *Pompon Rouge*, *carneo-*

effect of the flowering bushes is more striking in autumn. The old name for this shrub is *Althæa frutex*, by which it is now also known.

Holboellia latifolia.—A beautiful evergreen climbing shrub from the Himalayas, hardy enough against walls in the southern and warm districts. The foliage is of thick texture, with three or five leaflets of a deep shining green. Its flowers are a dull purplish green and deliciously fragrant, but it does not bloom so freely out of doors as when grown in a cool conservatory. As it is of tall growth, it must be planted against a high wall, such as that of a house or stable. It is known also as *Stauntonia latifolia*. The variety *angustifolia* has smaller and more numerous leaflets.

Hydrangea.—The common greenhouse *Hydrangea (H. hortensis)*, from China, may be grown well out of doors in the southern and warm districts, but is not satisfactory in the midlands and northwards, as it is liable to injury in winter. Planted out of doors, it likes a sheltered, yet sunny spot and good soil. In order to get good heads of bloom, the *Hydrangea* must be pruned so as to induce the growth of strong shoots. In favoured spots where it flourishes it reaches 6 feet high and as much through, and makes a beautiful object on a lawn (see illustration, p. 592) or shrubby margin. Of greater value, because hardier, is



The Syrian Mallow (*Hibiscus syriacus*).

autumn than a well-flowered mass of this shrub. To be successful with it it must have a deep rich soil, and be well mulched with manure in winter. To encourage the new growth the old and useless shoots must be cut away. It grows from 3 feet to 4 feet high and spreads its branches gracefully and widely on all sides. The clusters often measure a foot long and half as much in diameter. Other *Hydrangeas* in cultivation include the Oak-leaved *H. quercifolia*, from North America, with bold handsome leaves and clusters of white flowers; *H. arborescens*, also North American; but these are not important compared with *H. paniculata* and *H. hortensis* and its varieties *stellata*, *variegata*, *Otaksa*, and others. *H. scandens* is an interesting climbing shrub, which may be used for covering walls, as it clings by stem-roots, like Ivy; but it must have protection, as it is tender.

Jew's Mallow (*Kerria japonica*).—Although this old-fashioned hardy shrub is often met with in gardens, it is not often that one sees it occupying a suitable position and well cared for. I met with a fine plant the other day, which showed what a striking object it is capable of making. The plant was trained to a wall with a south aspect, and the roots occupied a good border. The branches had been carefully, but not stiffly trained, and the result was a display of flowers I never saw equalled before. The flowers were thickly set on the branches, and their rosette-like

form and bright orange colour made the plant very attractive.—J.

White-flowered Wistaria.—Although this has now been before the public for several years, and, judging by small plants, is equally as free-flowering as the ordinary form, yet it is very rarely met with. The blossoms are undoubtedly pure white, but as far as I have seen they are smaller than those of the type. This, however, was to be accounted for by the plants being small and weak. It is a climber that should certainly have a great future, unlike the double-flowered form, which if no better than it is with me is certainly the worst of all the Wistarias. Perhaps, however, with some of your correspondents it may have done better, and proved itself worthy of cultivation. While on the subject of Wistarias I should like to ask whether any of your readers have succeeded in flowering *W. multijuga*, which I see announced as "a magnificent species, bearing bunches of bloom from 2½ feet to 3 feet long." Should it bear out this description, the Wistaria under notice should be a decided acquisition. There is also, I believe, a white-flowered variety of this, but I have not seen it in bloom.—H. P.

Daphne pontica.—This near relative of the Spurge Laurel (*D. Laureola*) is a very free-flowering shrub, and though the individual blossoms are comparatively quiet in colour (being a kind of yellowish green), yet they are borne in such profusion as to impart quite an additional feature to the plant, and, besides this, they emit an agreeable perfume. Irrespective of the blossoms, it is, like the Spurge Laurel, a first-rate plant for growing in shady spots, more especially on the margins of woods and similar places, as it seems impervious to the drip of trees so fatal to many shrubs, while the foliage retains its deep green glossy character all the year round. Besides such a position as above indicated, it will grow well in sunny spots and flower with great freedom, but it is most at home when partially shaded, as, indeed, are the majority of the genus. Among the most select hardy *Daphnes* must be mentioned the different forms of *D. Mezereum*, *D. Cneorum*, *D. Blagayana*, *D. Fioniana*, and the very distinct, but uncommon *D. Genkwa*.—H. P.

Barberry hedges.—We have seen some beautiful hedges made of the Barberry, the purple-leaved being as good as the common variety and finer in appearance. With one or two barb-wires stretched in the centre as the hedge was growing up, they were strong enough for farm barriers. The *World* quotes the words of a western owner of a twelve-year hedge that "it has never, young or old, been affected by winters that killed Osage to the roots; has never suffered a nip from any animal, large or small, on leaf, bark, or root; has never spread or run a single foot from its legitimate centre line, either from seeds or suckers; has never needed touching with knife or shears; has never shown a trace of fungus, and has proved a valuable acquisition." To which we may add, that it has the best natural hedginess of any shrub we know, bears plenty of seed, which, if properly treated, will grow as freely as Apple seed, and is very easily transplanted. We have always washed the pulp from the seed before planting, or as soon as gathered; but J. J. H. Gregory is quoted as saying that the seeds do best if planted in the autumn, and are more certain to grow if planted in the berry.—*Country Gentleman*.

SHORT NOTES.—TREES AND SHRUBS.

Double-flowered Dyer's Weed (*Genista tinctoria* fl. pl.) does well as a standard, producing a mass of its double yellow flowers. It is grafted on the Laburnum. When on its own roots there are few better rock plants.

Olearia Gunni does well in sandy loam in the open; it is a mass of its white starry flowers at the present time. There is a batch of it on a slope in the Coombe Wood Nursery.

Podocarpus Andina.—In the grounds at Osborne House is a good specimen of this *Podocarpus*, which much resembles *Scladophytis verticillata*. It is in this instance growing on the Grass, and forms a charming specimen.—M.

Jamesia americana.—This uncommon little shrub is now in full flower, and is very interesting as being a shrubby member of the Saxifrage family, most of which are in general appearance so widely removed

from it. The *Jamesia* forms a neat, compact-growing bush, that produces numerous clusters of small white blossoms on the tip of every twig so freely that the whole plant is quite a mass of white. It is well suited for a choice collection of shrubs, and does well with free exposure to light and air; while on the sunny parts of rockwork it is at home.—T.

SPRING-FLOWERING TREES.

I THINK that generally these have flowered very bountifully during the spring. It is highly probable the dry summer of the previous year had much to do with this, by thoroughly ripening the wood and setting the blooming buds. It is satisfactory to note that in the suburbs of London, villa gardens, and especially those portions which may be denominated forecourts, are being planted more appropriately than they formerly were, and the best of the flowering trees are now being planted in such gardens. But one sees many instances of how not to do it. Each forecourt garden is planted as a whole, with the result that trees are growing side by side, but in two separate gardens, that spoil each other, because there is no attempt at planting so as to produce the best effect. Some day we shall become wiser, and then street planting will be managed by a committee of owners or occupiers, or both together, so that incongruities may be avoided. So much of it is done in a haphazard fashion in these days, and the results are so disappointing, that anything would be better than the present fragmentary method. I am in hearty agreement with a distinguished American horticulturist who has just stated:—

Every horticulturist should be a missionary. He should be an educator of the public taste as regards trees, and flowers, and lawn plantings, and flower gardens. He should be an enthusiast for the beauty of his town. He should stimulate the making of parks, the adorning of cemeteries and school-house yards, the planting of groups of roadside trees. The true horticulturist will make his mark in the community in which he lives. One of the great needs of the times is a generous enthusiasm for horticultural improvements. We want tree-planting associations in every town in the land. Every man should not only make his own home beautiful, but should find some stimulus for his neighbour whose grounds are lean and bare.

The Almond is our earliest flowering tree, and it is always a free-bloomer, expanding its blossoms early in March. It is a tree that would not always be selected for its outline, as the disposition of its branches imparts to it a somewhat ungainly appearance, but then it is very free indeed, and doubly welcome because of its earliness. It appears to be fruiting freely this year, but my experience of trees is confined to those growing mainly upon a gravel subsoil. There is a double-flowered variety that is also well worth planting. Close on the heels of this come the double-flowering Peaches, the rosy pink and the crimson; the last one the showiest of the two, but apparently not so free in growth. Both are, however, very profuse of bloom, and it is, no doubt, by means of high culture that the trees have been brought to the high state of copious double inflorescence. These Peaches appear to do best in an open sunny spot, but the soil should not be a very dry one. Then there is the double-blossomed Cherry, a tree that never seems to fail of a profuse blossom, and this season all the specimens I have seen have been literally covered with snow-white flowers. It is, on the whole, a quick grower, and in a few years makes a fine tree. In early spring its pure white pendulous blossoms not only challenge, but appear to command attention.

As an instance of want of care in planting, I saw the other day a double-flowered Cherry and a white Lilac side by side, with the result that the one ran wild, as it were, and spoilt the effect of the other. This is one instance of the absence of anything like an agreement between those who plant adjoining gardens to secure the best effect and harmony of colours.

Then there are the common white and purple Lilacs with the fine varieties of each that have been introduced of late years. The Lilacs make charming plants for forecourt gardens, but a little care in thinning and shortening the branches is necessary,

else when there is an undergrowth the branches grow tall, leaving several feet of naked space at the bottom. But the Persian type is, to my mind, even better adapted for forecourt gardens than the preceding. It is of dwarfer growth, maintaining a more shrub-like character, and its light purple terminal panicles are produced with copious profusion. It is freer of bloom than the common types, generous as they are in the matter of blossoms. Add to these the Bird Cherry (*Cerasus Padus*), the flowers of which are white, produced in long drooping racemes. They are decidedly ornamental, but of short duration, and they are succeeded by berries which are handsome while they hang upon the tree, but are too eagerly sought for by birds to be allowed to remain long upon the branches. I saw this as a delightful object not long since in some Kentish lanes. The Horse Chestnut, Mountain Ash, and Laburnum are all planted in forecourt gardens, but they attain too great a size. The Laburnum, being an awkward growing tree, will bear cutting back to keep it both with a symmetrical head and within bounds, and it always flowers with great freedom. It is now rich in golden racemes. I have a tree on the north side of my dwelling that is a week later in flowering than one against the south front of a villa residence on the opposite side, and it seems also to be of a better colour. The Mountain Ash does very well while it is young, but when it grows large it overshadows everything near it. I notice some difference in trees. Near where I live there are a pair side by side; one was quite a week earlier in blooming, and the foliage of the latest is much more lacinated. This, I imagine, is owing entirely to seminal differences. The Thorns are at their best just now, white, pink, rose and crimson, double and single. I think the single white and the single crimson the best of all. All flower with remarkable freedom. Some of the large trees of the double pink kind are objects of great beauty in my neighbourhood just now.

So are the Guelder Roses. This is the latest of the group of spring-flowering trees I have set down. But it is always a favourite. A market gardener in my neighbourhood grows a large quantity for bunching for Covent Garden Market. There is something cruel in the way the flowering sprays are torn from the trees, which, however, soon put forth fresh growths, and bloom freely again the following year. R. D.

Exochorda grandiflora (Pearl Bush).—This handsome flowering shrub is not planted nearly as often as it ought to be. Its snowy white blossoms form a conspicuous object in the mixed shrubbery, and as a wall plant it is a capital subject where its growth is not restricted. An open, sunny spot is what it likes, and it is not at all fastidious as regards soil, as it flourishes as well in a stiff soil as it does in that of a lighter character.—M.

Coronilla Emerus.—The flowers of this, like those of its better known relative *C. glauca*, are yellow, but one great point of difference between the two is that, while *C. glauca* requires the protection of a greenhouse, *C. Emerus* is hardy, at all events in the neighbourhood of London. It is a first-rate subject for planting on dry sunny soils, as it will there hold its own and flower profusely—indeed, far more freely than in a moister spot. It is a native of the south of Europe, and, according to London, was introduced into this country in 1596, but at the present day it is almost unknown. Though there is a great wealth of yellow-flowered Leguminosæ at this season, the *Coronilla* under notice is well worth a place in gardens. It can be readily propagated from cuttings, so that its scarcity is not due to any difficulty in increasing it.—T.

Sun Roses (*Helianthemums*).—For planting on a dry sunny bank, where early morning effect is the principal consideration, few subjects make a grander display at this season of the year, than the Sun Roses (*Helianthemums*), as while still moist with the morning's dew they are all fully expanded, and by mid-day they are either wholly or partially closed, to awake early on the morrow again in full beauty. There is a great variety in colour to be found amongst them, varying from white to crim-

son, while the different shades of yellow, orange, and bronze are also represented. Where planted on a sloping bank, it is a great advantage to place a few large stones around, as they prevent too rapid an evaporation; besides this, the blooms are not so liable to be splashed during heavy rains. On some of the chalky Surrey hills, where little else will thrive, the common yellow-flowered *H. vulgare* will both grow and flower well.—T.

NOTES FROM HOLWOOD PARK.

THE MANNA OR FLOWERING ASH (*Fraxinus Ornus*) is now very ornamental, the immense panicles of pure white or faintly tinged with green petaliferous flowers being so thickly produced on the tree as almost to hide the foliage from sight. It is a miniature common Ash in appearance, of neat habit, and with a well-rounded and shapely head. Our largest specimen, which is growing on the lawn in front of Hollydale House, is some 30 feet in height, with a stem girthing nearly 5 feet at a yard from the ground, and a spread of branches covering a space of 27 feet in diameter. The soil is fairly good loam, resting at no great depth on rough greenish gravel. What a pity it is that so distinct and ornamental a tree is not oftener seen in our gardens and grounds. I feel sure that could some of our tree and shrub lovers see this Hollydale specimen of the Flowering Ash they would not be long without a plant. It is easily grown and quite hardy.

THE JUDAS TREE (*Cercis siliquastrum*), although of a rather ungainly habit, is certainly one of the most showy and ornamental of our hardy trees. A specimen of some 20 feet in height and nearly as much in spread of its irregularly arranged branches in the pinetum here is very showy, the great wealth of rosy purple flowers on the almost leafless branches being remarkably conspicuous. Both the old and young wood is fasciated with the pretty flowers, somewhat after the fashion of a *Daphne* or the fruit on the Sea Buckthorn. But, apart altogether from the flowers, the leaves are highly interesting in being, both in colour and shape, so different from those of our commonly cultivated tree. Above the leaves are of a metallic hue—bluish or bronzy, while underneath they are grass-green. A few of the flowers mixed up with salad impart to that dainty dish a flavour that is not procurable by any other means.

THE UMBRELLA TREE (*Magnolia tripetala*), with its 12-inch long, shining leaves and large white and deliciously scented flowers, should be far oftener met with in our parks and fields than it is at present, for, judging from some specimens here, it is easily grown, and occupies the front rank as an ornamental tree. I suppose that the name of Umbrella Tree was given on account of the leaves being crowded at the ends of the branches, and as they at first grow upright, and ultimately bend backwards and outwards, an umbrella shape is assumed. It is growing in good loam, and in a semi-shady and dampish position near the banks of a lake. Near to it is a giant specimen of *M. cordata*, a rare tree in our English woodlands, and which at the present time is literally loaded with flowers, these having a delicious smell, particularly in the evening. It is between 50 feet and 60 feet in height, and the thickly-leaved branches form a pleasing shady canopy of 45 feet in diameter. The flowers are small and rather inconspicuous when compared with those of some of the other species.

THE INDIAN BEAN (*Catalpa bignonioides*) is well represented in a sturdy, far-branched specimen of fully 40 feet in height. This is a tree that may well be said to be as handsome as it is distinct, for the large leaves and terminal panicles of curiously coloured white, tinted with violet, and richly speckled with yellow and purple in the throat, flowers have a very distinct and unusual appearance. This tree is growing on the lawn at Hollydale House in a warm and partly shady situation, and amongst loam and gravel in about equal proportions. The fine tree in the grounds at Baronhill, in Anglesey, is the only one I know of that approaches in dimensions the Hollydale specimen.

THE PURPLE LABURNUM (*L. Adami*) is a charming hybrid, and is just now flowering profusely in

the grounds at Holwood. The rich pinky purple flowers intermixed with the normal yellow have a most curious and taking appearance. The tree is some 15 feet in height, 5 feet of the lower portion bearing the normal yellow flowers, the mid 5 feet the pinky purple of *L. Adami*, and the top portion same as the lower. Occupying, as it does, a conspicuous position on the margin of one of the drives, the curious combination of flowers is well shown off, particularly as the plant is backed up by big sombre-foliaged Hollies and Beeches. It is a plant that should be oftener seen than it is, being easily grown, quite hardy, and a great curiosity in its parti-coloured flowers.

THE AILANTO, OR TREE OF HEAVEN (*Ailantus glandulosa*), although of Japanese origin, is quite hardy enough for the warmer parts of this country. If only for the huge leaves, which are sometimes a couple of feet in length, it is well worthy of a place in every collection. The flowers are greenish and rather inconspicuous. It is a tree of particular value, inasmuch as it does well either as a town or as a seaside tree.

THE MEXICAN DECIDUOUS CYPRESS (*Taxodium mexicanum*), although of no value as a flowering tree, is yet one of our handsomest Conifers when coming into leaf, or again when the foliage is dying off in autumn. At the present time, the beautiful tint of the Pea-green leaves when fully exposed to the sunlight is charming, and imparts to the whole tree a most distinct and refined appearance. Then in autumn, when the leaves turn of a bronzy pink, the tree has an appearance for which it would be vain to elect a compeer. A beautiful specimen, one of the largest in this country, ornaments the lawn here, and I can notice the appearance of buttresses along the roots.

THE NETTLE TREE (*Celtis australis*) is not very often seen in our shrubberies, but that it well deserves a place I am fully convinced. The flowers are greenish white; while the leaves, to save trouble in describing, may be likened to those of our common Nettle. The flowers are succeeded by small black berries, which are ornamental.

A. D. WEBSTER.

Beautiful Maples.—Notwithstanding the extreme elegance and beauty of many of the varieties of the Japanese *Acer palmatum*, it is not often that they are used for giving lightness and freedom to the garden scenery. There seems to be an idea that they are too tender to stand the vicissitudes of the English winter, but ample evidence can be brought to show that this is entirely without foundation. In the exposed, but picturesque, nursery of Messrs. Veitch at Coombe Wood there are large trees of *Acer palmatum* that have weathered many an English winter far better than things considered much hardier. There are two large trees of it that suggest how admirably it is fitted for the garden, as the lobed leaves are abundantly produced, and in fine contrast to those of such as *A. p. dissectum*. *A. p. palmatifidum* has deeply cut leaves of a beautiful pale green; *laciniatum* has also leaves with broader lobes and of a cheerful green, the young shoots coloured with red; *lobum* is almost entirely green, with scarcely any pink to the young growth. The most brilliant perhaps of all is *Acer p. sanguineum*, which is peculiarly beautiful when the sun shines fully upon the deep reddish crimson leaves; it looks as if on fire. Some specimens on a slope in the nursery are quite a feature. Sandy loam suits these Maples.

Hardiness of the Furze.—I quite agree with all that "J. B. W." says in *THE GARDEN*, June 9 (p. 539), as to the hardiness of Furze. Both the single and double-flowered kinds are often killed wholesale by frost in East Anglia, a much lower altitude than the 1000 feet specified by "J. B. W." Neither do I think there is any appreciable difference between the hardiness of the double and single-flowered forms. Practically, there is a wide difference in the facility of replacing the two. The double-flowered form has to be increased by cuttings, and where it is grown to any considerable extent, batches of these should be put in every year, for it seldom breaks so freely from the root-stock as the single

form, and, of course, there are no seedlings. Even the single Furze, however, when severely frozen, often refuses to break afresh, and the grower has to wait patiently till natural seedlings spring up to clothe the ground that has been cleared through cold. Furze seems frequently killed in large masses by a little over 20° of frost, while black frost reaching from 20° to zero mostly works great havoc and destruction among the Furze. A coat of snow, if sufficiently thick, renders Furze invulnerable against the severest winter. Has "J. B. W." or others noticed that the older the Furze (double or single-flowered) the more susceptible to injury from severe cold?—HORTUS.

ORCHIDS.

SEASONABLE NOTES.

So far we have had very little summer weather; in fact, circumstances upon the whole have favoured the Orchids in all three divisions. Those cultivated in what is termed the cool house do not like excessive heat certainly, but, so far as one may venture to remark after many years' experience, I would say that they do not suffer so much as some people suppose. I have always been located in a hot and also a dry district, and have not only attended to the daily wants of cool Orchids, but have repotted both *Odontoglossums* and *Masdevallias* in the hottest and the coldest weather, and have not found any difference in the future well-being of the plants. The principal thing is to see that the atmosphere is moist enough, and that the surface of the material in which the plants are potted consists of damp and living Sphagnum. When the Sphagnum dies, it is a sign that there is something wrong. Either the plants have not received enough water, or the water itself has contained either lime or chalk, which are undoubtedly injurious. I would, in building Orchid houses, suggest the desirability of always providing sufficient rain-water tanks to catch all the rain that falls on the roof glass. We have large tanks built of bricks set in cement and lined with Portland cement. It is very important to have a good foundation on which to build, because if it gives way in the least, cracks are made in the brickwork, the water escapes, and it is necessary to empty the tanks and make good the damaged parts, and this may have to be done more than once.

As I write these lines the weather is not at all warm, and the rainfall is causing a very moist atmosphere out of doors, circumstances very favourable indeed for the repotting of cool house or any other Orchids. What does much harm to this section of plants is leaving the spikes too long upon them. Many species produce large and heavy spikes out of all proportion to the bulbs from which they have issued. And not only so, but some of them will remain in perfect condition after the flowers open for a period of two or three months. The bulbs of *Odontoglossum crispum* will sometimes shrink considerably when a large spike has been allowed to remain with the flowers open on it for weeks. If a valuable variety is likely to get into this plight it is better to cut the spikes off. *Oncidium macranthum* will suffer even more. If the spikes of this species emerge from the side of the bulb in September they continue to grow for nine months before the flowers open, and these will remain in beauty for a month or six weeks longer. We have one specimen plant, which I have found necessary to rest for a year by cutting off the flower spikes. Other *Oncidiums* such as *O. incurvum* will take nearly as long from the time the spikes first show themselves until the flowers fade. This may probably tell more against the plants during hot summer weather than it would in autumn or spring. Cool-house Orchids that succeed best in the Cattleya house during winter should be placed in the coolest house now, as there the temperature will be what they most require. *Odontoglossum vexillarium*, *O. Harryanum*, *O. Phalaenopsis*, &c., are all migratory species in England. It is also a good time of the year for repotting some of the Cattleyas. They seem to start into growth, or at least the roots grow freely, and the plants are soon established. The

great wealth of bloom produced from *Cattleyas*, *Lælias* &c., will be over by the end of the month, and a higher temperature, as well as a more moist atmosphere, may be maintained. In reference to the repotting of *Cattleyas* at this season, I may say that we invariably repot a goodly number in June, and they do well. I have made up large specimens of *C. Mossiæ* and *C. Mendeli* with plants taken from smaller pots, left them so for two or three weeks, taken them out and repotted them again, and they have done well year after year. The same remark applies to *Masdevallias*, *Oncidiums*, *Cypripediums*, &c. The main point is to see that the work is done carefully, and that the plants do not receive any check from lack of water or unsuitable atmospheric conditions. I may also add here that many of the Mexican *Cattleyas* and *Lælias* require rather different treatment from that given to some of the South American species, the latter being so much more easily induced to flower. There is no difficulty in getting good flowering

as freely in winter as they do in summer. I like to repot them as they go out of bloom, and when any plants have grown into a close mass they should be divided by pulling the parts carefully asunder by hand. They will not stand cutting with a knife, as this severs many of the roots, and may cause material injury to the plants. I may add here that *Masdevallias* are also injured by being separated with a knife. They readily part asunder at a joint when broken up by hand, and if the work is carefully done they start into growth very speedily. *Cypripediums* require considerable supplies of water at this season, and recently shifted plants may require it almost daily. Plants requiring much water must also have the drainage seen to. In most instances the pots are filled to half their depth with clean drainage, and quite half the material used for potting should be *Sphagnum Moss*, the other half fibrous peat, torn up from the squares by hand; plenty of broken potsherds may be mixed with it, and some nodules of charcoal. In this

Odontoglossum Roezli is our favourite warm house Orchid; all the plants have now very nearly gone out of bloom, but for many months they have filled the house with a delicate rose-water perfume. The flowers also last long in beauty, and a succession is maintained for many months after the main bloom is over. To guard against thrips we now dip all the plants quite overhead in a solution of soft-soapy water and tobacco liquor. All of the plants requiring repotting will be seen to at once, and those that do not need this attention will be surface-dressed. All *Dendrobiums* needing repotting, or requiring to be placed in teak baskets, should also be seen to, and be pushed into growth as rapidly as possible. They require a warm position in the warmest house. *Vanda teres* is now going out out of bloom; this we place close to the roof-glass in a warm place, and do not shade much. It is also syringed daily with tepid rain water. *Oncidium ampliantum majus* is also pushed on now in a high temperature; and, in fact, all such plants requiring to make their growth



Hydrangea hortensis as a lawn plant. (See p. 589.)

sheaths on *C. Mossiæ*, *Mendeli*, *Trianae*, &c. Those I find most difficult to flower are the white forms of *Lælia anceps* and *L. majalis*, but the difficulty is overcome by placing them in a light airy position, and practically unshaded. If shading is used it should only be for a short time in the middle of the day in very hot weather. They also require to be kept very cool and dry in winter. We have a lot of *L. majalis*, and very few plants have missed flowering; these and others of the same genus require to be repotted but once in two years.

This is a good time to look over all the occupants of the East India house. The popular subjects at present are *Cypripediums*, and the warmest house contains a goodly number of them. They are plants that cannot be said to have a resting period in the sense that Orchids with large pseudo-bulbs require rest—in fact most of them continue to grow

mixture we have an excellent material for nearly all the *Cypripediums*. A few of them, such as *C. niveum*, *C. Spicerianum*, &c., may be benefited by having some turfy loam, composed of tough fibre from an upland pasture, added to it. In parting these plants, it must have been observed that the divided portions have sometimes very few fibrous roots, not enough to keep the plants in an upright position, and when water is applied they may fall over. All such plants should have two neat sticks inserted in the potting material, one at each side of the plant, and if a single leaf on each side is tied to the sticks the plant will be quite safe. This is one of the most important points in the culture of Orchids. The plants must either be sufficiently firm after potting to remain in an upright position, or they must be made so. They cannot thrive unless anchored firmly to the soil.

are in a warm house and well supplied with moisture. J. DOUGLAS.

Orchids in flower in "my garden."—The glass houses in Mr. Smee's garden are not grouped together, but they occur here and there throughout the grounds. Amongst the numerous plants to be found here is a somewhat extensive collection of Orchids exceedingly well grown and flowered. At the blooming season they are removed to a large stove in which are grown in pots and planted out numerous Ferns of various kinds, whilst overhead are trained flowering climbers in great quantity. Amongst these Ferns the flowering Orchids are arranged, and produce a wonderfully charming effect. Conspicuous was a vast quantity of *Cattleya Mossiæ* in great variety (I am pleased to see this beautiful old kind becoming again such a great favourite);

C. Schroedera, with its sweet perfume of new hay, was also here, as also its rarer variety *albescent* and some very fine forms of *C. Mendeli*. *Masdevallias* and *Odontoglossums* in quantity, many *Oncidiums*, the pretty *Thunia Marshalliana*, *Lycaste Skinneri* and *L. Deppei*, and numerous forms of *Cattleya gigas* were also to be seen. *Cattleya gigas* is well grown here, producing annually quantities of large, handsome flowers, which appeared to me exceedingly early. These plants are grown close to the glass, so that they may obtain as much light as possible. They still confirm my previous statements, that it is not the form with the large, club-shaped bulbs that blooms the most freely. Besides these were quantities of such plants as fine varieties of *Dendrobium thyrsiflorum*, *D. moschatum*, *D. cariniferum*, *Lælia majalis*, and hosts of other curious and beautiful kinds.

Anguloa intermedia.—This is a hybrid recently named and exhibited by the Messrs. Veitch, of Chelsea, the plant having been some ten or eleven years growing from the seedling state before it developed its flowers. It is the result of a cross between *A. Clowesi* and *A. Ruckeri*. The individual flowers are about the size of those of *A. eburnea*, the ground colour creamy white, profusely spotted on the inside with soft crimson, and flushed with rose round the edge; the spotting shows through to the inside, which is pale olive-green or dull brown; the side lobes of the lip are also heavily spotted in the same manner, the front lobe being narrow and of a deep orange colour. The flowers are very fragrant. It would appear, however, that the hybridiser at home has been forestalled by natural agency, for in Mr. Measures' garden at Streatham there is an imported plant of the same variety flowering, and it flowered in the same collection last year. This affords clear proof that new Orchids are continually being produced by intercrossing in a state of Nature, and thus our supply of new kinds is practically unlimited. In home-raised hybrids, however, there will always be an advantage, as the parents for crossing can be selected with forethought and skill.

SHORT NOTES.—ORCHIDS.

Cypripedium selligerum majus has a far larger flower than that of the type, and the colour is also deeper. It is a bold Lady Slipper.

The singular *Nanodes Medusæ* is flowering in the Chelsea nursery of Messrs. Veitch. Its crimson flowers were fully described in THE GARDEN, p. 495.

Odontoglossums are now flowering freely with the Messrs. Veitch; there are several varieties of *O. Alexandræ*, *Halli*, and *cordatum*, all bearing strong racemes of bloom.

Cypripedium Parishii, now in bloom, is not often seen. The flowers are greenish in the sepals, and the twisted tail-like petals are deep crimson, the lip green and purple.

Thunia Bensoniæ is in bloom now, and is a beautiful species of the character of *T. alba* in appearance, but the flowers are rich magenta. *T. Marshalliana* is conspicuous for its beautifully frilled orange lip.

Phajus tuberosus has flowers over 2 inches across and pure white sepals and petals, the lip being very richly coloured, yellow, spotted with dull crimson; the front lobe white, dotted with rose-purple. It is in flower with the Messrs. Veitch.

Cattleya Blunti.—This is certainly the purest white form of this genus, the whole flower being pure, without spot or shade of colour, saving a few lines of pale yellow quite at the base of the throat. It is a variety of *C. Mendeli* and is very rare. It is now flowering in The Woodlands collection at Streatham.

Epidendrum paysonense.—This belongs to the slender-stemmed set, and is a truly charming plant, producing panicles of rich deep orange-yellow flowers. It is now flowering in Mr. Smee's garden, and is well deserving more extended cultivation, especially as it thrives under cool treatment.

Cattleya Aclandiae.—I recently noted a superb form of this species in which the ground colour of the sepals and petals is a rich deep amber or Indian yellow, upon which the usual dark blotches are very conspicuous.—W. H. G.

Phalænopsis speciosa.—This is a species too seldom seen, especially such a fine form as is now flowering in Mr. Smee's garden, in which the sepals and petals are ivory-white, sparingly blotched with purplish magenta. *Phalænopsis* appear to thrive well in this garden, although at present the plants are not exceptional in size.

Lælia purpurata.—A fine form of this is now flowering in Mr. Tautz's collection at Shepherd's Bush. It has pure white sepals and petals and a large rich

purple lip, the throat being very conspicuous and of a bright orange. It is not new, however, as in the course of my travels this season I have noted the same variety. It is, nevertheless, very beautiful and one of the showiest forms of this species.

Aerides expansum Leonis is a somewhat curious kind. I recently noted it flowering in Mr. James' nursery at Norwood. It bears a many-flowered raceme, the flowers being large and much expanded, the ground colour white, tipped and spotted with rosy purple. It is a showy plant belonging to the *A. falcatum* group.—W. H. G.

A blue-flowered Cattleya.—Are we to have a genuine blue-flowered form of this genus? Improbable as I should have thought this some time ago, I begin to waver in my faith from seeing a fine form of *C. Warneri*, in which the interior portion of the lip was pure slate colour or lilac, tinged with blue. The shade of colour is certainly a more decided blue than was that of the first of the blue Chinese *Primulas*, which have rapidly developed towards the desired shade of colour. Truly a blue *Cattleya* would be a grand acquisition.—W. H. G.

Maxillaria Sanderiana.—This species is now flowering in several collections. It produces a large and beautiful flower, which, however, is subject to considerable differences in its markings. A good form of it was figured in THE GARDEN, July 23, 1887. The most rational manner of growing this species is in an open hanging basket, as the flowers naturally take a downward direction, and protrude from the bottom, after the manner of a *Stanhopea*. Years ago Mr. Biteman said we had in cultivation only the very worst types of this genus, and this plant would appear to verify his statement. Three kinds now known are worthy of a place in every collection, *i.e.* *M. grandiflora*, *M. venusta*, and *M. Sanderiana*.

Brassavola Digbyana.—This is always a rare plant and a very shy bloomer, although it has been an inhabitant of our Orchid houses for many years. The finest specimen which I have ever seen formerly existed in the Kew collection; it was also a very fine variety, but it produced very few blooms. In habit of growth it resembles a *Cattleya* or *Lælia*, to which latter genus it has recently been removed, the bulbs and foliage being covered with a glaucous hue; the flowers are very *Cattleya*-like in shape, and are some 5 inches or 6 inches across, solitary and very fragrant; the sepals and petals are spreading and of a yellowish green; lip very large, heart-shaped, flat, and creamy white, with a deep fringe all round. It is a native of Honduras.—W. H. G.

Anæctochilus.—It is quite refreshing to find these plants now-a-days in cultivation, so much have they been ignored of late years. There are, however, some few species in Mr. Smee's garden, and I believe he is determined to make a specialty of them. I heartily wish him success, for no plants that I know possess such exquisitely beautiful foliage. In the old days when I used to have a large collection of them, I found that to allow them to flower was very weakening, although I am under the impression that naturally the same plants do not live long, but flower and die away, the seedlings coming up to take their places.—W. H. G.

Cattleya Schilleriana.—This is a rare and variable plant, supposed to be a natural hybrid between *C. Aclandiae* and *C. guttata*, but it partakes more of the habit of the first named parent, as well as in the shape of its large flowers. The sepals and petals are undulated, spreading, and usually of a rich bronzy-purple, more or less heavily spotted; lip large, three-lobed, the side lobes rolled over the column and white outside, streaked inside with yellow and purple, the anterior lobe large and flat, fringed at the edge, of a rich crimson-purple, traversed with radiating lines of white, disc yellow. It requires about the same treatment as *C. Aclandiae*. Good varieties of this plant were recently flowering in Mr. Smee's garden, and also in that of Mr. Cannon's collection at Merton, in Surrey. This must not be confounded with *Lælia Schilleriana*, which belongs to the *L. elegans* set of plants.

Cattleya nobilior.—This somewhat rare plant is now flowering in Mr. Buchan's collection at Southampton, as its flowers are amongst a gathering of blooms recently received. It is nearly re-

lated to *C. Walkeriana*, as is evident by its habit of flowering, like that plant, on stems distinct from the growth. The flowers are produced in threes together on a spike, each measuring upwards of 4 inches across; the sepals and petals in this variety are deep rose colour, thick and fleshy in texture; lip three-lobed, the middle lobe of the same colour as the petals, and bearing a large primrose-coloured blotch in the centre, through which run various crimson and lilac lines. It is a native of Brazil.

Cattleya dolosa, which is now flowering in the nursery of Mr. James at Norwood, is quite distinct from *C. nobilior*. *C. dolosa* is a dwarf species, with somewhat the habit of *C. Walkeriana*, but from which it differs materially, inasmuch as its flowers are not produced from an abortive or special stem, but upon a fully developed pseudo-bulb. The flowers are slightly smaller than those of *nobilior*, of a soft rosy lilac colour; the lip is three-lobed, middle lobe rosy magenta, with a yellow stain on the disc. It comes from the province of Minas, in Brazil, and is by no means a common species in cultivation.

BOOKS.

A MANUAL OF ORCHIDACEOUS PLANTS.*

THE third part of this work, containing the genera *Dendrobium*, *Bolbophyllum*, and *Cirrhopetalum*, has just reached us. It is compiled on the same careful plan as the two preceding parts, and contains two coloured maps illustrating the general distribution of the different species. It is also accompanied by numerous well-executed woodcuts, principally of the different sections of the genus *Dendrobium*, whilst the cultural details are full and ample. Of the large and beautiful genus of *Dendrobies* there are nearly 150 species and varieties enumerated, of which about sixteen are home-raised hybrids. *Dendrobiums* have only contributed one or two natural hybrids, which is a curious fact, and vastly at variance with the western genus *Odontoglossum*. Of this quantity of *Dendrobies* about forty find a home in the province of Burmah, which appears to be a perfect Eldorado in this genus. Of the forty Burmese kinds we are indebted to the exertions of the Rev. Mr. Parish for the discovery and introduction of nearly a half. *Bolbophyllum* and *Cirrhopetalum* are somewhat small genera, but further research will in all probability add considerably to the kinds hitherto known. These genera, especially the latter, contain many exquisitely beautiful plants, and their beauty of colour and curious structure should obtain for them more extended culture.

THE ORCHID ALBUM.

THE May number of the *Orchid Album* contains the following descriptions:—

LÆLIA ANCEPS STELLA.—This is a very beautiful form of the white *Lælia anceps*. The sepals and petals are broad and pure white, lip white, disc and throat stained with yellow, the latter marked with radiating lines of purple. It flowered in Mr. Gaskell's collection in the early part of the present year.

MORMODES PARDINUM.—A showy member of a somewhat neglected genus, producing dense racemes of flowers, which are rich deep yellow profusely spotted with brownish crimson. It is a plant which enjoys strong heat and moisture when growing, and a decided season of rest. It is well grown and flowered in Mr. Law-Schofield's collection at Manchester.

LÆLIA ELEGANS MORRENIANA.—This is a superb form of the species belonging to the *prasiata* section. It is, however, very much richer and deeper in colour, the lip being intensely deep in its markings.

DENDROBIUM KINGIANUM ALBUM.—A long-spiked form of the typical *Kingianum*, from which it differs in no respect saving colour and in the ease with which it can be grown. The flowers are pure

* "A Manual of Orchidaceous Plants." James Veitch and Sons, Exotic Nurseries, King's Road, Chelsea.

white. It blooms during the end of winter and early spring. It is one of the many novelties to be found in Mr. Smee's charming garden at Carshalton.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC SOCIETY.

JUNE 20.

AGAIN we have to chronicle a success as regards the show itself, but the miserably cold and wet weather resulted naturally in a comparatively small attendance of visitors; and, unfortunately, in the matter of weather, the Botanic Society have a poor record for 1888. The exhibition was weak in stove and greenhouse plants—no great news now-a-days, as this class is rapidly going out of cultivation, but there were plenty of hardy flowers, cut Roses, Irises in abundance, and a fine show of fruit to atone for the deficiency in other respects. Of flowering indoor plants Orchids were perhaps the gayest, tuberous Begonias coming next, and these are always improving. We may remark, however, that certificates seem to have been recklessly given; there were so many that want of space prevents special mention of those plants recognised in this way. This wholesale bestowal of certificates lessens their value; they become so common as to have no real worth. Over fifty were given.

ORCHIDS were in abundance, and the usual bank was filled with them. Mr. James Cypher, Cheltenham, was first in the class for twelve kinds, and he had Cattleyas Warneri, Mendeli, Mossiæ, and Sanderiana in good varieties; the latter is especially rich, the lip of the deepest purple with a pale, almost white, marginal line; Dendrobium Falconeri and the showy orange-scarlet Epidendrum vitellinum majus were represented by well-grown specimens. The second prize went to Mr. H. James, Castle Nursery, Norwood, and amongst the plants was a good example of Cypripedium barbatum nigrum, which has a flower of a rich deep brown colour. In the amateurs' division, Mr. F. Hill, gardener to Mr. Henry Little, The Barons, Twickenham, was the most successful, and the specimens staged were exceedingly good, especially Cattleya Warneri, one of the most beautiful of the Cattleyas in bloom now; Lælia purpurata, Cattleya Sanderiana and C. imbricata, a supposed hybrid between C. amethystoglossa and Lælia elegans; sepals and petals greyish brown, spotted irregularly with crimson; lip deep purple. For a collection of Dendrobiums and Cypripediums, Mr. F. J. Hill was first, showing the beautiful, almost pure white Cypripedium niveum, C. Veitchi, a bright coloured form of C. callosum, and Dendrobium thysiflorum. In the nurserymen's class for these Orchids Mr. Cypher was to the front with an excellent group, comprising, amongst other things, the beautiful Dendrobium Bensoniæ, the rose and white D. tortile roseum, the rich yellow D. suavisimum, and the bold, striking D. Jamesianum. Mr. Sander, of St. Albans, had a miscellaneous group of Orchids, in which were several fine forms of Odontoglossum Alexandræ, the flowers large, massive, and richly spotted in some instances. There were also the richly coloured Odontoglossum cordatum splendens, a far finer flower than that of the type; Phalenopsis Kimballiana, a very distinct and beautiful Phalenopsis, the flowers very neat, rich yellow, barred with brown, the lip pale rose-pink; O. vexillarium ruberrimum, rich rosy red; and O. Coradinei hemileucum, a distinct variety of a cheerful yellow colour, relieved with large rich brown blotches on the sepals and petals, and a few irregular spots of the same colour. A silver medal was given. Messrs. Hugh Low and Co., Clapton, had a remarkably gay group, in which were richly coloured forms of Cattleya Mossiæ, one named Claptonensis being worthy of note, and one known as C. Mendeli Firthi. This reminds one of the beautiful C. Rothschildiana; it is very bright, the frilled lip rich purple, and the petals broad with a faint tinge of purple, which is intensified at the apex of each. There were also flowering specimens of C. bellatulum, which is now well known for its beauty and massiveness of character. The award of a silver medal was made. The group of Cattleyas from Mr. Henry

Little contained excellent varieties of C. Mossiæ, Mendeli, one of the latter section named fimbriata, having a flower of large size, with the sepals and petals of a lovely rose tint; the lip deep purple. There were also good forms of Lælia purpurata, and a useful form of C. Mendeli named H. Little's variety. A silver medal was awarded, and also to Mr. G. Elliott, gardener to Mr. W. F. Darnell, Stamford Hill, for a group of Orchids, in which Cattleyas, Odontoglossum Alexandræ, and Lælia purpurata were the leading kinds. A variety of Phalenopsis speciosa named Imperatrix came from Major-General Berkeley, Sibbertoft, Market Harborough; it is wholly deep rose-purple, and the flowers are a trifle larger than those of the type. The well-arranged group of Mr. B. S. Williams, Upper Holloway, contained mostly Orchids, of which the most striking were Thunia Bensoniæ, the finest of the Thunias for colour, varieties of Cattleya Mossiæ, and C. Warneri, and a large plant of Brassia verrucosa, also Cypripedium bellatulum. The same firm had in the group Leea amabilis splendens, a foliage plant of a deep brownish colour, the young growth brighter, and with a midrib of silvery white, and Sarracenia Williamsi, described in last week's GARDEN. A silver medal was awarded.

Hardy flowers we expect now, and they were seen to advantage on this occasion. The Iris were admirably and largely shown, though, except the more striking of the German varieties, these are not "show" flowers, although interesting. For twenty-four trusses of hardy herbaceous flowers, Mr. T. S. Ware, of Tottenham, was first, and he had large masses of such lovely plants as the deep blue Campanula glomerata dahurica, the yellow Lilium colchicum, the white semi-double Chrysanthemum Leucanthemum, the orange-scarlet Papaver nudicaule miniatum, and Pæonia Whiteleyi, which has pinky white guard petals and a yellow centre. Messrs. Paul and Son, of Cheshunt, who were second, had a mass of the purple-violet flowered Pelargonium platypetalum, Dictamnus fraxinella, Countess of Kintore Pansy, and a good variety of the double Geum coccineum, the flower very striking by reason of its brilliant, rich red colour. Messrs. Barr and Son, of Covent Garden, had a fine show of Iris, Pæonies, and other flowers; Pæonia albiflora rosea, rich rose, and Lilium davuricum incomparable, rich orange and scarlet, were worth a note. A bronze medal was awarded; and Mr. T. S. Ware had a similar recognition, showing Iceland Poppies in variety, and Allium Ostrowskianum, bearing a head of medium sized dull rose flowers. Messrs. Paul and Son had Dianthus plumarius annulatus, a free-flowering Pink with white fringed flowers, having a deep crimson centre, and the white Ramondia pyrenaica; also Dianthus Greivei, rose and white; D. neglectus, rich crimson; and the diminutive Rosa spinosissima var. pimpinellifolia, the flower a little larger than that of the Blackberry, and creamy white. Messrs. Collins and Gabriel, Waterloo Road, had a collection of Irises and Pyrethrums, the flowers well developed and the colours various. The same firm had a collection of Pansies, the flowers of excellent shape, and, in most cases, self-coloured. There was good competition in the class for a collection of cat spikes of Iris, Messrs. Barr and Son coming first, and Mr. T. S. Ware second. Messrs. Kelway and Son, Langport, Somerset, exhibited several boxes of Pyrethrums, single and double-flowered, showing how much this flower has been improved in shape and colour. Queen Sophia is a double variety of superb finish, the colour of a light pink; the single rich pink variety Mr. Santley and the deep single crimson-flowered Duke of Connaught were great advances on existing kinds. Wega is a double kind that will be valued for its colour; the double Pæony Princess Maude is a flower of immense size and of delicate colours; the guard petals pinky white, the centre cream yellow; a grand Pæony. A silver medal was given. A similar award went to Messrs. J. Laing, who had tuberous Begonias and Gloxinias both in full perfection. Amongst the Begonias were such varieties as Camellia, deep crimson; Claribel, salmon-pink, white centre; Duchess of Teck, yellow, and Lord Loughborough, scarlet; Viscountess Cranbrook, bright salmon-

rose, all double varieties of the finest shape. Amongst the single forms were Lady Idlesleigh, buff-yellow, Monarch, crimson, bright and handsome. Gloxinias Meteor, rose, and Nabis, white, spotted with purple, were also good; while the same firm exhibited several Caladiums of great merit; Oriflamme, dull red, and La Lorraine, rich red, were notable additions. Messrs. Cannell, of Swanley, also showed tuberous Begonias, of which the varieties J. E. Midson, single, rich crimson; Prince of Orange, single, salmon colour; Mrs. Midson, double white; Sir J. Pender, double, salmon; and Mrs. B. Wynne, delicate salmon, also double, were the best.

Messrs. J. Veitch and Sons, Chelsea, showed a large group, comprising Japanese Maples, the distinct Senecio elæagnifolia, a shrubby plant, with ovate leaves lined with brown; the delightfully graceful Eulalia japonica gracillima, the variegated Rosa microphylla variegata, Epidendrum James O'Brien, Ardisia mamillata, woolly leaves of a deep green colour; Begonia Arthur Mallet, bronzy rose leaves, a handsome foliage plant; and a large bank of Iris, Ixias, double and single Pyrethrums, &c., besides greenhouse Rhododendrons, of which Aurora, orange-salmon, and Ophelia, are two valuable additions to this useful class.

In the division for stove and greenhouse plants, Palms, and foliage plants, Mr. Henry James and Mr. A. Offer, gardener to Mr. J. Warren, Handcross Park, Crawley, were, as usual, amongst the most successful; and for Pelargoniums of all classes, Mr. Charles Turner, of Slough, Mr. D. Phillips, and Mr. Henry Little were the principal prize-takers, each having specimens full of flower.

Cut Roses were plentiful, and Orchids, especially those of Mr. Douglas, deserve special mention. Maréchal Niel and Lady Mary Fitzwilliam were amongst the best varieties of Roses exhibited. An interesting class was for six fine scented Roses, and Messrs. Paul and Son had Lady Mary Fitzwilliam, Maurice Bernardin, La France, Senateur Vaisse, Violette Bouyer, and American Beauty, a coarse Rose, but very fragrant.

Fruit was exceptionally good for the season, especially the Grapes, which were largely shown. Mr. J. Roberts, gardener to Messrs. Rothschild, Gunnersbury Park, was first for a collection, having excellent Grapes, Nectarine Lord Napier, and Black Tartarian and Bigarreau Napoleon Cherries. Mr. T. Hare, Wellington Gardens, Grantham, had the best Melons, and Mr. H. Cakebread, gardener to Sir P. Rose, Rayners, Bucks, the finest specimen of Queen Pine. In the class for a Pine-apple, any except the Queen, Mr. J. Muir was first with the Smooth-leaved Cayenne. The class for the best basket of black Grapes brought several competitors. Mr. J. Edmonds, Notts, had superb clusters of the Black Hamburg variety. Muscat of Alexander was well shown by Mr. Robert Grindrod, Whitfield, Hereford. In the class for Black Hamburgs, Mr. J. Edmonds had clusters of excellent finish, size, and colour. Mr. J. Roberts was first in the class for any other black variety than Black Hamburg, showing good bunches of Madresfield Court Muscat. Mr. W. Chuck, gardener to Mr. P. Thelluson, Brodsworth, Doncaster, had heavy bunches of the Duke of Buccleuch Grape, which is not often seen in such good condition. The classes for Peaches, Nectarines, Cherries, and Strawberries were well filled and the exhibits excellent. Messrs. Rivers and Son, Sawbridgeworth, had a silver medal for fruit, having a most interesting display, and Mr. W. Robin, Hartwell House Gardens, Anglesey, was awarded a bronze medal.

Amongst miscellaneous things that deserve notice were the basket of Statice floribunda from Messrs. Charles Lee, of Hammersmith, a lilac-blue-flowered kind; a group of seedling Anthurium Andreanum from Mr. W. Chuck; and a fine batch of the same Anthurium from Messrs. J. Peed and Sons, Norwood Road (bronze medal). The basket of Leschenaultia biloba, brilliant blue, from Messrs. W. Balchin and Son, Brighton, was exceptionally gay, and the single Pyrethrum (Jubilee) from the same firm was noticeable for its rich red colour. Mr. J. Chambers, Isleworth, had plants of the beautiful white tufted

Pansy Snowflake. A silver medal went to Mr. Scott, gardener to Miss Foster, The Holme, Regent's Park, for a miscellaneous collection of plants. The *Gloxinias* from Mr. H. Eason, gardener to Mr. B. Noakes, Highgate, were well grown and flowered; and the group of *Petunias* from Messrs. J. Carter, High Holborn, contained excellent specimens (bronze medal). The beautiful *Carnation Souvenir de la Malmaison* was exhibited by Mrs. H. Turner, Langley, Bucks. It is one of the finest of its class. Mr. C. Slocock, Woking, had *Thujopsis borealis lutea*, the young growth coloured with yellow.

A full prize list is given in our advertising columns.

THE GARDENERS' ORPHAN FUND.

A FULLY attended meeting of the committee took place at the Caledonian Hotel on June 15, at 7 p. m., Mr. George Deal presiding. The minutes of the last meeting having been read, the hon. secretary announced that there was a balance at the bank of £439 19s. 5d., including a cheque of £100 from the Duke of Bedford, but not the proceeds of the money boxes at the recent fête in the wholesale flower market, that 847 voting papers had been sent out, but 200 subscriptions for 1887-88 were yet unpaid. Some details of the dinner of July 13 were considered, and a sub-committee was appointed to draft the report of the committee for the year and prepare the balance-sheet. The total proceeds from the late fête were reported to be £237 11s. 4d., including £100 from the Duke of Bedford and £25 annual subscription, the remainder being from money placed in the boxes. The entire expenditure was £74 8s. 7d., leaving a balance of £163 2s. 9d., as an addition to the fund, which was considered highly satisfactory. A report was read from the sub-committee as follows:—

Your Sub-Committee have to report that the fête held in the Flower Market, kindly lent for the occasion by His Grace the Duke of Bedford, and under the patronage of H.R.H. Princess Mary Adelaide, Duchess of Teck, on Wednesday evening, June 6, proved a brilliant success. It was attended by the Marquis and Marchioness of Tavistock, the President, Sir Julian Goldsmid and Lady Goldsmid, the Right Hon. the Lord Advocate of Scotland, and many other members of the aristocracy, the total number of ladies and gentlemen present being nearly 7000. The Marquis and Marchioness of Tavistock and Sir Julian and Lady Goldsmid expressed themselves highly delighted with the extraordinary display of plants and flowers and the general arrangements. The Marchioness of Tavistock and Lady Goldsmid were pleased to accept handsome bouquets kindly presented for the purpose by Mr. T. A. Dickson, of Covent Garden. The press notices, copies of which are submitted, were unanimously of an extremely favourable character. The total expenses of the fête amount to £74 8s. 7d. The amount of money collected in the boxes presided over by twenty-eight young ladies was £127 7s. 10d.; this, with the handsome donation of £100 from His Grace the Duke of Bedford and a few sums received subsequently, make up a total of £237 11s. 4d., leaving a balance of £163 2s. 9d. to the credit of the fund. Your Sub-Committee desire specially to express their hearty thanks to the various officials and growers connected with the Market for their liberal assistance so cheerfully rendered, and recommend that the best thanks of this meeting be accorded to them.

Signed on behalf of the Sub-Committee—

GEORGE DEAL, Chairman.
W. RICHARDS, Hon. Secretary.

The meeting then resolved itself into a general committee of the fête, at which Mr. Assbee and a goodly number of the market growers were present, when a hearty vote of thanks was passed to the Duke of Bedford for granting the use of the flower market for the purpose of the fête, and the chairman was requested to convey the same to his Grace. A letter of thanks to the market growers (250 in number) was passed, and a copy ordered to be forwarded to each. Votes of thanks were also passed to Messrs. Bourne, Assbee, the ladies who took charge of the money boxes, and also to Mr. W. Richards, whose exertions to make the fête a success were heartily eulogised. The proceedings closed with a vote of thanks to the chairman.

Fabiana imbricata.—Could Mr. Goldring see the beautiful standard specimens, fully 6 feet high and as much through, of this shrub at Rhianva, in North Wales, and where they have stood quite unharmed for the past ten years, he would hardly have written that it is not, as a bush, perfectly hardy except in the southern counties. In Mr. Jackson's garden, Carnarvonshire, it has lived through winters when several of the so-called hardy plants were killed outright. It

is at once one of our loveliest shrubs, easily managed, and readily propagated from cuttings; and we think it a pity that our standard books on shrubs should deter planters from using it on account of non-hardiness.—A. D. WEBSTER.

DESTROYERS.

WASPS.

IN THE GARDEN, June 9 (p. 543), "A. D." asks for some particulars in the life history of wasps. These I have much pleasure in supplying. In regard to where they winter, as far as my own observations go, they more frequently than not choose the roofs of dwelling-houses, lofts, &c., or lumber or other unoccupied rooms to which they can gain access. They will creep in through any crack or hole in the tiles or slates of a roof, and hide away somewhere among the rafters where they are protected from the damp, and if they select a position near a chimney they can obtain a considerable amount of warmth. A few warm days in the spring appears to rouse them from their torpid condition, and they try to obtain access to the open air again. If there be any skylights or windows in the roof they naturally fly towards them, and may sometimes be found on them in considerable numbers. Such places should always be visited during the first few warm days of spring. One fine spring day, some years ago, I went up into the roof of the house I was living in where there were windows in the gables. On each of them I found several queen wasps vainly endeavouring to get out, and I need hardly say that they did not succeed. I suppose I killed some fifteen or twenty, and the next day a few more. Since then I have often found wasps in the spring on the windows, in roofs, &c., in other houses. One autumn when staying at a friend's, I noticed several queen wasps carefully searching the tiled roof of a low room, as if they were trying to find a means of entrance somewhere. The roof was just too high to prevent me frustrating their intentions. No doubt at times wasps may select other places. But I expect even in quite country places, the roofs of barns, sheds, hovels, &c., will be found to be their favourite winter resorts. A wasp's nest at the end of the season, quite unlike a bee-hive, contains a large number of queens, who seem to live together in perfect harmony. At the approach of winter, when food is probably getting short, they leave the nest and begin to search for a winter resting-place. A few sometimes use the nest for this purpose. The rest of the occupants of the nest, that is, the males and workers, die off. The latter, about this time, often pull the grubs out of their cells and kill them, as if they knew they could not become wasps so late in the season. The queen wasps after having been roused from their winter sleep by a few warm days, often fall victims to a sudden change in the weather; unable to find their way back to their winter quarters, and not having yet formed a nest, they have no protection against the elements. Insects seem to be able to bear almost any amount of cold when in a state of suspended animation, but under other circumstances, cold and damp weather has a most fatal effect on them. Those wasps, however, which have survived the winter and the perils of an English spring each make a nest. Having chosen a suitable position, they form a few cells, in which they lay their eggs, and have the entire labour of feeding the grubs. When these have undergone their transformations and become wasps, they assist the queen in enlarging the nest and feeding the grubs. In this way, the nest increases in size, until it contains, if a large one, some 16,000 cells and 30,000 inhabitants. G. S. S.

Insects on Lettuces.—Could you kindly obtain for me the name of the enclosed fly, male and female, and also state whether it, or its larvæ have any injurious character? I have seen the fly very often previously, but not in quantity. A few days since my attention was drawn to a large breadth of Lettuces in an open field which were so far smothered with this fly that fully a score might have been counted upon each plant. As this visitation was somewhat of a novelty, the grower was

alarmed. The insects seemed to have been borne this way by the bitterly cold east wind which prevailed so strongly here on the 5th and morning of the 6th. Insects injurious to vegetation, and especially to trees, seem to be so abundant this year, and have done so much harm, that they excite alarm.—A. D.

** In reply to "A. D.," the insects you forwarded are specimens of the St. Mark's Fly (*Bibis Marci*); it is a very common insect at this time of the year. It, as well as its grubs, are quite harmless to vegetation; the grubs are said to live in manure.—G. S. S.

Wireworm in the Strawberry house.—I wish to thank Mr. Coleman, who so kindly advised me how to deal with this enemy in THE GARDEN, March 10 (p. 230). He will be glad to learn that I have battled successfully against it. At first I tried slices of Carrots and Potatoes on the tops of the pots, but very few attacked the bait; so I inserted pieces in the soil, which answered better as far as catching the worms. I, however, found that the constant disturbance would prove injurious to the plants, so I tried soot water, weak at first, but increased the strength, and in three weeks most of the worms were destroyed. Soon after the plants began to grow vigorously, and set and swelled off a good crop of fruit. We have still some 200 in fruit. Lately I tried sulphide of potassium, which destroys them without injuring the plants; in fact, the plants look greener after its use. I have also tried sulphide for green-fly on Peach trees, Roses, and Chrysanthemums with good results. I have one complaint against the use of sulphide in newly-painted houses or those of a light colour, as it leaves a rusty stain which soda and hot water will not remove without fetching off the paint.—H. LOUTH.

** With the above communication were sent fine handsome fruits of Sir C. Napier Strawberry of good colour and well flavoured. Twelve fruits weighed half a pound.—ED.

Wireworm in the compost yard.—Here the remedy Mr. Coleman suggested has not proved so successful. I had the stack of turf all laid out thinly and watered with gaslime diluted with water, as I was informed it was very strong. I think, however, that if I had used it full strength it would have proved more effectual. As it is, the worms are still alive on the opposite side of the turves to which the water was applied.—H. L.

Lily of the Valley diseased.—I send you some leaves and roots of the Lily of the Valley, also chrysalis cases, of which there are hundreds lying on the top of the beds, which are almost entirely destroyed. I should be glad to know what the insect is and how to get rid of it.—J. B.

** In reply to the above, the chrysalis cases lying on your Lily of the Valley bed are those of a moth, but of what species I cannot say. It is too late to do anything now. If you find the foliage of the Lilies again attacked, search carefully for the marauder.—G. S. S.

Ripening Tomatoes.—Having read the able articles on Tomatoes by W. Iggulden and "A. D." in THE GARDEN, June 6 (pp. 559, 560), I quite agree with all the remarks they make about seeding, flavour, &c. They, however, I think, omit one important point in ripening the fruits so as to have them palatable—that is, withholding water when they are nearly ripe. Having grown Tomatoes in a hot climate where irrigation was required in summer, I found that those from which when ripening water was withheld had the best flavour. This also I have proved in England.—J. B. B. M.

BOOK RECEIVED.

"Rural Water Supply." By Charles L. Hett, Assoc. Member Inst., C. E. London: E. & F. N. Spon, 125, Strand.

Names of plants.—*M. S. B.*—*Lathraea clandestina*, an extremely rare plant, probably the only established piece in England. Where is this growing?—*A. Chapman*—1, *Cotoneaster sinensis*; 2, *A. arum europæum*.—*Mrs. Lane*.—*Ixia campanulata*.—*H. M. H.*—*Thunia Marshalliana*.—*J. E. D.*—1, *Papaver orientale*, 2, *P. o. bracteatum*.—*R. F. Jones*.—1, *Iris sibirica*; 2, *I. sibirica orientalis*; 3, *Iris striata*.—*E. M.*—*Rose White Banksian*.—*Anatolus*.—3, *Citrope-talum onitisimum*.—*Plants in tin box*.—So badly packed that the flowers came in pieces.—*C. C.*—1, common *Hem-bane*; 2, *Orange Ball-tree* (*Buddleia globosa*); 3, *send flowers*; *Pelargonium Robertianum*; 4, *Weigela rosea*; 6, flower withered.—*J. C.*—1, next week; 2, *Centaurea mon-tana*; 3, *Oriental Poppy* (*P. orientale*); 4, *Polemonium cæru-leum*.

WOODS & FORESTS.

THE LARCH DISEASE.*

PERHAPS no timber disease has caused so much consternation and difference of opinion as the Larch disease, which has been spreading itself over Europe during the present century, and which has caused such costly devastation in plantations. In the earlier stages of the malady the stem shows dead, slightly sunken patches of various sizes on the cortex, and the wood beneath is found to cease growing; it is a fact to be noted that the dead base of a dried-up branch is commonly found in the middle of the patch. The diseased cortex is found to stick to the wood below, instead of peeling off easily with a knife. At the margins of the flattened patch, just where the dead cortex joins the normal living parts, there may frequently be seen a number of small cup-like fungus fructifications, each of which is white or grey on the outside and lined with orange-yellow. These are the fruit-bodies of a discomycetous fungus called *Peziza Willkommii* (Htg.), and which has at various times, and by various observers, received at least four other names, which we may neglect.

In the spring or early summer, the leaves of the tree are found to turn yellow and wither on several of the twigs or branches, and a flow of resin is seen at the dead patch of cortex. If the case is a bad one, the whole branch or young tree above the diseased place may die and dry up. At the margins of the patch, the edges of the sounder cortex appear to be raised.

As the disease progresses in succeeding years, the merely flattened dead patch becomes a sunken blistered hole from which resin flows; this sinking in of the destroyed tissues is due to the up-growth of the margins of the patch, and it is noticed that the up-growing margin recedes further and further from the centre of the patch. If this goes on, the patch at length extends all round the stem or branch, and the death of all that lies above is then soon brought about.

To understand these symptoms better, it is necessary to examine the diseased patch more closely in its various stages. The microscope shows that the dead and dying cortex, cambium, and young wood in a small patch contain the mycelium of the fungus which gives rise to the cup-like fructifications—*Peziza Willkommii*—above referred to; and Hartig has proved that, if the spores of this *Peziza* are introduced into the cortex of a healthy living Larch, the mycelium to which they give rise kills the cells of the cortex and cambium, penetrates into the young wood, and causes the development of a patch which everyone would recognise as that of the Larch disease.

The next fact which has been established is that the fungus can only infect the cortex through some wound or injury—such as a crack or puncture—and cannot penetrate the sound bark, &c. Once inside, however, the mycelium extends upwards, downwards, sideways, and inwards, killing and destroying all the tissues, and so inducing the outflow of resin which is so characteristic of the disease. The much-branched, septate, colourless hyphæ can penetrate even as far as the pith, and the destroyed tissues turn brown and dry up. After destroying a piece of the tissues in the spring, the growth of the mycelium stops in the summer, the dead cortex dries up and sticks to the wood, and the living cortex at the margins of the patch commences to form a thick layer of cork between its living cells and the diseased area. It is this cork-formation which gives the appearance of a raised rim around the dead patch. It has long been known that the patches dry up and cease to spread in the dry season. It should be pointed out that it is one of the most general properties of living parenchymatous tissue to form cork-cells at the boundaries of an injury.

If it is remembered that the cambium and young wood are destroyed beneath the patch, it will be at once clear that in succeeding periods of growth the

annual rings of wood will be deficient beneath the patch. Next year the cambium in the healthy parts of the stem begins to form another ring; but the fungus mycelium awakens to renewed activity at the same time, and spreads a little further upwards, downwards, and sideways, its hyphæ avoiding the cork-layer and traversing the young wood and cambium below. During this second spring, therefore, a still larger patch of dead tissue—cortex, cambium, and young wood—is formed, and the usual cork-layer describes a larger boundary. Moreover, since the cambium around the, as yet, undiseased parts has added a further annual ring—which, of course, stops at the boundaries of the diseased patch—the centre of the patch is yet more depressed. And so matters go on, year after year, the local injury to the timber increasing, and ultimately seriously affecting, or even bringing to an end the life of the tree.

At the margins of the diseased patches, as said, the fungus at length sends out its fructifications. These appear at first as very minute cushions of mycelium, from which the cup-like bodies with an orange-coloured lining arise. The orange-red lining is really composed of innumerable minute tubular sacs, each of which is termed an ascus, and contains eight small spores. They are formed in enormous numbers, and go on ripening and scattering the spores day after day. There are many interesting details connected with the development and structure of these fructifications and spores; but we may pass over these particulars here, the chief point for the moment being that very large numbers of the minute spores are formed and scattered by the wind, rain, animals, &c. Moreover, as already stated, it has been shown by experiments that the spores will infect the stem of the Larch if they are introduced into a wound; but it is important to notice that the fungus cannot penetrate the sound cortex.

It now remains for us to see if, in the natural course of events, infection of the Larch can take place to any great extent; for, unless this is the case, we cannot reconcile the above peculiarities of the fungus with the prevalence of the disease.

It must be borne in mind that the Larch is an alpine tree, growing naturally at an elevation of from about 3000 feet to 6000 feet above sea level, and even more. In its native heights, both the Larch disease and *Peziza Willkommii* occur associated as we have described them, but the malady does not become epidemic, as it has done in the valleys and plains of Europe.

Several insect enemies of the Larch are known, some of which feed on the buds, and others on the leaves, &c.; it is not impossible that insect-wounds may serve occasionally as points of entry for the fungus. But attention should be directed to the remark made when describing the symptoms of the disease—namely, that a dead branch often springs from near the centre of the patch. Now it is a well-known fact in the hill-forests of Switzerland, Germany, Austria, &c., that heavy falls of snow often load the branches until they bend down to the ground, and the bark in the upper angle where the branch joins the stem is ruptured; similar cracks are also caused by the bending down of the branches under the weight of water condensed from mists, &c. If a spore alighted near such a place, the rain would wash it into the crevice, and it would germinate in the moisture always apt to accumulate there. This certainly accounts very completely for the situation of the dead branch, which of course would at once suffer from the mycelium. Another way in which such wounds as would give access to the parasite might arise is from the blows of hailstones on the still young and tender cortex.

But probably the most common source of the crevices or wounds by which the fungus gains an entry is frost; and to understand this we must say a few words as to what is known of the Larch at home in its native Alps.

It is well known, since Hartig drew attention to the fact, that in the high regions of the Alps the trees begin to put forth their shoots very late; the Larch in the lowlands of Germany and the British Isles often begins to shoot at the end of March or

beginning of April, whereas in the mountains it may be devoid of leaves in May. This is because the transition from winter to spring is very sudden on high slopes, whereas in the lowlands and valleys it may be very gradual. The consequence is that in the Alps, when the buds once begin to open they do this rapidly and vigorously, and the tender leaves and shoots are quickly formed and beyond the reach of those late spring frosts which do so much damage in our country; in the lowlands, on the contrary, the leaves slowly develop at a time when late frosts are very apt to recur at night, and they are for several weeks exposed to this danger; and if a sharp frost does come, the chances are that not only will the first output of tender leaves be killed off, but the whole shoot suffers, and frost wounds are formed in the young cortex.

Another point comes into consideration also. In warm damp valleys the whole tree is apt to be more watery, and it is well known that the soft tissues, like the cortex, suffer more from frost when filled with watery sap than do harder, drier, more matured ones. It has been shown, according to Sorauer, that dead patches, exactly like those which characterise the Larch disease in its early stages, can be artificially produced by exposing the stem to temperatures below zero, so as to freeze the water in the cells.

Given the above conditions for producing frost wounds, then, and the presence of spores of *Peziza Willkommii*, there is no difficulty in explaining the well-known phenomena of the Larch disease.

But Hartig has brought to light some other facts of great importance in considering this admittedly complex question. We have already stated that the *Peziza* does occur at the margins of the wounds in the Alps where the Larch is native. In these higher regions, however, the air is usually dry during periods of active growth and the young fructifications of the fungus are particularly sensitive to drought; consequently, even when many scattered trees are infected, the cups developed at the edges of the wounds are apt either to dry up altogether, or to produce relatively few spores, and these spores have fewer chances of germinating. In fact, the fungus enjoys at best a sporadic existence, chiefly at the bases of trees where the herbage affords a certain degree of dampness.

When the Larch was brought down to the plains and valleys, however, and planted in all directions over large areas, the *Peziza* was also brought with it; but it will be clear from the foregoing discussion that the climatic conditions were now proportionally raised in favour of the fungus, and lowered to the disadvantage of the Larch. Plantations in damp valleys, or in the neighbourhood of the sea, or of large lakes, were especially calculated to suffer from frost, and the damp air favoured the propagation of the fungus, and the disease tended to become epidemic. The enormous traffic in Larch plants also shows how man too did his share in spreading the epidemic. It is evident that the Larch should not be planted at all in low-lying situations exposed to late frosts; and even in more favoured valleys experience points to the advantage of mixing it with other trees.

As to the treatment of trees already diseased, it is possible (when it is worth while) to remove diseased branches from trees of which the trunk and crown are healthy, but it hardly needs mention that such diseased branches must be burnt at once. As regards trees with the stems diseased—in those cases where the patches are large, and much resin is flowing from the wounds, experience points to the advisability of cutting them down. In those cases where the tree is already very large and the diseased wound but small, it may be expedient to let them alone; theoretically they ought to go, or at any rate the diseased tissues be excised and burnt; but it seems to be proved that such a tree may go on forming timber for many years before the wound will spread far enough to reduce the annual increment below the limits of profit, and we all know the view a practical forester will take of such a case. At the same time it is the duty of the man of science to point out that even such a tree is a possible source of danger to its neighbours.

* Abstract of paper on "Timber and Some of its Diseases," by H. Marshall Ward, in *Nature*.

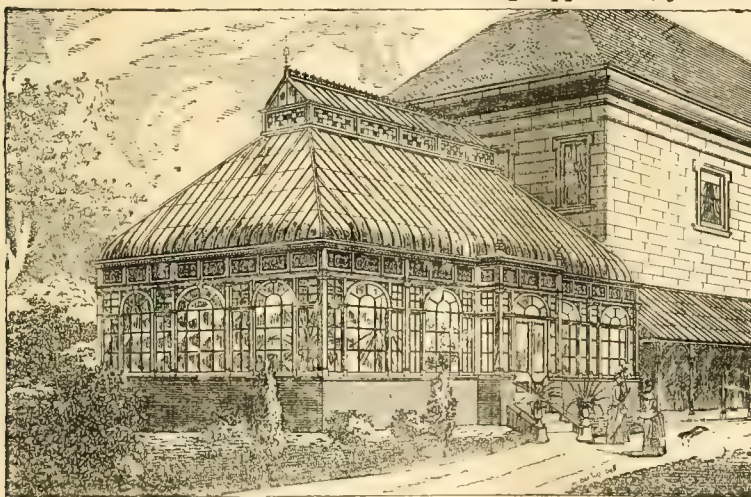
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FOREMAN or Second; age 26; foreman previously; twelve years' experience in all branches; highly recommended as to personal character and abilities.—J. CLARK, 5, Leicester Road, Ashby-de-la-Zouch.

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GARDENER (Head Working); age 31; married, one child; understands Pines, Vines, Melons, Peaches, stove and greenhouse plants, kitchen and flower gardens; five and a half years' good character.—GARDENER, 12, Wright Street, Newark.

GARDENER; age 32; thoroughly competent in all branches of the profession; early and late forcing; married, one child.—Address GARDENER, The Lodge, High Bank, Tonbridge.

GARDENER (Head); can be well recommended; well up in all branches of the profession; twenty years' experience.—Address, "G. S.," 37, Southampton Street, Strand, London, W.C.

GARDENER (Head Working); married, no family; age 37; thoroughly practical in all branches of the profession; over twenty years' experience in some of the best places in England; ten years' first class character as head gardener from last employer.—"M. L.," No. 1, Castle Place, Nottingham.

GARDENER.—Wanted by a thorough practical Gardener a re-engagement; eight years with present employer as Head Gardener; good reference; age 35; two children; cause of leaving, gentleman giving up establishment.—Address "H. N.," 80, Albert Street, Wisbech, Cambs.

GARDENER (Head); age 28; married; thoroughly experienced in stove and greenhouse and fruit department, also flower and kitchen garden; highly recommended by present employer, having been with him nearly five years as Foreman.—J. FENNELL, Monkshatch, Guildford, Surrey.

GARDENER (Head); age 37.—Miss Sheridan wishes to recommend S. PULLMAN; thoroughly experienced in all branches; highly successful as an exhibitor at Crystal Palace and other shows; had charge of plantations; fourteen years' personal character (ten years as head); leaving through death.—Miss SHERIDAN, 77, Eaton Sq., S.W., or S. PULLMAN, Evershot, Dorchester.

GARDENER (Head); age 46; married; good practical experience in all branches; sixteen years good character as Head; left through death; abstainer.—"C. F.," 6, Alfred Cottages, New Eltham, Kent.

IMPROVER.—Mr. PERRIN, Gardener to C. S. Roundell, Esq., Osborne, Haslemere, can confidently recommend a youth as above; four years' experience inside and out.

IMPROVER or Under Journeyman, under a good gardener; age 21; three years at Ferryby Brook, Morley, Derby, under Mr. Whittaker.—Address "W. B.," Ferryby Brook, Breadsall, Derby.

JOURNEYMAN (Indoors); has had good experience in good situations; excellent character from last employer.—"A. H.," 102, Aberford, Leeds.

JOURNEYMAN, in a good establishment; excellent references; eight years' experience; age 22.—"J. H. G.," Rectory Cottage, Whitechurch, Oxon.

J. TAYLOR would be glad to recommend a young man as Journeyman, who has been with him three years; age 25.—The Gardens, Hardwicke Grange, near Shrewsbury.

WANTED, a Situation as Gardener; understands Vines and forcing; seven years' good character; married, one child.—Apply F. BOOBYER, Iwerne Minster, near Blandford, Dorset.

GARDENER (Head Working); practical and trustworthy; age 43; one boy, seven years; wife understands dairy and poultry if required; eight years' excellent reference.—G. ALLEN, 26, William Street, Reading.

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PILLS.—Nervous Debility.—No part of the human machine requires more watching than the nervous system—upon it hangs health and life itself. These Pills are the best regulators and strengtheners of the nerves, and the safest general purifiers. Nausea, headache, giddiness, numbness, and mental apathy yield to them. Holloway's Pills are particularly recommended to persons of studious and sedentary habits, who gradually sink into a nervous and debilitated state, unless some such restorative be occasionally taken.

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JUNE 20.

AWARD OF PRIZES.

12 Stove and Greenhouse Plants (open).—1, Mr. H. James, Norwood.

6 Stove and Greenhouse Plants (amateurs).—1, Mr. A. Offer, Handcross Park, Crawley; 3, Mr. Butler, St. Dunstons, Regent's Park.

6 Stove and Greenhouse Plants (nurserymen).—1, Mr. H. James.

12 Exotic Orchids (amateurs).—1, Mr. J. Hill, The Barons, Twickenham.

12 Exotic Orchids (nurserymen).—1, Mr. Jas. Cypher, Cheltenham; 2, Mr. H. James.

Collection of Dendrobiums and Cypripediums (amateurs).—1, Mr. F. Hill.

Collection of Dendrobiums and Cypripediums (nurserymen).—1, Mr. Jas. Cypher; 2, Mr. H. James.

24 Trusses Stove and Greenhouse Flowers (open).—1, Mr. H. James.

12 Trusses Orchids (open).—1, Mr. Jas. Douglas, Ilford; 2, Mr. Jas. Cypher; 3, Mr. H. James.

6 Pelargoniums (nurserymen).—1, Mr. Chas. Turner, Slough.

6 Pelargoniums (amateurs).—1, Mr. F. Hill; 2, Mr. D. Phillips, Langley Broom, Slough.

6 Fancy Pelargoniums (nurserymen).—1, Mr. Chas. Turner.

6 Fancy Pelargoniums (amateurs).—1, Mr. D. Phillips.

6 Scarlet Pelargoniums (open).—1, Mr. F. Hill; 2, Mr. D. Phillips; 3, Mr. Eason, Highgate.

12 Begonias (open).—1, Messrs. Cannell & Sons, Swanley.

24 Trusses Hardy Herbaceous Flowers (open).—1, Mr. T. Ware, Tottenham; 2, Messrs. Paul & Son, Cuesunt.

Collection of Iris (open).—1, Messrs. Barr and Sons, Covent Garden; 2, Mr. T. Ware; 3, Messrs. Paul and Son.

24 Trusses Show Pelargoniums (open).—1, Mr. Chas. Turner; 2, Mr. D. Phillips; 3, Mr. F. Hill.

24 Trusses Zonal Pelargoniums (open).—1, Mr. D. Phillips; 2, Mr. F. Hill; 3, Mr. Eason.

Collection of Nepenthes and Sarracenias (open).—1, Mr. H. James.

6 Exotic Ferns (amateurs).—1, Mr. Offer; 2, Mr. Butler.

6 Fine Foliage Plants (amateurs).—1, Mr. Offer; 2, Mr. Butler.

6 Fine Foliage Plants (nurserymen).—1, Mr. H. James.

6 Palms (open).—1, Mr. Butler; 2, Mr. Offer; 3, Mr. H. James.

6 Variegated-leaved Plants (open).—1, Mr. Offer; 2, Mr. Eason; 3, Mr. H. James.

Roses, 12 vars., 3 trusses of each (amateurs).—1, Mr. Perry, The Woodlands, Chesham; 2, Rev. D. King, Madingley Vicarage, Cambridge; 3, Mr. Robins, Harwell House, Aylesbury.

Roses, 24 vars., 3 trusses of each (nurserymen).—1, Mr. Chas. Turner; 2, Messrs. Paul and Son; 3, Messrs. Keynes, Williams, Salisbury.

Roses, 12 Trusses Yellow (open).—1, Mr. W. Robins; 2, Messrs. Keynes, Williams & Co.; 3, Mr. Perry.

Roses, 12 Trusses, any colour one var. (open).—1, Messrs. Paul and Son; 2, Mr. Chas. Turner; 3, Mr. W. Robins.

Roses, 6 fine scented (open).—1, Messrs. Paul and Son; 2, Messrs. J. Burrell and Co., Cambridge.

Collection of Fruit (open).—1, Mr. Roberts, Gunnersbury Park, Acton; 2, Mr. Edmonds, Notts; 3, Mr. P. Blair, Trentham.

1 Pine-apple Queen (open).—1, Mr. H. Cakebread, Rayners, Bucks; 2, Mr. Smith, Newell Court, Tunbridge Wells; 3, Mr. Dawes, Temple Newsam, Leeds.

1 Pine-apple, not Queen (open).—1, Mr. J. Muir; 2, Mr. Smith; 3, Mr. T. Hare, Wellington, Grantham.

2 Melons, 1 Green, 1 Scarlet (open).—1, Mr. T. Hare; 2, Mr. J. Douglas; 3, Mr. J. Hollingsworth, Woodseat, Uttoxeter.

Grapes, Black (open).—1, Mr. J. Edmonds; 2, Mr. Osmon, Ottershaw Park, Chertsey; 3, Mr. J. Hollingsworth.

Grapes, White (open).—1, Mr. R. Grindrod, Whitfield, Hereford; 2, Mr. Geo. Clinging, Marden Park, Caterham Valley; 3, Mr. J. Hollingsworth.

Grapes, Black Hamburg (open).—1, Mr. J. Edmonds; 2, Mr. Osmon; 3, Mr. W. F. Smith.

Grapes, Black, any other kind (open).—1, Mr. Roberts; 2, Mr. Cakebread; 3, Mr. Geo. Thompson, Bunslow.

Grapes, Muscat of Alexandria (open).—1, Mr. Geo. Grimmett, Blenheim House; 2, Mr. Feist, Bishopsgate House, Staines; 3, Mr. Cakebread.

Grapes, white, any other kind (open).—1, Mr. W. Chuck, Brodsworth, Doncaster; 2, Mr. Roberts; 3, Mr. Clinging.

Peaches, 2 Dishes (open).—1, Mr. W. H. Owe's, Stamford; 2, Mr. Robins; 3, Mr. E. Gilman, Ingestrie Gardens, Stafford.

Nectarines, 2 Dishes (open).—1, Mr. Blair, Trentham; 2, Mr. Hare, Wellington, Grantham; 3, Mr. Gilman.

Strawberries, 2 Dishes (open).—1, Mr. W. Owens; 2, Mr. Worthing, Chadwick Heath; 3, Mr. Hare.

Cherries, 2 Dishes (open).—1, Mr. W. Blair; 2, Mr. Hare; 3, Mr. Palmer, Thames Ditton.

MARKETS.

WHOLESALE PRICES.

COVENT GARDEN.

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, per doz.	1 0-2 0	Beetroot, per doz.	1 0-2 0
Beans, Kidney, per lb.	0 6-0 9	Tomatoes, per lb.	0 6-0 10
Asparagus, per bun.	1 0-4 0	Potatoes, per cwt.	8 0-14 0
Cauliflowers, each	0 3-0 4	Spinach, per bushel	1 6-2 0
Lettuces, per doz.	0 6-1 0	Turnips, per bunch	0 4-0 6
Endive, per doz.	1 0-2 0	Carrots	0 4-0 0
Cucumbers, each	0 4-0 7	Leeks	0 3-0 4
Mustard and Cress	0 4-0 9	Cabbage, per doz.	1 6-0 0
and mixed salads	0 6-1 0	Coleworts, per doz.	2 0-4 0
Mushrooms, per bush	0 6-1 0	English Onions, sieve	3 6-0 0
Horse Radish, per bundle	1 2-1 6	Spanish ditto	2 0-0 0
		Capsicums, per 100	1 6-0 0

FRUIT.

Bananas, per doz.	1 6-0 0	Pomegranates, doz.	0 0-0 6
Grapes (hothouse), per lb.	3 0-5 0	Cocoa-nuts, each	0 0-0 6
Apples (cooking), per sieve	2 6-4 6	Cob Nuts and Filberts, per 100 lb.	45 0-0 0
Nova Scotian and Canadian, per bar.	10 0-18 0	Walnuts, per 100	1 6-2 6
Apples and Pears or choice class for dessert, per dozen	3 0-6 0	Spanish Nuts, Almonds, and Chestnuts, per quart	0 8-1 0
Lemons, per doz.	0 9-1 0	Large Walnuts, per 100	1 0-0 0
Quinces, per dozen	2 0-0 0	Oranges (large), per dozen	1 0-0 0
Strawberries, per lb.	2 0-4 0	Oranges (small), per dozen	0 6-0 0
Pine-apples, St. Michael	3 0-5 0		

FLOWERS.

Heaths and plants in full blossom, per pot	0 9-1 6	Sprays and button-holes, each	0 4-1 0
Baskets of flowers and large bouquets	3 6-10 6	Shrubs and Evergreens for halls, &c., per pot	1 0-1 6
Violets, 12 bunches	1 0-1 6		

Seed Trade.

To-day's market bare of buyers, and consequently a complete absence of business. Quotations for all descriptions remain purely nominal. For both Red and White Clovers there is a firmer feeling owing to the continued unfavourable reports of the growing crops. Sowing Mustard and Rape seed with increasing attention. Blue Peas are also inquired for. Other articles at this quiet season offer no subject for remark.

Flower Show Fixtures.

June 26.—Royal Horticultural, Boston.

27, 28.—Alexandra Palace Rose Show.

28.—Royal Horticultural of Ireland, Brockham, Ryde.

28, 29.—Stratford and Ilford.

30.—Eltham and Reigate Rose Shows, Colchester and East Sussex Horticultural Society, Rose Show.

July 2.—Kettering.

3.—Bagshot, Canterbury, Diss, Hereford.

4.—Royal Botanic Society's Evening Fête, Croydon, Farnham, Dursley, Wimbledon, Richmond, Hitchin, Enfield.

5.—Bath, Farningham, Wanstead, Weybridge, and Norwich.

6, 7.—Rose Show at People's Palace.

6.—Sutton.

7.—National Rose Society's Show at Crystal Palace.

9.—Ghent.

10.—Royal Horticultural, Ipswich, Gloucester, Oxford.

11.—Tunbridge Wells, Twickenham, Wotton-under-Edge, Lee and Blackheath, Bedford, and Ealing.

11, 12.—Glasgow and West of Scotland.

12.—Chiswick, Mildenhall, Winchester, Oxford, Birmingham, Carlton-in-Workshop.

13.—Gardeners' Orphan Fund, Annual Meeting and Dinner.

14.—New Brighton.

16.—Newcastle-under-Lyme.

17.—Leek and Ulverstone.

18.—Birkenhead, Moulsey, Wirral.



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SATURDAY, JUNE 30, 1888.

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WITH COLOURED PLATE.

CONTENTS.

Lessons from the past— work for the future	597
Fremonia californica	597
ROSE GARDEN.	
Rose Climbing Devoniensis	597
Cloude de Dijon Rose	598
Ulrich Brunner Rose	598
Mme. de Watteville Rose	598
Rose Fortune's Yellow	598
Kronprinzessin Victoria Rose	598
Yellow Banksian Rose	598
Three good garden Roses	598
Hardy Tea Roses	598
Notes on Roses	598
Rose Harrison	598
Sleep of buds and plants	598
FLOWER GARDEN.	
Single Peonies	599
Rock Soap-wort	599
Herbaceous and alpine plants	599
Tritomas in flower	600
German Iris	600
Iris ruthenica	600
The Buckbean	600
Variations of Poppies from seed	600
Pentstemons from seed	600
White tufted Pansies	601
A Spanish Iris	601
Gladiolus byzantinus	601
Iris neglecta Cordelia	601
Orchis foliosa	601
Austrian Harebell	601
Campanula glomerata dahurica	601
Vars. of Campanula persici- folia	601
Lilium monodelphum Szovitzianum	601
Allium Ostrowskianum	601
Pyramidal Squill	601
Dwarf Speedwell	601
Delphinium belladonna	601
Iris sibirica	601
Pansy Archie Grant	601
Camassia Cusicki	601
Early Lilies	601
NOTES OF THE WEEK	
Hieracium villosum	601
Dianthus sylvestris	601
A hybrid Lychnis	601
Anemones from Manchester	601
Viburnum plicatum	601
Mimulus radicans	601
Pelargonium Duchess of Teck	601
Weigela Abel Carriere	601
Peonies	601
Ornithogalum arabicum	601
Mosses, Sutton & Sons	601
Poppies and Pyrethrums from Wantage	601
Phlox Mrs. Watt	601
Campanula pyramidalis at Miramar	601
Strawberry Noble	602
Hymenocallis undulata	602
Tropaeolum polyphyllum	602
Spanish and English Irises	602
Chinese Peonies at Tooting	602
Umbrella Tree	602
Buddleia crispa	602
Leschenaultia biloba major	602
Testimonial to Dean Hole	602
CHRYSANTHEMUMS.	
Preparation of stimulants	603
Notes on Chrysanthemums	604
PROPAGATING.	
Berolonia	604
Pandanus	604
Asparagus tenuissimus	604
Eurya latifolia	605
DESTROYERS.	
Leaf roller moth	605
Caterpillar and the fruit crops	605
Spa rows as bud-destroyers	605
TREES AND SHRUBS.	
Flowering trees and shrubs	606
Hardiness of Indian Azaleas	607
Snowdrop tree	607
Pavia macrostachya	607
White Wistaria	607
Berberidopsis corallina	607
Variegated Privet	607
Avenue of evergreen Oaks	607
Wellingtonia gigantea	607
The common Sloe	607
American notes	607
KITCHEN GARDEN.	
Hampers of vegetables	608
Hick's hardy White Cos Lettuce	609
Braised Lettuce	609
Late Broccoli flowering	609
Kitchen garden notes	609
Poppies as cut flowers	610
GARDEN FLORA.	
COLOURED PLATE.	
Narcissus Broussonnetii.	
FRUIT GARDEN.	
Making new Strawberry plantations	612
Thinning fruit blossom	612
Summer pruning of fruit trees	612
Influence of locality on hardy fruit prospects	613
Fruits under glass	613
ORCHIDS.	
Orchids at Rosefield, Seven- oaks	614
Odontoglossum Halli	615
Cattleya Sanderiana	615
Vanda tricolor planilabris	615
Odontoglossum	615
Schiller's Moth Orchid	615
Notes from America	616
Cattleya Morganiae	616
Vanda teres candida	616
Cattleya Buchanani	616
Vanda Denisoniana	616
STOVE & GREENHOUSE.	
Hard-wooded Heaths in London	616
Stove climbers in "My Garden"	616
Hyacinth and Tulip for pot culture	616
Steam heating	617
Gladiolus Lemoinei	617
Hoya Shepherdii	617
Oreopanax dactylofolia	617
Work in plant houses	617
FERNS.	
Ornamental Nephrodiums	618
The great storm of the 26 inst.	619
SOCIETIES & EXHIBITIONS	
Royal Horticultural	619
Royal Botanic	620
Alexandra Palace Rose show	620
Gardeners' Orphan Fund	620
Tulips at Manchester	621
LAW.	
The non-guarantee clause	621
Books received	621
Names of plants	621
WOODS AND FORESTS.	
Pruning	622
An unusual crop of Elm seeds	622
Pine woods	622

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Highly important eight days' sale of the whole of this renowned collection, including many plants matchless in point of rarity, and the whole remarkable for culture and condition, embracing unquestionably the most valuable and extensive collection of established Orchids ever submitted to public competition.

MESSRS. PROTHEROE & MORRIS will **SELL** by AUCTION, on the premises, Downside, Leatherhead, fifteen minutes' walk from the London and South Western, and the London, Brighton, and South Coast Railway Stations, **On Tuesday, Wednesday, Thursday and Friday, July 10, 11, 12 and 13, 1888,**

at 12 for 12.30 o'clock precisely each day, by order of Wm. Lee, Esq., who is selling the Estate of Downside, and relinquishing the cultivation of Orchids.

The first portion of this extremely valuable collection of **Established Orchids.**

Amongst the plants included in this First Sale, the following may be specially mentioned:—

Cattleya Trianae Leana	Cattleya Trianae vestal
Trianae Dodgsoni	Trianae marginata
Osmanti	Normani
Dayana	Victoria Regina
Emperor	bellicosa
Empress	magnifica
Bachousiana	lilacina
Colemani	Thomsoni
alba	Rhissoni
elegantissima	beatifica
eboracensis superba	Archduke
regina	bella
implicata major	Jamesiana

And many others not yet named, with their portraits by G. Macfarlane, the whole forming probably the grandest collection of fine varieties of the Trianae section ever brought together, many of the plants, moreover, being of the largest size.

Cypripedium amandum	Cattleya exoniensis
Arthurianum	Dominiana
albo-purpureum	labiata, autumn-flowering
euryandrum	var. Pescatorei
lo	Skinereri
Morganiae	" alba
Swannianum	Percivaliana, special vars.
vernixium	" alba
selligerum	Mossiae alba
microchilum	" Alexandre
javanica superbiens	tricolor
chloroneurum	Mendelli, special vars.
cardinale	" S-lbornensis
Crossianum	" Morganiae
marmorophyllum	maxima
vestillium	Williamsi, of the guttatum
Schroederei	section
Winolanum	Leana
Wallisi	Laelia elegans alba
Dendrobium Leechianum	" Leana
euosum var. leucop-	" Houtteana
terum	purpurata Brysiana
endocharia	" albo-lilacina
rhodostoma	anceps Schroederei
Kingianum album	Veitchiana
nobile nobiliss	bella
" elegans	flammea
arachnites	Coelegyne cristata alba
Schroederi	" Lemoinei
Vanda Sanderiana	Masangeana
suavis	Dayana
Cattleya Fausta	Cymbidium Parishii
columnata	Maxillaria Sanderiana

Masdevallia section comprises a grand and complete collection of Masdevallias, many of the highest class, and some very rare. Odontoglossum section: There is a large and very choice collection of the finest varieties in large plants, true to name, which have been grown at Downside for several years, and are models of successful cultivation. Phalaenopsis section: Amongst the Phalaenopsis are two plants of P. Brymeriana, also intermedia; Portei, one of the Dayana; and several leucorhoda and casta.

The plants may be viewed any day prior to the Sale, on presentation of a Catalogue or card to view, to be obtained on the premises, of Mr. Woolford, the Head Gardener, or of the Auctioneers and Valuers,

Central Auction Rooms, 67 & 68, Cheapside, London, E.C.

N.B.—The second portion will be sold on the premises on Tuesday, Wednesday, Thursday, and Friday, July 24, 25, 26, and 27.

Monday, July 9.
Special Sale of Orchids.

MESSRS. PROTHEROE & MORRIS are instructed by Mr. F. Sander to **SELL** by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on Monday, July 9, at half-past Twelve o'clock precisely, a quantity of established Orchids. Amongst those offered for sale are

Cattleya Gaskelliana alba (true)	Cypripedium Laurenceanum,
with sheath	fine var. in flower
Wagneri	Bollea Lalindi
Remickiana	Agaveum Sanderianum
Rothschildiana	Dendrobium Ainsworthi
aurae	Leccianum
imperialis	nobile Sanderianum
Cypripedium calceolatum	Masdevallia calura, 20 leaves
Germianum	serochordonia
Dominianum, with eight	Reichenbachiana
growths and two flower	infracta purpurea
spikes	Utricularia montana in flower
to grandis	Zygopetalum aromaticum, 3
selligerum majus	growths

On view morning of Sale and Catalogues had.

Friday next, July 6.
Without the slightest reserve.

MESSRS. PROTHEROE & MORRIS are instructed by Mr. J. Charlesworth, Heaton, Bradford, to **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on Friday next, July 6, at Half-past Twelve o'clock precisely, the following. The plants are in very fine condition, having been brought home by the collector.

New Cattleya, provisionally named *Cattleya Hennisiana*. Mr. W. Hennis discovered the plant in an unsearched district, but, the flowering season being over, he did not actually see the flowers himself, but was assured on very good authority that the flowers are of a deep yellow colour, the lip having a dark purple centre, with lighter coloured lines running through the purple. The stout dried flower-spikes prove it to be very fertile; as many as 8 flowers can be counted on them. The growth of the plant is quite distinct from any known Cattleya, the nearest one in habit being *Cattleya Skinneri*. To assure buyers of Mr. Charlesworth's confidence in the above description, the purchase money will remain in Messrs. P. & M.'s possession until the plants flower. 1,000 Odontoglossum vexillarium. From a description of the collector, who has had a great experience in collecting ordinary Frontino varieties, the plants offered will be found of a superior type, a much larger proportion of dark ones being amongst them, but they vary greatly, some having pure white lips with very dark sepals and petals; amongst the latter many flowers will be found with dark rose-coloured veins running over the entire lip, producing a quite novel effect; some flowers measured 4 inches across the lip. Dried flowers will be shown. *Cattleya gigas*, new type. When exploring a remote district, Mr. Hennis discovered this remarkably fine variety of *gigas*, with short stout leaves, and took it at first to be *C. Sanderiana*, but closer inspection revealed it to be superior in colour, and is very free flowering, even the smallest bulbs having flowers at home. The plants offered are in capital condition, perfectly dormant and well leaved. The dried flowers will show what a magnificent *Cattleya* this is. Also *Cypripedium Schlindl*, *Odontoglossum Harryanum*, *Odontoglossum luteo-purpureum*. The above all in fine condition. Large buyers will find it a good opportunity to secure these varieties. In offering the above without reserve, Mr. Charlesworth has condensed the plants will sell on their own merits.

On view morning of Sale and Catalogues had.

Friday next.

Odontoglossum cuspidatum platyglossum (new variety, Rehb. fil.).

The whole for sale without reserve.

MESSRS. PROTHEROE & MORRIS

are instructed by Mr. G. T. White to **SELL** by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on Friday next, July 6, at Half-past Twelve o'clock precisely, without the least reserve, a fine importation of the new *Odontoglossum cuspidatum platyglossum*. This variety is described by Professor Reichenbach, who writes as follows:—"I described this curious plant as early as 1876 in 'Carice Linnaea,' XLI, page 26. It is also represented in 'Xenia Orchidacea,' II, table 18. It stands in the neighbourhood of *Odontoglossum luteo-purpureum*, but the petals are very acuminate and not edged, and the narrow lip is terminated by an abrupt cuspidate apex in lieu of being blunt or usually bilobe; both sepals and petals are usually very rich in dark blackish brown showing very little yellow. I have just now specimens at hand of a variety with a broader lip. The plant has been found quite isolated at a special spot where there are no other *Odontoglossa*. Mr. W. Kalbreyer has just brought over living plants; the bulbs are said to be much more like those of *Odontoglossum crispum* than those of *O. luteo-purpureum*. The flowers have a most powerful and agreeable smell, according to Mr. W. Kalbreyer.

The sale will also include a fine importation of *Cattleya Sanderiana* and a small importation of *Odontoglossum crispum* in splendid condition, together with *Odontoglossum* species, a very distinct-looking plant from a new district. To these latter plants Mr. G. T. White begs to call special attention.

On view morning of Sale and Catalogues had.

Havant.

First Annual Summer Sale.

MESSRS. PROTHEROE & MORRIS are

instructed by Messrs. Ewing & Co. to **SELL** by AUCTION, on the premises, The Sea View Nurseries, Havant, on Wednesday, July 11, at Twelve o'clock precisely, 5000 Tea, Noisette, and other Roses in pots, 2000 Ivis of the choicest green-leaved and variegated kinds, 1000 *Ampelopsis Veitchi* and other Virginia Creepers; a large quantity of hardy Passion flowers (including the new white Constance Elliott), Japanese and other hardy Evergreens, choice flowering and foliaged trees and shrubs, hardy climbing plants, &c., all in pots suitable for immediate removal.

May be viewed any day prior to the sale. Catalogues may be had on the premises, at the principal hotels in the district, and of the Auctioneers, 67 and 68, Cheapside, E.C.; and Leytonstone.

Tuesday next.

Brazilian Orchids for Sale without reserve.

MESSRS. PROTHEROE & MORRIS are

instructed by Messrs. Seeger & Tropp to **SELL** by AUCTION, at their Central Sale Rooms, 67 & 68, Cheapside, London, E.C., on Tuesday next, July 3, at 12.30 o'clock precisely, a splendid lot of *Laelia purpurata*. This importation has arrived in the best possible condition, nearly the whole being compact masses well furnished with leaves; all the plants have finished their growth, while many of them show flower sheaths which will certainly develop their flowers, together with many other imported Brazilian Orchids for sale without reserve; also a few plants of the rare and beautiful *Dendrobium McCartiae*, *Odontoglossum aspersum* and *Humeana*, *Oncidium undulatum*, *Cypripedium Schroederei* *Morganiae*, a new hybrid in bud, &c. The sale will also include a very fine assortment of well-grown Established Orchids.

On view morning of Sale and Catalogues had.

Thursday next.—Sale No. 7704.

Valuable Importations of Orchids.

MR. J. C. STEVENS will **SELL** by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on Thursday next, July 5, at Half-past Twelve o'clock precisely, by order of Mr. F. Sander, *Laelia purpurata*, a very fine importation just to hand, with fine healthy foliage and dormant eyes, comprising many large masses in good condition; *Cattleya amethystina*—collector describes this as a most superb dark variety; the plants are in very good condition, having many green leaves, and some nice masses are off-red; *Cypripedium Schlindl*, just received in fines; possible condition; the plants offered are as good as established; *Sophronitis grandiflora*, splendid importation just received in grand order; collector states that exceptionally fine varieties will be found amongst this consignment, many fine masses are offered; also fine importations of the following: *Cattleya Mendeli* in fine order, *Cattleya Bowringiana* in fine order, *White Laelia anceps* in fine order, *Adiantum rufum*, *Catasetum Bungeorothi*, *Cypripedium Stoneri*, *Aerides Fieldingi*, *Oncidium citreolum*, *O. Forbesi*, *Cattleya Mossiae*, *Odontoglossum ciliatum*, *O. nebulosum*, *O. Cervantesi*, *Oncidium ciliatum*, *Dendrobium*, *Saccolabium*, &c.

On view morning of Sale and Catalogues had.

Thursday next.—Sale No. 774.

Valuable Established Orchids, comprising choice *Cypripediums*, &c.

MR. J. C. STEVENS will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on Thursday next, July 5, a choice collection of *Cypripediums*, comprising fine plants of

<i>Cypripedium Salieri</i> <i>Hyeanum</i>	<i>Cypripedium microchilum</i>
<i>Schroederei splendens</i>	<i>vexillarium</i>
<i>villosum aureum</i>	<i>Leechi</i>
<i>Crossianum superbum</i>	<i>albo-purpureum</i>
<i>Boxalli superbum</i>	<i>chloroneurum</i>
<i>Dauthieri superbum</i>	<i>Harrisonianum planum</i>
<i>superbiens Demidoffe</i>	<i>nitens</i>
<i>Neo-Guineense</i>	<i>Warszewiczii</i> , &c., &c.,

From a well-known Belgian amateur; also some splendid pieces of *Cypripedium praestans*, *Lissocylus giganteus*, *Catasetum Bungeorothi* (true)—collected by Mr. Bungeorothi—*Aganisia cyanea*, and *Galeandra gracilis* (Lindley), by order of L'Horticulture Internationale (Linden) of Brussels; a fine specimen of *Aerides affine superbum*, with seven growths, in flower; *Aerides Leoni*, *Cypripedium hirsutissimum*, *C. Spicerianum*, *C. Mauli virginale*, &c.

On view morning of Sale and Catalogues had.

Croydon. Bramley Hill Nursery.

Goodwill and Lease.

GEORGE HATCH is instructed by Mr. James White to submit to AUCTION, on the premises, on Friday, July 6, 1888, at Three o'clock, the Goodwill and beneficial interest in Leaves of this old-established Nursery, with Dwelling House, Houses, Pits, Sheds, &c. Rent £41. Option of new leases for 21 years.

Auctioneer's Office, 33, George Street, East Croydon.

Scotland Nurseries, Tansley, Matlock.

The old-established and widely known Nursery, as founded by the late Mr. Joseph Smith, with the residence called Scotland House, and Workman's Cottage, Stables, and Appurtenances, situate at Tansley, having a total area of 94 Ir. and Sp., will be SOLD by AUCTION by

GEORGE MARSDEN, at the Old English Hotel, Matlock Bridge, on Monday, July 16, 1888, at Five o'clock in the afternoon.

For further particulars, apply to the Auctioneer, Wirksworth, or at the office of Joseph Stone, Solicitor, Wirksworth and Winster.

ROYAL BOTANIC SOCIETY
GARDENS, REGENT'S PARK.

EVENING FETE and SPECIAL EXHIBITION of TABLE DECORATIONS and FLORAL WORKS OF ART on WEDNESDAY next, JULY 4.

Gates open at eight o'clock. The Gardens will be illuminated from eight to twelve o'clock. Four Military Bands will be in attendance. Tickets to be obtained at the Gardens only by vouchers from Fellows of the Society, price 10s. each; or on the day or evening of the Fete, 15s. each.

CRYSTAL PALACE.—THE NATIONAL
ROSE SOCIETY'S GRAND EXHIBITION OF ROSES,
SATURDAY, JULY 7, 1888.

ADMISSION - - - - - HALF-A-CROWN.
Schedule of Prizes and Forms of Entry on application to the Hon. SECRETARIES, National Rose Society, Crystal Palace. Entries close Tuesday next, July 3.

HUDDERSFIELD CHRYSANTHEMUM
SOCIETY.

The FIFTH EXHIBITION of the above Society will be held in the TOWN HALL, HUDDERSFIELD, on FRIDAY and SATURDAY, NOVEMBER 16 and 17, 1888.

Schedules are now ready, and may be had on application. Marsh, Huddersfield. JOHN BELL, Hon. Sec.

NATIONAL CO-OPERATIVE FLOWER
SHOW, CRYSTAL PALACE, AUGUST 18, 1888.

£500 and MEDALS in Prizes for Flowers, Fruit, Vegetables, and Honey.

Open to Members of Co-operative Societies throughout the Kingdom; also for Skill of Workmen in all Trades for Amateur Work. Entomological and other specimens.

Schedules of Prizes on application to 1, Norfolk Street, Strand, W.C. WM. BROMHALL, Secretary

SELECT LIST OF BRIGHT FLOWERS FOR SUMMER BLOOMING.

Carriage Paid. OFFERED BY Carriage Paid.

LOADSTONE.



RAPID CLIMBING PLANTS.—Hops and Cobaea scandens, both 1s 9d. per pair. The new Japanese Hop and canariensis, 6d. each. Tropaeolum Lobbianum and Convolvulus, 12 for 1s. 9d.

FOR Artistic Sub-Tropical Gardening.—Castor-oil Plants lend a charm to every garden, 6 for 7s. 6d.; also Gigantic Hemp, same price, and Abutilons—have also a few very fine plants of Melianthus major, would make grand effect, per pair, 7s. 6d. Three-year-old plants.

LEMON-SCENTED VERBENA Plants, old-fashioned favourites, pair, very strong plant's, 3s. 6d.; Scented-leaved Geraniums and Heliotrope, 2s. 6d. per pair.

VIOLAS, for continuous Summer blooming, white, purple, and yellow, established plants, per dozen, 3s. 6d.; or 50 for 12s. 6d.

AUTUMN-BLOOMING CHRYSANTHEMUMS, all the best whites grown only; one dozen assorted named plants for growing on, 5s. 6d., free; strong and bushy.

GAILLARDIAS, without doubt the most brilliant of our hardy border flowers, effective and lasting for cutting, pair, 2s. 6d.; or one dozen, 7s. 6d. Pyrethrum (or coloured Marguerites) the same price.

PENTSTEMONS.—Can offer some in lovely shades, stock raised from named plants only, most effective planted *en masse* in a bed or lines, one dozen, strongly rooted, for 6s.; or 36 for 15s. 6d.

ORIENTAL POPPY.—Seeds of this gorgeous and useful hardy flower should be sown at once; per packet, 1s. 6d. Own saving from magnificent blooms. Sample flowers, 2s. 6d. dozen, very decorative.

AFRICAN MARIGOLDS.—Lemon and Orange.—A magnificent selection from a prize stock strain, which carried off prizes wherever shown last season, blooms average eight inches across; six plants of each colour, free, 2s. 6d.; or six for 1s. 9d. These are very fine.

PRIZE FRENCH MARIGOLDS.—I have again pleasure in offering plants from superb prize strain. Last year a customer who purchased plants from me won several prizes. Per dozen, 1s. 9d., tall or dwarf.

AZURE BLUE CORNFLOWERS, large plants for very early blooming, 9 for 2s.; smaller, 24 plants, 2s. Scarlet Poppies, 12 for 1s. 9d.; bunch blooms, 1s. Effective Dwarf Bedding Nasturtiums.

KING THEODORE, Dwarf Nasturtium, the true scarlet bedder, black foliage, superior to Geranium, continued mass of bloom until November frosts, most effective for beds and window boxes, per dozen, 1s. 9d.; 36, 3s. 9d.; 100, 10s. 6d., free. LOADSTONE'S own noted strain.

DWARF NASTURTIUMS, cheap showy varieties.—Tom Thumb, Scarlet, New Rose, Golden King, Pearl (cream colour), 12 plants of each colour, free, 3s. 9d.

ART MARGUERITES.—This season I have these in many lovely new varieties, they are unequalled for cutting, and mostly easy and interesting to grow, 12 plants, 1s. 9d.; strong from open ground seed-beds.

WHITE PARIS DAISIES or **MARGUERITES**, true variety, pair, 2s., bushy and strong, or 4 for 3s. 6d. Bloom profusely when bedded out, and excellent for cutting.

CANTERBURY BELLS, in mixed colours, splendid bushy autumn grown plants, about to bloom, 12 for 3s. 9d., in pure white and new rose; second size plants, per dozen, 1s. 9d.

Bedding Begonias

SHOULD BE TRIED BY ALL.

Can offer some strongly started plants, ready for any position, my own strain, and very beautiful; plants selected for bedding, 5s. 6d. per dozen; guaranteed strong, healthy, well transplanted, and hardened to the night air. Also plants, extra selected for pots, doubles, 15s. 6d.; singles, 12s. 6d. per dozen.

BEDFORD & BEDFORDSHIRE HORTICULTURAL SOCIETY.—FIFTH ANNUAL SHOW at BEDFORD, JULY 11, 1888.

Special Prizes for Plants, Roses, and Cut Flowers; open to all England.

Entries close July 3.
Schedules and Entry Forms to be obtained of
Stoneleigh, Bedford. HENRY TERRES, Hon. Sec.

BIRMINGHAM BOTANICAL & HORTICULTURAL SOCIETY.

A ROSE SHOW will be held in THE GARDENS, EDGBASTON, on THURSDAY and FRIDAY, JULY 12 and 13, 1888.

Entries close on July 7. For Schedules apply to
W. B. LATHAM, Curator.

CHEAP HORTICULTURAL GLASS.

Packages and packing free, and delivered to any London Station
100 squares of Glass, quality guaranteed.

	15-oz.	21-oz.
13½ by 8½	for 10/-	for 14/-
12 " 9 "	" 10/-	" 14/-
12 " 10 "	" 11/-	" 15/6
14 " 10 "	" 13/-	" 19/-
14 " 12 "	" 17/6	" 24/-
12 " 12 "	" 13/-	" 20/-
10 " 12 "	" 21/-	" 31/-
20 " 12 "	" 24/-	" 35/-

Glass cut to any size at the above proportionate prices.

Best LINSEED-OIL PUTTY. PAINTS, ready mixed for use, in tins of 1 lb. to 14 lb., at 5d. per lb. Special quotations given for large quantities.

J. B. ROBINSON Wholesale Lead and Glass Warehouse,
31, late 14, Moor Lane, Cripplegate, London, E.C.

PONTIFEX and WOOD, Lim., Shoe Lane, London, E.C.

ECONOMICAL AND EASY LEAD GLAZING
(PATENTED). No putty required. No experience needed.

	PRICE.
(including necessary 2-in. Copper Tacks),	
2d. per ft. run	
OR	
16s. per 100 ft.	

THE "HANDY" GARDEN ENGINE.

CAPACITY, TEN GALLONS.

PRICE £2 18s. 6d.

The greatest success of the season.

Pontifex & Wood's (Lim.) Catalogues of Garden Engines, Pumps, Water Barrows, Syringes, &c., &c., free by post.

A very powerful pump, and easily worked.

THE "Colonial" Barrow FORCE PUMP.

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PATENT CONSERVATORIES, PLANT HOUSES,
ORCHARD and STOVE HOUSES, &c., &c.

Glazed on the Indestructible System.



HOT-WATER APPARATUS fixed in any part of the Kingdom

Illustrated Catalogues and Books of Design sent post free.

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No. 3, WESTMINSTER CHAMBERS, VICTORIA STREET, LONDON, S.W.

THE "NEW EASY" LAWN MOWER

HAS AN OPEN STEEL ROLLER.

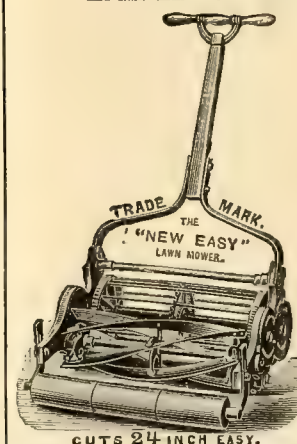
A man can work a 24-inch machine, cutting Grass five inches high clean to the roots.

There is no easier working, no better finished, no stronger, no more durable mower in the market.

The Front Roller, with simple adjustment, enables the machine to cut very close to the ground and to do fine work.

The machine will also cut verges.

To be obtained through all the leading Ironmongers or Seedsmen, or from the sole Licensees—



CUTS 24 INCH EASY.

SELIG, SONNENTHAL & CO.

85, Queen Victoria Street, London, E.C.

STAINED CATHEDRAL GLASS

For CONSERVATORIES, DOORS, WINDOWS, &c., in all the new Designs at the Lowest Prices.

FROM 1s. 6d. PER SQUARE FOOT.

Send for
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Experienced men sent out to take measurements and fix. ESTIMATES FREE.

JOHN CLARK,
46 & 47, HIGH STREET, NEW OXFORD STREET, W.C.
Telegraphic Address—"Pheasantry, London." Established 1855.

PROTECT Your Gardens from the Ravages of the Birds.—Tanned Netting, thirty-five square yards for 1s. Will not rot if left out in all weather. Sent, any width, carriage paid on all orders over 5s. As supplied to the Royal gardens. Sent on approval. Commoner Netting, at fifty square yards, 1s. Hundreds of testimonials. Established 170 years.—HY. JOHN GASSON, Fish Merchant, Rye, Sussex.

CHOICE & USEFUL PLANTS AT REASONABLE PRICES.

Plants per doz.	
ASPARAGUS TENUISSIMUS (the new Asparagus Fern)	12s. & 18s.
CANNAS, named choice sorts	9s. " 12s.
CANNAS, useful ornamental sorts	4s. " 6s.
CALADIUMS in growth (our selection)	9s., 12s., " 18s.
CARNATIONS for border (best named)	9s. " 12s.
CARNATIONS, Tree, small	6s. " 9s.
CARNATIONS, Tree, flowering plants	18s., 24s., " 30s.
CHRYSANTHEMUMS	3s. " 6s.
BEGONIAS, single, white, pink, and scarlet blooming plants	6s. " 9s.
BEGONIAS, fine double	24s. " 30s.
CACTUS DAHLIAS, in six varieties	— " 6s.
TOMATOES, in four varieties, strong plants	4s. " 6s.
ORCHIDS, 12 beautiful varieties, selected for warm or cool house	21s. " 42s.
100 healthy and established plants in 50 good vars.	£10.

Amateurs may place perfect confidence in these selections.

HOOPER & CO., LIMTD.,
PINE-APPLE NURSERY,
MAIDA VALE, W.; AND COVENT GARDEN, W.C.

NEW PELARGONIUM, DUCHESS OF TECK.

Awarded a First-class Certificate at the Manchester Royal Botanical and Horticultural Society's Summer Exhibition of 1887.

It is a white regal decorative variety, semi-double, immense trusses; the flowers are erect, petals undulated, distinguishing it from the ordinary Pelargoniums; it is novel and conspicuous, has a strong compact habit, and is one of the best Pelargoniums in cultivation.

It is invaluable for cut flowers where white is in demand.

3s. 6d. each, 30s. for 12 plants, 50s. for 25 plants.

CUT FLOWERS SENT ON APPLICATION. SENT OUT BY

FISHER, SON & SIBRAY,
HANDSWORTH NURSERIES, SHEFFIELD.

ROSES

IN POTS; all the best New and Old English and Foreign sorts, from 18s. to 36s. per dozen.

DESCRIPTIVE LIST FREE ON APPLICATION.

RICHARD SMITH & CO.,
Nurserymen and Seed Merchants,
WORCESTER.

"THE LILY OF THE FIELD."
STERNBERGIA ANGUSTIFOLIA
(Parkinson's Winter Daffodil).

"Gems of changing Autumn, how beautiful ye are! Shining from your glossy stems like many a golden star; Peeping through the long grass, smiling on the down Lighting up the dusky bank, just where the sun goes down; Yellow flowers of Autumn, how beautiful ye are! Shining from your glossy stems like many a golden star."

This lovely and rare "Lily of the Field" is now being distributed by W. Baylor Hartland. The bulbs are very strong, being grown in large beds of loam and sand on a south border. It is an admirable subject for pot culture or warm position on rockwork. I am sure it may be also grown as a miniature Hyacinth in a glass of water, and the blooms cut in the "bud state" are exquisite for table decorations, using as foliage its own slender grass-like leaves. Very strong Bulbs, 3s. 6d. per dozen; post free, 6d. extra.

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No. 867. SATURDAY, June 30, 1888. Vol. XXXIII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

LESSONS FROM THE PAST—WORK FOR THE FUTURE.

NOTWITHSTANDING the fact that the land has been greatly benefited by the past hot, dry season, no one can deny the truth of the terrible reports now coming in from the great fruit-growing districts in all parts of the kingdom. Fruits of all kinds have suffered more or less, but Apples and Plums, our two great staples, perhaps, in the order named, have suffered most, and the loss of these two crops alone, I am afraid, means ruin to a great number of industrious men. It will not be fair to put all our failures down to the credit of the drought, as we learned some time ago that frost had made sad havoc in some of the low-lying fruit grounds in Kent; but with this exception the sorry plight in which the owners and occupiers now find their fruit grounds may be traced directly or indirectly to the absence of rain when it was most needed. If the loss of one crop, say of Apples or Plums, measured the length and breadth of the disaster, and the trees, relieved of their load, were making a clean healthy growth, capable of performing a better stroke of work next season, many might look forward with hope; but such, I am afraid, is not the case, as we know for a fact that thousands of trees are literally divested of every green leaf and shoot, that many of these are scathed past recovery, and those which do make a late growth will not have time to ripen their wood, much more to form and mature blossom buds. This perhaps is a too gloomy view, and many who have escaped will say I am a Job's comforter. I hope I am, and that the statements I have so often made, that crops will turn out better than we anticipate, may again be verified. But what has last year's drought to do with the plague of grubs now devouring the leaves and fruit? What truth is there in the old German opinion that the Plum crop is always thin when rain does not fall during the period the trees are in flower? Well, past experience, I think, justifies the assertion that the fruit tree, and I may say the forest tree pests are always most numerous and destructive after a favourable breeding season, and especially so when dryness at the roots and parching north-east winds favour the ascent of the female moths and flies into the blossoming trees in the spring. If this be not so, how does it happen that trees in good, rich garden soil, to which lime and mulching and water have been applied, are now carrying good crops of fruit? for here, almost without exception, trees so treated, although not perfectly free from grub, require much thinning. Take Strawberries, again. Why are so many plants totally blind, and others which are flowering apparently too weak to swell off their fruit, whilst the foliage they are now making is unusually strong, and in what way have they been affected by the past year's wasting influence? The crops last year, although quickly over, were much better than they will be this year; but then, all fruit growers know quite well that the fruit buds were formed the season before, and many of them now know to their cost that want of water through last July and August so weakened the plants, that they could not fill up and mature their crowns for this year's produce. One might

suppose that large plants with deeply seated roots would suffer least, but here just the opposite is the case, and the cause, in my opinion, lies in a nutshell. Our best beds, and they are as good as any man need wish, were made in May, 1887, upon deeply trenched, but not heavily manured ground, and planted at once upon Messrs. Lovell's system, viz., single rows of plants right across the quarters. From these all the best runners were pegged down right and left, and although they did not get more than their fair share of water, their roots could strike deeply into the fresh soil, and every plant, I believe, parent and offshoot, has set a fine crop of fruit. The old beds received an immense quantity of water up to the end of the fruiting season, but then we were obliged to keep the hose constantly at work upon Pears, Peaches, and other crops; consequently, they could not form their annual surface roots, neither could they fill up their crowns. I might give many more instances of the now apparent effect of the past year's drought, but these lessons, if properly learned, will give us plenty of

WORK IN THE FUTURE.—Taking the cause first, want of water, how are we to prevent a repetition of a famine by which the community at large, as well as our plants and trees, suffered, and are still suffering? But many may say this will not happen again, or if it does it may not be in our time. Surely enough it will, as at irregular periods it has happened in times past, when towns and lands were not so well drained as they are now; therefore it is our business to look after these matters by making provision as far as in our power lies for the next spell of dry days. Where and how water shall be stored is a matter for the owners of broad acres and engineers to decide. The importance of storing it is now patent to all classes from the humble cottager upward, and some day perhaps the Royal Horticultural Society will take up this and other matters, which will justify our calling it the National Society, and at the same time bring in more Fellows from isolated parts of the country than its best friends anticipate. Mr. H. Veitch's suggestion that a botanist be appointed is no doubt a very important step in the right direction; but why not engage a good practical naturalist as well?—one who can tell the poor ignorant, talkative gardeners now waiting for the crumbs which fall from the council's table all about sawflies, codlin moths, and other small insects too numerous to mention. How they spring up in millions, and yet no one sees them; how they deposit the eggs of larvæ which destroy scores of thousands of pounds' worth of fruit annually; where they go to; and last, but not least, how we can circumvent them. A gentleman who in a plain, practical, common-sense way can tell us all about the habits, times, and seasons of these garden destroyers, without frightening us out of our small wits by tales of Colorado beetles and other bugbears, might do an immensity of good for the National Horticultural Society, as every owner of a Plum or Apple tree would pay up his half guinea if he did not quite forget the past.

W. C.

Fremontia californica.—This beautiful Californian shrub may, at the present time, be seen in flower against the herbaceous ground wall at Kew, as well as in the Coombe Wood Nurseries and other gardens about London. The flowers are 2 inches across, shallow, bell-shaped, and of a rich golden yellow, and, therefore, are extremely showy, especially as seen in contrast to the rich green lobed leaves. The Kew plant has reached the top of a 10-foot wall which has a western aspect. Though generally grown as a wall plant, it would probably succeed as a bush in the open, provided it were pro-

tected in winter with branches of Evergreens. Mr. Robert Parker used to grow it admirably in the Tooting Nursery against a fence years ago, and I think I never have seen it so fine anywhere as he grew it and I believe the only protection he gave it was a few Spruce branches. A lovely shrub, such as this undoubtedly is, is worthy of attention and trouble. It has no rival in its colour among all open-air shrubs. —W. G.

ROSE GARDEN.

T. W. GIRDLESTONE.

ROSE CLIMBING DEVONIENSIS.

THE surprise expressed by "D. T. F." in THE GARDEN, June 23 (p. 582), at the earliness in blooming of Climbing Devoniensis disposes one to ask whether there is any sound evidence of the existence of more than one climbing sport of Devoniensis. A good many growers seem to be under the impression that there are several forms or varieties of Climbing Devoniensis, and the suggestion that this is the case has again just cropped up in the columns of a contemporary; but there really seems very little evidence to support such a view, beyond the variability of the character of the plant in different localities. But that this variability in such points as time and freedom of flowering and the quality of the blooms is not confined to the climbing variety is shown by "D. T. F.'s" statement that in Suffolk the type blooms first and produces the finer flowers; whereas in Berkshire the exact contrary is the case, the flowers of the type being late and of so little value, that after many years' cultivation the plant has been almost discarded.

There is no doubt that it is a common thing to see among a considerable number of plants of Climbing Devoniensis some that grow well and flower badly, some that both grow and flower well, and some that do both badly. But this of itself is very insufficient evidence of the existence of more than one variety, and in the absence of any record of the independent origin of any other climbing sport than that fixed by Mr. Pavitt, need hardly be considered. For the way in which Roses of well-known and strongly marked character vary in different soils, situations, and seasons, even in districts with comparatively similar climates, is sufficiently notorious.

Climbing Devoniensis, from its habit and constitution, is especially liable to such variation, which may be caused by untimely cold, for the plant is not very hardy, and its great size often makes its protection rather an undertaking; moreover, it frequently makes its growth so late in the season that the wood is not properly ripened before winter, and is consequently very liable to injury by severe frost, and the plant's precocity again exposes its young growth to the danger of late frosts in spring. When a plant is badly cut back by frost in winter, it will probably make an immense growth during the succeeding summer, but naturally cannot be expected to flower much, and the difference in the appearance of such a plant and one that had been better protected or less exposed, and so enabled uninjured to produce a crop of flowers, might be almost sufficient to induce a casual observer to think that the two plants could not be the same variety. Again, when a plant full of the young growth is nipped by a late spring frost the result may be very different, according to the severity of the frost and the exact condition of the young shoots at the time of its occurrence. If the injury is slight the flowering will not be materially retarded, but the blossoms will mostly be rough and lacking in

finish—what florists call out of character—the effect of a spring frost upon the flowers of the Rose in question being to render them unduly flat, shallow-petalled, rough in the centre, and of a uniform creamy colour instead of the pearly white shading to a deep blush or flesh-tinted centre, which with broad, deep petals characterises Climbing *Devoniensis* at its best. If the damage done be more severe, and destroy the tiny buds which, though unseen, tip the pushing shootlets, the blossoming will be rendered later, but the individual flowers may also be very fine, for fresh buds will push from the sides of the injured shoots, and if they start from below the lowest point of injury, they generally develop into blooms of great beauty.

Liable, therefore, as all Roses are to vary in character in different localities, it will be seen that conditions may easily arise to cause considerable variation among plants of Climbing *Devoniensis* grown even in the same garden. Of course, it might happen that its flowering earlier or later than other varieties might be attributable to a more or less favourable situation, but this is not the case in regard to the plants of Climbing *Devoniensis* and *Maréchal Niel*, whose flowering together surprised “D. T. F.,” since the two plants have for some years grown side by side on the same wall facing south-east.

It would be very interesting to learn from other growers, first, whether they know of any authentic record of any other climbing sport of *Devoniensis* than Mr. Pavitt's, and if so, how, when, and where such sport originated; secondly, whether they have ever observed any differences of character in plants of Climbing *Devoniensis* which could not be easily accounted for somewhat as above, and if so, wherein such differences consisted, and whether they were sufficient to constitute a distinct variety; thirdly, whether from the original *Devoniensis* they have been able to obtain more beautiful individual flowers than from Climbing *Devoniensis*.

SHORT NOTES.—ROSES.

Gloire de Dijon Rose is flowering with its wonted freedom this season. It will be hard to beat this variety as a climber.

Ulrich Brunner Rose, the Hybrid Perpetual that came out so well at the exhibitions of 1887, is likely to increase its fame this season. It is a splendid crimson Rose.

Mme. de Watteville Rose also promises to add to its reputation this year. We have certainly few finer Tea varieties than this; its colours are soft, delicate, and decided.

Rose Fortune's Yellow.—Will “G. J.” (West Surrey), who describes Fortune's Yellow Rose in *THE GARDEN* (p. 575), kindly say how she treats the Rose before and after flowering? With us it flowers abundantly, but the blooms are very small.—H. G.

*** The Rose is simply planted out in warm, sandy soil, and allowed to grow on walls and up pillars with little or no training.—Ed.

MESSRS. PAUL AND SON, of Cheshunt, kindly send blooms of *Kronprinzessin Victoria* (Spath, 1887), which has been so well spoken of as a valuable pale yellow variety for forcing or for out of doors. The flowers are of good size, very full, beautifully formed in the bud, as in *Souvenir de la Malmaison*, from which it is said to be a sport, and of a pale sulphury yellow colour, shading almost to white at the margins of the petals.

THE long period of dull, cold weather has benefited the Rose garden in one respect in prolonging the display of some of the more fragile early climbing Roses to an unusual extent. Thus one of the largest plants of *Fortune's Yellow* is still (June 25) in considerable beauty, its flowering having already lasted for more than a fortnight, and while a week is generally about the time the flowering lasts, it will this year have endured for three weeks on large plants.

Yellow Banksian Rose.—When at Hackwood Park, Basingstoke, recently, I observed on a south wall the yellow Banksian Rose blooming most profusely. It is sometimes asked by correspondents why they cannot get this Rose to bloom. I believe the chief reason is because the wood does not get well ripened, as I observed that wherever the plants make

a lot of growth they bloom but sparsely. The plant under notice appears to grow very little, although in good health. I should think it must have been many years in its present situation. I observed one on a cottage in Hawley, a parish close by here, in the same state.—JOHN CROOK.

THREE GOOD GARDEN ROSES.

I HAVE on my table as I write a bouquet composed of three varieties of Roses, all beautiful, all deliciously fragrant, and all consistently ignored by Rose growers in general.

Who grows *Reine Olga de Wurtemberg*, *Marie Lavallée*, and *Mme. Alfred Carrière*? Of course, as Mr. Gilbert might say, I grow them, and the reader grows them; but who else? and echo, who ought naturally to hurl back a mocking “else” with feminine determination to have the last word, obligingly inconsistent, answers, “Who?”

Reine Olga de Wurtemberg and *Marie Lavallée* are twins, having been sent out together by Nabonnand in 1881, but the seven years during which they have been before the world have not sufficed to bring them the recognition they deserve. Raised from a cross between a Tea and a Noisette, both are hardy, immensely vigorous, free-blooming climbers; both will cover an enormous space of wall in an incredibly short time, and the magnificent foliage of *Reine Olga de Wurtemberg* especially would render the plant almost worth growing even if it never bloomed at all.

The flowers of the two Roses are very distinct, those of *Reine Olga de Wurtemberg* being of a rich bright red, well formed, and tolerably full; while *Marie Lavallée* has long buds which expand into large semi-double blossoms of a delicate and beautiful rose colour, with a yellowish white base, the only points of resemblance being the great fragrance and freedom of both varieties.

Mme. Alfred Carrière (Schwartz, 1879) is in some ways the most beautiful Rose of the trio, and is one of the few varieties that should be worked on a tall stem to make a genuine Rose tree. The plant is hardy, most vigorous, though not necessarily a climber, very free-blooming both early and throughout the autumn; the flowers are very large, well formed in the half expanded state, full, and with deep white petals, shading to a rich flesh-tinted centre, while their fragrance is quite exceptional.

These three Roses are deserving of very extended cultivation; the two first, wherever there is space for handsome and rapid climbers; the third either as bush, standard, or climber wherever beautiful Roses are appreciated.

T. W. G.

Hardy Tea Roses.—Referring to Mr. Bennett's Rose *Cleopatra* in *THE GARDEN*, June 16 (p. 549), you say, “We want hardy Tea Roses.” Surely every lover of flowers will agree that a joint effort ought to be made to grow those delightful Roses in the open garden in different parts of Great Britain and Ireland with the view of testing their hardiness, &c. I planted out Dickson's new pedigree Tea, *Miss Ethel Brownlow*, and though it was burned back it is now throwing out vigorous shoots. A grower who has been testing the variety *Lady Castlereagh* against a wall says it is even more vigorous. I have had *Gloire de Dijon*, *Catherine Mermet*, *Niphetos*, *Souvenir d'un Ami*, &c., planted out for years.—W. J. MURPHY, *Clonmel*.

Notes on Roses.—It is now very pleasing to northern growers of Roses to observe their cleanliness and immunity from vermin of every kind. No doubt, the continuous heavy rains during the greater part of June have been conducive to this pleasing state of things. We often wonder why pegging down strong growth is not in greater favour than at the present time. The practice is a very old one, and spaces which are intended to be covered by even growth of foliage and a dense mass of bloom can be most effectively clothed by pegging down the strong Rose shoots of the previous year's growth. They break from base to point and do not throw up such irregular gross growth as when they are all cut close back. The weakly shoots are cut back or thinned out, and they become even with the others. When we peg down the shoots they are slightly buried at the peg, and they root freely, allowing

great numbers of plants to be lifted and transplanted to form Rose hedges. We have planted hundreds of such this season, all of which offer to do well. We have formed a screen of Roses, lifted from many out-of-the-way positions, and have a mixture of kinds such as would be difficult to find elsewhere. They have been allowed to grow wild for generations, but, notwithstanding their ancient and simple character, they are much admired. Planted to hide a wooden fence, and adjusted by the knife, they offer to be a most useful and pleasing adjunct to an informal old place now under renovation. We have also purchased numbers of kinds which have gone nearly out of cultivation. Two kinds are planted somewhat largely, Ayrshire Roses to form festoons for pillars and cover fences, and Scotch ones to form a back row to a herbaceous border. Liberal supplies of manure have been given in well-trenched ground, and plenty of mulching, which is covered with clean soil for appearance sake, will keep the roots safe from drought, should there be such this season.—SCOT.

Rose Harrisoni.—Some days ago I saw in a cottage garden a hedge formed with the above-named Rose, and as the plants were in flower and entirely covered with blossoms of a deep yellow colour, the effect was at once novel and unique. The hedge was about 8 yards long, and the height varied from 3 feet to 4 feet. I do not remember having met with so many plants of this Rose in one garden before, and on making inquiries about them I found that the plants were on their own roots, having been raised from suckers. The hardy free-flowering character of this Rose does not appear to be sufficiently recognised, as it will thrive in places where the Hybrid Perpetuals fail. It was not until the advent of *Maréchal Niel* that the position of this Rose was displaced, as up till that time *Harrisoni* was the only really double-flowered yellow Rose in cultivation.—J. C. C.

THE SLEEP OF BUDS AND PLANTS.

PERMIT me to thank “E. H.” for his contribution to our knowledge on this most interesting and practically important subject. Possibly not a few of our failures have arisen from our presuming too much on the sleep or rest of plants at certain seasons of the year. In some plants, such as many bulbs, probably there is considerable reality in such semi-suspensions of life or active growth. In herbaceous plants, again, there may be an interval between the fading of one series of stems and the starting of another. But in such plants as Roses and fruit trees there is no rest of root or bud unless under stress of physical conditions that render growth difficult or impossible.

I agree with “E. H.” in the main both in the views he so well expresses in *THE GARDEN* and in his extract from the *Peterborough and Hunts Standard*. It is a decided gain to the science of horticulture and vegetable physiology, as well as a valuable aid to the higher culture of the masses, to have such views so popularly expounded and confirmed by such generally accessible illustrations in a popular newspaper. These striking cases in point, that may be multiplied almost to infinity, enable every reader to prove for himself whether or not plants rest or sleep through the winter and early spring, or are merely preparing fresh material for a change of form or of dress, exchanging, to use “E. H.'s” forcible and picturesque language, a weather-stained and draggled garment for a bright new one. And most of the changes that have suggested the sleep or death of plants are produced by the advance of new life, not the approach of death. The fall of the leaf, for instance, on which the sleep and death theory with all its dreary sentiment and most of its dismal poetry hangs, is caused by a new creation and development of life, not the decomposing touch of death. The leaf falls less from the withdrawal of chlorophyll or the lower temperature of the autumntide than because it is pushed off by the demands for more room by the growing bud at its axil.

This brings me back once more to our starting point, the buds, and to an acceptance of “E. H.'s”

definition of maturity—as that of buds brought by a natural process to a complete state of development. But I cannot agree with him that little buds necessarily are not properly developed, or, in other words, are not mature. On the contrary, mere size as such has but little correlation to maturity, or may, or may not, be in the same boat with it. “E. H.” seems conscious of this truth himself, for further on, in stating that he always cuts back to the largest Rose bud, he does not stop there, but adds the adjective “fullest,” that is, ripest bud. So conjoined, the practice commended is safe and sound. But much disappointment and many failures have come of the election of size only, apart from condition or quality of bud alike among Roses and fruits. Given even equal degrees of maturity, it by no means follows as a matter of course that the finest formed and altogether the highest quality of Roses will necessarily be cut from the largest buds. It may readily be allowed that the biggest blossoms, viz., those that would turn the scale at the heaviest weight, would probably be cut from the biggest buds. But the largest Rose blooms are mostly coarse, and it is not a desirable practice to adopt modes of pruning that must needs gravitate towards a harvest of coarse blooms.

Besides, if the biggest buds produce not only the largest, but, according to “E. H.,” “the most perfectly developed Roses,” there seems no good reason why established Roses should be pruned at all, for such buds will mostly be found on the crowns of last year's shoots. It is no logical answer to this to say that we must prune Roses to keep the plants within bounds. The necessity is by no means obvious, for one fine Rose covered with perfect blooms would prove a more beautiful object in most gardens or landscapes than a score of plants severely pruned, as most Roses still are. But in practice it is not found that the best flowers are gathered from the crowns of so-called cut-back Roses that have not been cut back, though there the biggest buds are gathered together. Even in the case of dormant buds on maiden Briers, it is by no means always the biggest buds that develop into the finest formed flowers of the highest quality. And so frequently does extra size of bud develop into coarseness or malformation, that it is often more prudent to cut back to a medium-sized, normal-shaped, well matured bud than simply or chiefly to go for the largest.

D. T. F.

FLOWER GARDEN.

SINGLE PÆONIES.

THE PÆONIES have been exhibited in excellent condition at the metropolitan flower shows this year, the double varieties of *P. albiflora* being numerous and very good, and the colours of the most varied kinds. Some of them are deep purple, purple-crimson, crimson, carmine, pink, delicate rose, bluish white, &c. Amongst them the single forms of this species were very attractive to the visitors. They were distinct in character from the double varieties, and are certainly more elegant.

The many species now in cultivation in our gardens form a noble and distinct feature in May. We grow thirty-three species and varieties of species, but this being a rather late season they were not fully in flower until the last week in May. Although not much known at present in English gardens, they were cultivated many years ago, and some of the prettiest of them have been longest known.

P. tenuifolia is a very elegant plant with finely divided leaves, distinct from any other. The large crimson flowers with yellow stamens are very striking. It is figured in the *Botanical Magazine* (tab. 926), where it is stated to grow “naturally in the Ukraine and about the precipices on the borders of the Volga,” &c. The first to flower with us was *P. peregrina*, another crimson-flowered Levantine species with

large bold leaves, but not so striking as those of some kinds. It was cultivated by Miller, and also by Mr. Salisbury at Brompton. The next to open its flowers was *P. decora*, not the most handsome species, but the flowers were a distinct purplish rose. The downy leaves of *P. mollis* are distinct from those of any other Pæony; the flowers deep purplish red; anthers bright yellow. *P. aretina* and *P. aretina* Baxteri are two good sorts; the first has rosy crimson flowers, and the variety Baxteri crimson; they flowered about the same time. The common *P. officinalis* in its single state was very pretty, the flowers being of a rosy tint, the petals rather crumpled. This plant was cultivated in England as long ago as 1548. In Parkinson's time single and double forms were cultivated. The variety *anemoneflora* flowered with us also. In this variety the flowers are purplish crimson, and the yellow stamens are replaced by numerous purplish filaments. Both are figured in the *Botanical Magazine*, the latter at tab. 3175. The plant had been sent from a certain Prince de Salim Dyck about 1830. *P. anomala* came next in order; the flowers crimson, set off by lanceolate leaves. It is not very striking as a garden plant, but interesting as a distinct form. It is figured in the *Botanical Magazine* (tab. 1754), where it is termed the jagged-leaved Siberian Pæony. It is stated to perish in our gardens in winter, not from cold, but from wet. In our garden it stands well enough. *P. Emodi* was next in order; it has large cream-coloured flowers with golden anthers. It is also a *Botanical Magazine* plant, figured in 1868 from a plant grown at Glasnevin by Dr. Moore. It is said to be more tender than any other species, being a temperate Himalayan plant from Kumaon to Cashmere. *P. triternata* has flowers of good form, rose-coloured. This is distinct both in leaf and flower. *P. peregrina* compacta and byzantina also flowered with this group, and are distinct from the species. All the above flowered the last week in May and up to the 6th of June, when the following were noted: *P. humilis*, a dwarf species with rosy purple flowers and yellow stamens, the plant dwarf and compact; *P. Wittmanniana*, creamy white, very distinct. This is supposed to have yellow flowers, and was introduced so long ago as 1842. It was discovered by a certain Count Woronzoff in Abchasia, as stated in *Botanical Magazine*, where it was recently figured. Dr. Lindley also stated that 25 guineas were demanded for a plant of it. Broteri had rich crimson flowers with yellow anthers, the plant dwarf and distinct. Browni is very distinct; it is planted on the rock garden, and is a neat-habited little plant, but so far we have failed to flower it. *P. Russi* had well formed crimson flowers, with a mass of bright yellow anthers; the leaf and plant distinct. The true *P. albiflora* and varieties laciniata and rubescens flowered freely, and are the most beautiful amongst the single Pæonies.

They are all very easily grown, and I do not care to coddle them up in pots; even the little *P. Browni* takes its chance out of doors. The border where they are growing has been deeply trenched and well manured. Some decayed manure was also placed on the surface during the winter, but even this is not necessary, as they seem to be all perfectly hardy. They need only to be left alone and will in time grow into large specimens, and the distinct foliage as well as the flowers look well amongst those of other herbaceous plants in a mixed border.

J. DOUGLAS.

Rock Soap-wort (*Saponaria ocymoides*).—This *Saponaria* is one of the best dwarf-growing plants we

have for the rockery. It brightens up a nook between two stones on a sloping bank with its rosy pink flowers, which are freely produced upon dwarf plants not more than 3 inches high. It is easily increased by division in the autumn, and if the plants are wintered in a cold frame and planted out early in April with good balls of soil attached they quickly grow into good flowering specimens.—M.

HERBACEOUS AND ALPINE PLANTS.

WE have passed through a very remarkable experience in these parts (South-east Kent) during the last twelve months, an experience which, although unusual, may afford us many a lesson for the future. We had, as all England and indeed Europe generally, a season of prolonged and severe drought, commencing on June 4 and ending on or about September. Whatever may have been the general effects of this on vegetation in general (and Lord Portarlington tells us it was a blessing in disguise), its effects on gardens, and on that portion of our gardens of which I now write, was trying in the extreme, and where things had been newly planted it meant to a great extent positive loss or a diminution of strength and vigour. We had a very wet autumn and early winter, a severe frost in October, and then two very heavy falls of snow in February and March more than a foot deep, and remaining on the ground for weeks, especially where it had drifted owing to a fierce and cutting north-east wind with which it was accompanied. In some respects this would be what alpine plants would experience at home, with this exception, that the wet of the autumn and early winter would have been snow, thus providing them with a warm blanket for the winter, and I believe, as a rule, it is this winter wet which is far more injurious to our alpine plants in these low regions than any amount of frost or snow. It is, therefore, somewhat difficult when looking through the gaps on one's rockery to determine to what they are due, but I am inclined to think the summer was the more trying experience of the two to them. There is, therefore, I think, this consolation to be derived by all those who cultivate alpine plants, that any that have withstood the seasons we have now passed through may be regarded as perfectly hardy, at any rate in our south-eastern corner of England, which is as different from what is ordinarily called the south of England as can possibly be imagined.

And here may I again urge (what I have often done before) on writers who favour us with their observations on hardy plants, that they will always mention their locality, for otherwise their descriptions are misleading. The temperature of our island varies so much, that hardiness is a relative term. When we read that on one day last week (Saturday, June 2), the thermometer at Aberdeen registered 41°, and in London 82°, it is clear that we must be rather more definite when we write about hardiness. Nor is climate the only point to be considered; soil has much to do with it. When it is heavy and retentive, I imagine plants must suffer much when frost supervenes in a wet season. There is, however, this consideration, that rock gardens are mostly made, and that no one forming one would care to make it of heavy soil. Not so with the herbaceous gardens; for unless to those who have abundance of ways and means, plants must suit themselves as best they may, and some of the most successful growers I know are those who have conquered difficulties of soil, and even of climate.

CHIONODOXA LUCILLE deserves to be classed as an alpine plant, coming as it does from the borders of the land of perpetual snow, and wonderfully it bore the weight of snow upon it. It was in flower when our second fall in March came. The snow drifted on the border where it was planted to the depth of 3 feet, yet, when this melted away, there were the lovely blue and white flowers in all their beauty apparently uninjured.

ANDROSACES are some of them not amenable to ordinary treatment; thus I have always found *carnea* and its *Mont d'Or* variety, *c. eximia*, very difficult to manage. I have been told of various ways of managing them, but have not succeeded with any; they linger for a year or two and then go off. *Androsace sarmentosa*, on the other hand, is as easily

grown as any alpine can be, but I have a difficulty with it; it now covers a space of 3 square feet or more, but while it has thus extended, the rosettes, especially at the centre of the plant, have become smaller, and the flowers are only produced at the outside edges of the mass. I hardly know why this. In the *Sempervivums* and *Saxifrages* I notice that the same thing takes place; the centre becomes ragged, and the plant loses its position, as it were, moves on further, and all the flowering shoots perish. I have not observed whether the same rosettes of this charming little alpine flower continuously, or whether the flowers are produced from fresh ones. I am rather at a loss to know what to do with it, but have thought it would be well to take it all up, put in fresh soil and replant it. Another of the *Androsaces* (*lanuginosa*) has withstood the winter well, but then I gave it the protection of a small cap-glass, not so much to keep it from frost as from wet, its woolly foliage being very liable to damp off when freely exposed to our very varying climate in winter.

ETHIONEMA GRANDIFLORUM AND CORDIFOLIUM.—These, which used to be classed as *Iberis*, are extremely pretty species, and seem to have withstood the winter well; the former of these has a somewhat dwarf bushy habit. I thought a year or two ago I had lost it, but it revived, and is now stronger than it has been for years. In the character of their flowers these pretty little alpine bears some resemblance to the *Androsaces*, although essentially distinct.

GENTIANA VERA.—How often have I desired to get this lovely alpine to favour me with making itself a home with me. What attention I have paid it and care I have lavished on it! At last, I believe it is at home, and my clumps of it all did well last winter. True, I gave them also a little protection with a hand-glass, but perhaps now that they are thoroughly established, they will not need this. Of *Gentiana acaulis* I need hardly say much; in some places it grows like a weed, in others there is great difficulty about it. With me it has done well, but not so well as in some places, as, for instance, in Fredville Park, where long borders are edged with it, always giving a neat foliage border, and when in flower very delightful. There were some most interesting natural varieties of this flower shown by Mr. G. F. Wilson lately, but, deeply interesting as they were, I do not think any of them were equal in beauty to the old *Gentianella*.

RAMONDIA PYRENAICA.—Neither drought nor frost have affected this lovely alpine. My little colony of it, which is at the north side of a good sized piece of rock, has withstood all vicissitudes, and is now (June 7) in full flower. The largest plant has fifteen spikes of bloom, which are all disposed in a circle round the outside of the plant, and it is very beautiful. I have not experienced any difficulty in growing this plant, and although its native habitat is undoubtedly such a position as I have described, yet it will flourish in many other situations. The most lovely plants of it I have ever seen were at Mr. W. O. Hammond's, St. Albans Court, in this county. But he had specially prepared a place for them, having caused holes to be made in the face of some sandstone rocks where they were as near their native position as it was possible for them to be, and certainly they were marvels of beauty. We, who cannot do such heroic things, must be contented with smaller successes, and it is a satisfaction that we can grow these beautiful things to our own liking at any rate.

PHLOX STELLARIA.—This is a very beautiful, but not very well known *Phlox*. Its foliage is different from that of the ordinary species and varieties of herbaceous *Phloxes*, large and fine, and somewhat loose and graceful. It flowers most abundantly, and placed, as my plant of it is, on the top of the small rockery where it can hang down on the stones, it looks very well. The flowers are pure white and starry in form, and as they are very freely produced, it is very showy. By-the-by, I see in the catalogue of a well-known herbaceous firm this plant described as having foliage "like Chickweed, from whence it derives its specific name;" but I always thought Chickweed was *Alysia*, and that the specific

name *Stellaria* had reference to the starry form of the flowers; nor do I quite understand the recommendation to use it as a border plant for the rockery, for its foliage is too long and straggling for anything of that description. It almost makes one question whether I have got the plant right. My plant has withstood the winter well, and I think very highly of it as a decorative plant.

ONOSMA TAURICA.—After several attempts to get this plant to accommodate itself to my treatment, I have at last, I hope, succeeded, and the clumps I have of it have both done well. I placed a hand-glass over one during the winter, but left the other unprotected, and they both seem to have done equally well. In heavy soils and moister climates, I believe some have found a difficulty with it, and there is probably capriciousness about it which we do not quite know how to master; with me the letting-alone process seems to answer best. Is it to be considered an alpine plant? or, let me ask a wider question, What is the true definition of an alpine? Does a plant being classed as such depend on the locality in which it is found, or on its habit? Should one call, for example, a plant that grows 18 inches high an alpine, even although it be found at a high elevation on the Alps or any other mountain range? It would seem then rather to be the position of the native habitat of the plant combined with its height, not the height of its flowering stems, but of the ordinary foliage of the plant. Nothing is more difficult than definition, and therefore I suppose we shall just simply go on classing such things as we think to be alpine as such, but it will be a matter of uncertainty.

OMPHALODES LUCILLE.—This has come out of the winter ordeal bravely, nor did it seem to suffer from the drought, although it is placed on a dry and sunny spot on the rockery. It is very unlike its congener, *O. verna*, in habit, which from its habit has the common name of the creeping Forget-me-not; the species keeps quite alone at home. I have not tried to increase it by dividing, and have not succeeded in raising it from seed. The tint of blue of the flower is most lovely; unfortunately, it does not form a large truss, but as it produces flower-stems readily, this in one way compensates for it. I do not often see it when I go about to other gardens, but it is a plant well worthy of a place on any rockery however small.

DELTA.

Tritomas in flower.—It is rather strange to see *Tritomas* flowering in early summer. A short time ago I saw several spikes on a group that flowered well last autumn. These spikes were partly developed in the late autumn of last year, and the cold of winter setting in they were checked, remaining stationary, but were not injured, and when spring came they began to grow again, flowering at the unusual time mentioned.—A. H.

The German Iris.—A great merit possessed by the various forms of the German Iris is the fact that they are all first-rate town plants, as under anything like favourable conditions they will both grow and flower well. The mistake is often made of giving these Irises too much water, as they are by no means semi-aquatic (as *I. Kämpferi* is), but thrive best in a good open soil that is kept fairly moist, but well drained. If cut just as the earliest blossom commences to expand, the remaining flowers will open beautifully in water.—H. P.

Iris ruthenica.—This beautiful Russian Iris is flowering freely with Mr. Morse, of Epsom, in a bed fully exposed to sun and air. It is one of those hardy, free-blooming, and finely coloured Irises that we shall see more of as the interest in this charming race increases. The flowers are somewhat like those of *I. reticulata*, fragrant, and of a bluish lilac, with a tinge of dull red in the standard and limb, and this colouring is set off by the lip of the falls, which is boldly pencilled with blue on a pale ground.

The Buckbean (*Menyanthes trifoliata*).—Can any reader of THE GARDEN tell me whether there are varieties of *Menyanthes trifoliata*? My pond is full of this plant from two plants given me some years ago from different sources. One has a more glaucous foliage and rounder leaves, and the other greener and more pointed leaves. The position as to sun and age of plants is much the same. The latter is always a

mass of flower, and the former a shy bloomer. As they now run into one another the contrast is more marked.—J. R. DROOP.

VARIATIONS OF POPPIES FROM SEED.

DURING last summer I filled one of the beds in my garden with the handsome scarlet and black-marked single Poppy known as the *Danebrog*, from the black markings in centre of the flower somewhat resembling the cross of the Danish Order of that name. From the great heat of the summer they came very soon into flower, quickly formed seed, and ceasing to bloom, were pulled up and the bed filled with some other plants, but not before some of the seed had fallen and sowed itself in the bed. During the spring the bed has been filled with early Tulips, and by the time they began to go out of bloom the self-sown Poppy seed began to come to maturity, and was allowed to remain, out of curiosity, as I noticed much dissimilarity in the foliage of several of the plants. Several of these plants are now in flower, and show the strangest dissimilarity to their parents, which were all absolutely true to name, none of them showing the slightest variation in either shade or marking. Two of the seedlings have fully double flowers, one of them, I think, the most beautiful double Poppy I have ever seen, being of a clear pale pink colour with a centre somewhat resembling that of a *Hollyhock*. One of the single forms is of a much lighter shade of scarlet than the parent, but without the least trace of the black cross in its centre or any marking save a slight shading off to a lighter hue.

Another single form is of the same lighter shade of scarlet, with a pure white cross in the centre of somewhat smaller dimensions than the black one in the parent flower. As all the plants have not yet come into flower, there may be other different forms yet to come. Some of the seed from the same bed was carried, I suppose, by the wind to the main border of the garden, where it fell into much poorer soil, in which it came up plentifully, but in much less vigorous plants, as they were much more crowded together than those in the bed. The flowers of these latter plants were all absolutely the same as those of their parents in colour, but one or two of them came rather more than semi-double.

The only other variety of Poppy I grew last year was the new double scarlet and white known as *Mikado*, which was quite at the other end of the garden, and also sowed itself freely about the beds and borders in its neighbourhood. I do not, however, think that the strange variations of the *Danebrog* Poppy can with any degree of probability be attributed to any hybridising influence of the *Mikado*, as they are totally distinct and different the one from the other in form, stature, and foliage. Several seedlings of the *Mikado* are now opening their flowers, which, though larger and finer and somewhat paler than those of last year, seem absolutely similar and true to name. I shall be glad to hear if any of your readers have had a similar experience to mine with regard to the *Danebrog* Poppy.

W. E. GUMBLETON.

Pentstemons from seed.—Old plants which bloomed freely last year have come through the winter very well. They are just now blooming, and will be very gay for several weeks, throwing up fine spikes of bloom. Seedling plants put out during May will then follow and flower freely right up to the end of October. Thus, by simply raising a batch yearly from seed, and planting them out, a succession of bloom is kept up for some four or five months. The finest forms of *Pentstemons* almost exactly reproduce themselves from seed. That is a capital feature, and should help to render these good hardy biennials more popular. Even if planted for late flowering alone they are valuable, as very often a good handful of fine fresh spikes may be cut in October after frosts have destroyed most other flowers. Very often strains exhibit too many flowers of a dull purple tint. A few of that colour suffice, although when fine, and having broad white throats, they are very pleasing. But the reds, scarlets, crimsons, pinks, and whites are the pret-

tiest colours, and should be most selected from. Some of the vermillion-reds are very striking, their colours glowing like fire in the sunlight. Seed sown in shallow pans or boxes, and under glass, about the end of February, will soon germinate and give plenty of plants to put out in May.—A. D.

White tufted Pansies.—A really good early blooming pure white tufted Pansy would prove a great boon to the market growers. A white as hardy, as good-habited, and as free as Blue King is would indeed be a treasure. It is odd that white forms should be more tender and later than other sorts. I note several creamy whites, such as Primrose Queen, Sulphur Gem, and others, having similar expressive designations, but these even are later blooming than are the deeper coloured kinds, and are therefore less in request. The best habited of whites is Dickson's Queen, but it blooms very late, and then sparingly. Varieties, such as the Dove, Mrs. Felton, Mrs. Cannell, and Great Eastern, have been recommended for bedding purposes, but they all lack stamina. Even the white Violas are rather disappointing, as they withstand heat on the one hand, and hard weather on the other indifferently. For market purposes also a good bold flower is needful, and still more a kind which will increase rapidly. Pansies get little rest at the hands of the market growers. They have just been planted up, the spring sales being over; then in August they will be lifted, divided again, and replanted, and then have to make strong early blooming plants in the spring. We have plenty of blues, yellows, and purples with some belted flowers, which are popular; but a first-class hardy white seems still to be lacking. Plants of the ordinary sprawling habit of growth, devoid of compactness and density of growth, are of no use whatever. A good pure white self having a dark blotch is liked best, but if without the blotch no one will complain.—A. D.

SHORT NOTES.—FLOWER.

A Spanish Iris that should not be omitted is *californica*, the deepest of the yellow varieties.

Gladiolus byzantinus is blooming freely with Messrs. Barr & Son at Tooting. It is an old, but beautiful plant with reddish purple flowers.

Iris neglecta Cordelia is one of the finest of its class. The standards are pale lilac, and the falls of deep purple, pencilled at the base.

A fine hardy plant is *Orchis foliosa*. Several large specimens in a pit at Chiswick are one mass of brilliant lilac-purple flowers. It is a splendid pot plant.

Austrian Harebell (*Campanula pul'a*) is a beautiful dwarf Bellflower now in bloom. Its flowers are of the deepest purple and shaped like a bell.

Campanula glomerata dahurica is one of the finest of Bellflowers for the month of June. It is blooming with the greatest freedom in many gardens, and the blue colour of the clustered flowers is of surprising depth.

Varieties of Campanula persicifolia are especially gay in the borders at Chiswick. The white form has a chaste flower, a delicate contrast to the blue-flowered kind. It is an excellent border Campanula.

Lilium monodelphum Sovitzianum should be classed with the best of the early-blooming Lilies. It is of rather tall growth, and has reflexed flowers of a creamy yellow colour, sparsely spotted.

Allium Ostrowskianum, already noted in THE GARDEN this season, is of value for its medium-sized head of cheerful rose-coloured flowers. It is in bloom at Tooting and thrives freely.

The pyramidal Squill (*Scilla peruviana*) is a noble hardy plant, the flowers of a distinct blue and very numerous. A specimen in full bloom is a handsome feature with its pyramid of richly-coloured flowers.

Dwarf Speedwell (*Veronica prostrata*) is a mass of bloom in the Epsom Nursery. It is scrambling amongst some large tree clumps, which it has simply covered with a sheet of blue of the brightest description. Flowering just at the end of June, it is all the more valuable.

Delphinium belladonna.—Although an old plant, this is always likely to retain its hold. It blooms early in the season, is dwarf in habit, and the single flowers are of the palest lavender-blue. Mr. Morse, of Epsom, values it highly for cutting.

Iris sibirica.—This Iris is perfectly at home, naturalised beside a wet ditch. The foliage can hardly be distinguished from some of the coarser Grasses, but the plant has the merit of throwing its flowers well up above the surrounding herbage, and is fully capable of beautifying many a weedy, neglected ditch.

Tufted Pansy Archie Grant.—This variety appears to be the best of the rich plum-coloured selfs. It is vigorous in habit, the flowers are freely produced, of good substance, and borne on such long footstalks that they can easily be

gathered and bunched. If there is any sale for Pansies in a cut state, this variety commends itself to market growers.

CAMASSIA CUSICKI.

THE only American genus representative of the large liliaceous tribe which includes the Hyacinth, the Bluebell or Grape Hyacinth, the Squill, and the Star of Bethlehem is the genus *Camassia*. So near to *Scilla* is this genus, that it is often included under it, and we so find it in Gray's Manual. The characters which separate the two are the leafy stem, the stouter habit, and larger flowers, and the nervation of the petals, which in *Scilla* have always a single midnerve, while in *Camassia* there are from three to nine nerves, showing most plainly after the flowers are dried.

The first known species was discovered by Captains Lewis and Clark in September, 1805, upon their expedition across the Continent. After a difficult passage across the Bitter Root Mountains, by what is now known as the Lolo trail, during which they had found little Grass for their animals or game for their own sustenance, they came out on the tenth day upon an open meadow and to an Indian village where they were hospitably received. The Indians "set before them a small piece of buffalo meat, some dried salmon, berries, and several kinds of roots. Among these last is one which is round and much like an Onion in appearance and sweet to the taste. It is called *Quamash*, and is eaten either in its natural state, or boiled into a kind of soup, or made into a cake which is then called *pasheco*. After our long abstinence this was a sumptuous treat." Seventy-five years afterwards I crossed the same trail, still as wild, rugged, and inhospitable as the earlier voyagers had found it, and came out into the same little prairie. The Indian village had vanished, but heaps of recently gathered *Camass* roots showed that the Indians still frequented the place, while marks of a mowing machine upon the Grass were equally sure evidence of the near neighbourhood of some white settler. Lewis and Clark in their narrative make frequent mention afterward of "*Quamash* flats," and upon their return took back with them the specimens upon which Pursh founded the species *Phalangium Quamash*. This name Lindley subsequently changed to *Camassia esculenta*, the *Camassia* being a Latinised form of the Indian name *quamash* or *camass*.

In 1810 Nuttall collected what he believed to be the same species "near the confluence of Huron River and Lake Erie," and afterwards near St. Louis and on the banks of the Ohio. This eastern form, which ranges southward into Texas, was separated by Dr. Torrey and is known as *C. Fraseri*. The original *Camass* is abundant in many low meadows from Idaho to the Pacific, and has been an important article of food to the native inhabitants. On the lower Columbia a third species, *C. Leichtlini*, is found, which has an equally nutritious root, and still a fourth species has been recently discovered in the Blue Mountains of Oregon by Mr. W. C. Cusick.

This is the stoutest and most vigorous grower of all the species, with a large bulb, numerous broad, glaucous and somewhat undulate leaves, and a flowering stem 2 feet or 3 feet high. The flowers are of a delicate very pale blue, the petals spreading regularly, crinkled at the narrow base, and with three, or rarely five, faint nerves. It is described as growing on mountain slopes, instead of in meadows, and the bulb is nauseous, pungent, and inedible.—*Garden and Forest*.

Early Lilies.—The Lily season has commenced, and *Lilium davuricum* is already in full splendour, as may be seen in the Tooting nursery of Messrs. Barr. *Sappho* is a variety of brilliant colouring—scarlet flamed with orange, and is intensely bright in sunlight; it is of rather tall growth. The old *Orange Lily*, *L. croceum*, was just expanding its showy blooms; and two rare kinds we noted were *L. pardalinum alpinum* and *L. parvum*. The first of the two has a small, well-shaped flower, bright orange, spotted sparsely on its reflexed segments; it has foliage like that of the type, but the habit is more slender. *L. parvum* is deep orange spotted with rich crimson, and has a small, handsome flower. *L. columbianum* is desirable for its bright

orange freely-spotted flowers, the segments reflexed; it is very free blooming. These are a few of the best early Lilies.

NOTES OF THE WEEK.

Hieracium villosum.—This is very effective in large plants which flower very freely.—C. W. Dob.

Dianthus sylvestris has a good flower, but not a good habit amongst Rock Pinks.—C. W. Dob.

A hybrid Lychnis.—I send you a new hybrid *Lychnis*, between *L. coronaria* and *L. Flos Jovis*. The habit of the hybrid is better than that of *L. coronaria*, but not so good as that of *L. Flos Jovis*.—C. W. Dob.

Aquilegias from Manchester.—Messrs. Ryder and Son, of Sale, Manchester, send a collection of *Aquilegias*, showing that they possess a strain of much merit. The plants also possess a vigorous constitution.

Viburnum plicatum was flowering very freely the other day in the Coombe Wood nursery of Messrs. Veitch. Its bunches of white flowers are borne with great freedom. We might see more of this beautiful *Viburnum*.

Mimulus radicans is a pretty little bronzy-leaved *Mimulus* that has been exhibited this season, and we also noticed it in the Coombe Wood Nursery. It is quite dwarf—creeping in fact; the flowers white and blue.

Pelargonium Duchess of Teck.—We have received a truss of bloom from Messrs. Fisher, Son, and Sibray, Sheffield, of their new *Pelargonium Duchess of Teck*. It is of the purest white, single, and the flowers of good size and shape. It will be valued by those who like white-flowered *Pelargoniums*.

Weigela Abel Carriere.—Those who intend to plant any shrubs in autumn should make a note of this fine sort of *Weigela*, which is one of the best of all, being good in habit of growth (an important point), large in flower, and delicate in colour, the tint of rose being less purple than usual, and, therefore, more pleasing.

Pæonies.—Some very fine *Pæonies* have been sent us by Mr. Hartland, of Temple Hill, Cork. Evidently the climate suits them, as they are superb. He also sends the *Cashmere Larkspur*, which we think a poor thing either in its blue or white form. Some *Delphiniums* of the *formosum* section, which he also sends, are much prettier.

Ornithogalum arabicum.—I am sending you by parcel post some spikes of bloom of *Ornithogalum arabicum* cut from the open border. The plants are flowering freely this season, and make quite a show. I find the bulbs require well ripening the previous season for them to bloom.—E. PETERS, Guernsey.

* * The finest specimens we have seen of this splendid *Ornithogalum*.—Ed.

Messrs. Sutton and Sons.—We understand that Messrs. Martin Hope Sutton and Alfred Sutton, who have been members of the firm for more than fifty years, have retired by the effluxion of time. The firm of Sutton and Sons will be continued in future under the same style and title by the sole proprietors, Messrs. Martin John Sutton, Herbert Sutton, Arthur Warwick Sutton, and Leonard Goodhart Sutton, who have for several years past been the acting partners.

Poppies and Pyrethrums from Wantage.—Flowers of these plants have been forwarded by Mr. W. Caudwell, The Ives, Wantage, and show brilliant colours. A single rose *Pyrethrum* is very striking; so also the Poppies, especially a brilliant scarlet cup-shaped flower, and one of delicate orange-scarlet being frail and beautiful. There were semi-double forms of the yellow and white Iceland Poppies.

Phlox Mrs. Watt.—This is an early-flowering variety that can be recommended for the purity of its flowers, which are quite white, except the mauve-coloured ring in the centre. Mr. Lowe, Formby Nursery, near Liverpool, who has sent it us, mentions that the plants from which the spike was cut are in 4-inch pots, and useful for the conservatory. It would also do for the border. It was obtained twenty years ago from Scotland.

Campanula pyramidalis at Miramar.—Allow me to state that my note about *Campanula pyramidalis*, &c., is not from Laxenburg, but from the gardens at Miramar, near Trieste (on the shores of the Adriatic). At present *Yuccas* and *Oleanders* are beautiful in bloom; of the latter are

old specimens planted years ago in the parterre. In September next I mean to make a voyage to Italy, and hope to visit the gardens at Venice, Milan, Florence, and Rome. I should be much obliged to get a list of gardens and parks to be seen there.—LOUIS KROPATSCH, *Imperial Gardens, Miramar.*

Strawberry Noble, one of Mr. Laxton's introductions, seems likely to be the early Strawberry of the future. Several fruits of it were shown recently at the Royal Horticultural Society's meeting, and their large size, bright colour, the freedom with which they were produced, and agreeable flavour show that we have here a variety that will make a useful market Strawberry.

Hymenocallis undulata.—This is a lovely tropical bulb that is flowering in the stoves at Kew. It is like the common *Pancratium* in growth and flower. The leaves are long and broad, the stems tall, carrying a cluster of flowers with long narrow reflexing petals and a crown or cup of web-like texture. The perfume is delicious, and it is altogether a beautiful plant, which would probably be useful for cutting from. It is not new, as it was named years ago by Dean Herbert. It comes from La Guayra, and seems to have been lately introduced.

Tropæolum polyphyllum.—Many fail in growing this beautiful *Tropæolum*, but failure usually results from ignorance of the real nature of the plant. A position that it enjoys is one under shrubs, or in partial shade, and in fairly good soil, then it grows rapidly, the glaucous foliage abundant, and the flowers freely produced. Messrs Barr, in their Tooting Nursery, have a bed of it just about to bloom, and they have dotted plants amongst the *Tropæolums* to afford the needful shade. This might be repeated in the garden, as a thriving bed of *Tropæolum polyphyllum*, even when not in bloom, is distinctly ornamental, by reason of the glaucous leafage. It may also be planted on a sunny rockery, where the stems can creep through the surrounding herbage.

Spanish and English Irises are just now in perfection in the garden, and make a gay succession to the germanica section, which have flowered so well this season. The Spanish varieties were very fine a few days ago in the Tooting nursery of Messrs Barr, and a few of the best were General Wyndham, standards pale lilac, the lip with a rich blotch of yellow; Louis Le Grand is a lovely white, the yellow blotch in bold relief; Louis Philippe has a bronzy lip, a contrast to the lilac-blue standards; Victoria, yellow and white; lusitana sordida, so much grown for the market; and General Havelock, delicate blue. The Spanish varieties do well in clayey soil, but better still on raised dryish banks, as then they are comparatively safe during the winter. A few good varieties of the English Iris are Abergail, white, striped with purplish red; Grand Celeste, deep rich blue, yellow at the base of the lip; lilacina, pale lilac; and La Superbe, standards reddish purple, lip broad, and blue and white. Everyone who has a garden should grow a few of both these sections.

Chinese or herbaceous Pæonies at Tooting.—These have been remarkably gay in the nursery of Messrs Barr and Son at Tooting, but the severe rains of the past few days have spoilt the flowers owing to their weighty character. Amongst several double varieties there were many that might well be noted as worth growing in the garden, and there are few flowers that make such striking clumps as the herbaceous Pæony, now receiving great attention. *Triomphe de Paris* is a splendid white kind; also *Virginie*, which has a bluish tint, the yellow stamens giving it colour. *Mme. Vilmorin* may be classed amongst the best of the white Pæonies, and we may say the same of *Belle Douaisienne* and *Festiva maxima*; the last is perhaps the purest of all. *Snowball* is another beautiful flower in this class. Amongst the rich pink-rose kinds *De Candolle* is worth noting; also *Leone* and *Carnea elegans*, both very delicate blush-pink-coloured sorts; *Sir William Harcourt*, deep rose-purple; *Bosquet*, bright rose; *Lord Salisbury*, glowing purple-crimson; *Purpurea superba*, bright crimson; *Dr. Callot*, fine rich

pink; and *Sir Walter Scott*, brilliant rose. *Pæonia albiflora* has certainly given rise to a glorious race of flowers.

The Umbrella Tree (*Magnolia Umbrella*).—In many gardens this week this noble North American tree is more conspicuous than usual on account of its large flowers, which expanded around London about the end of last week. The great white blooms, as large almost as those of *M. grandiflora*, may be seen a quarter of a mile distant, and more closely one sees the beautiful harmony of flower and leaf. This *Magnolia* has the largest leaves of any, some I have measured this week being over a foot long and half as broad. Asa Gray states that they reach 2 feet in length. This and its near relative, *M. auriculata*, are two noble trees that I should plant in all good gardens. They are quick in growth, and from the nursery stage upwards are always striking trees. But they must have shelter or their great leaves suffer by winds. The *Cucumber Tree*, *M. acuminata*, and *M. cordata*, the yellow *Cucumber Tree*, are also fine quick growing trees that are much neglected by planters of the present day. *M. Umbrella* is also called *M. tripetala*, but the former is that used by Gray, and is, I think, most expressive of the tree's character.—W. G.

Buddleia crispa.—This may be called a new shrub, although it has been in cultivation and was figured some years ago in the *Botanical Magazine*. For a few years past it has existed in the Kew arboretum without a name, but now that it has flowered this year profusely, it has been identified with *B. crispa* of Benth. It is, I consider, a handsome and most distinct shrub, and as it has been growing at Kew for several years quite unprotected and has not been killed or injured by the winter, it may be called perfectly hardy. The Kew specimen is a dense, compact-growing bush about 5 feet high. The leaves are medium-sized, and covered with a white tomentum, which gives the whole bush a white appearance. Its small and bright purple flowers, borne in numerous short spikes before the leaves are fully grown, were well expanded a month ago, and, in contrast with the woolly foliage, are very pretty. It seems to be harder than the Chinese *B. Lindleyana* or the Chilian *B. globosa*. A shrub of such a distinct aspect may be used with good effect in ornamental planting. It is a native of the Himalayas, and was sent to Kew in 1879 by Dr. Aitchison.

Leschenaultia biloba major.—Can any plant be lovelier than this little New Holland shrub when seen in perfection of flower. Every visitor who caught sight of the splendidly-flowered specimens of it at the Regent's Park show last week, I noticed, stopped to admire the matchless blue of its flowers. It seemed to be new to most people, though in reality it has been in English gardens for nearly half a century. To an unbotanical friend I described it the other day as a magnified blue *Lobelia* of the bedding-out class, and the comparison seemed so apt, that I repeat it. The flowers in shape are quite like those of a *Lobelia*, but several times larger, and the colour is of the richest gentian-blue imaginable. The growth is graceful, about a foot high, and the narrow foliage gives the plant a light appearance. It is, in short, a most desirable plant, and one that everyone who has a greenhouse and a gardener who can grow a pot Heath should buy. It lasts several weeks in bloom in early summer, and its cut-flower sprays are exquisite. To Mr. Balchin, of Hassock's Gate Nurseries, is due the credit of bringing this charming plant prominently before the London public, and many will remember the impression his plants of it made in London a few years ago when he exhibited them. The younger generation of gardeners knew it not, and the old ones admitted that they had never seen the plant grown to greater perfection. The plant has become more widely known since then, as I have seen it in private gardens, and at Kew it is grown almost as well as Mr. Balchin shows it, and has been the admiration of visitors to the greenhouse for a long time. For details of its culture, I refer readers to the numerous notes that have appeared about it in THE GARDEN, particularly the notes accompany-

ing the beautiful coloured plate of it October 4, 1884 (p. 298).—W. G.

TESTIMONIAL TO DEAN HOLE.

I FORWARD you the text of the address and the names of the subscribers, also four photographs of the casket, to be presented to Dean Hole. The casket has been carved by Messrs. R. Tudsbury and Sons, of Edwinstowe, from a beautiful piece of Oak given for the purpose by Earl Manvers. The address is being illuminated by Mr. Crossley, of Agar Street, Strand, and Newark. I should have told you that the casket is of good size, the interior being 20 inches by 5 inches by 5 inches. We hope to forward the address to the dean shortly.

F. H. APPLEBY.

ADDRESS TO THE DEAN OF ROCHESTER.

To the Very Rev. Samuel Reynolds Hole, D.D.,
Dean of Rochester.

We, whose names are subscribed, being old members and exhibitors of the South Notts Horticultural Society, and other fellow workers with you in the fragrant and pleasant paths of horticulture, desire to approach you and offer our hearty congratulations and brotherly greetings on your well-deserved promotion to the deanery of Rochester.

We recall, with unfeigned gratitude, the many services you have rendered us in past years. Your kindly help and sympathy, your valuable counsels, your genial co-operation, your facile pen and ready wit, have each and all in turn subserved our interests and cheered us on our way.

In many shows and exhibitions you have surpassed the best of us, and the Cauntton Roses have become historical, and now that the close tie which has so long and happily united us is about to be severed, and the glades of merry Sherwood are to be exchanged for the busier banks of the Medway, we would bid you affectionately God speed.

May you long enjoy that vigorous health and strength which you have hitherto so freely placed at the disposal of the Church of Christ, and may He enable you, in your new and wider sphere of usefulness, to cultivate in the "garden enclosed" with ever-increasing success "the Rose of Sharon and the Lily of the Valley."

Easter, 1888.

Ossington, Viscountess
Sermoneta, Duchessa de
Anderson, Mrs.
Harvey, Mrs.
Phillimore, Miss C.
Phillips, Mrs.

Manvers, Earl
Newark, Viscount
Gulstrup, Sir W.

F. H. Appleby
E. Bailey
J. Bakewell
A. J. Bishop
E. Bousfield
H. Branstom
J. G. Branstom
T. Camm
W. Cope
J. Cousins
J. Crossley
J. M. Dolphin
J. Edmonds
P. Findlay
D. T. Fish
T. Fisher
H. Gadd
G. Gascoyne
A. Gibson
M. Gleeson
J. H. Goodacre
G. Hart
A. Henderson
G. Hodgkinson
R. Hodgkinson
Jas. Hole
J. Howitt
W. Ingram
Ireland and Thompson
R. F. H. King

H. Lane
C. K. Long
J. F. Loversidge
J. Lyon
W. March
S. K. Mareland
T. Methven and Sons
J. Miller
W. Newton
W. N. Nicholson
W. Phillips
N. H. Pownall
E. M. Hutton Riddell
W. Robinson
G. Sheppard
L. R. Starkey
E. Stewart
J. Stewart
Godfrey Tallents
W. E. Tallents
W. Thomson
C. Thorold
J. Thorpe
C. Turner
J. Walker
A. Webb
Wheeler and Son
W. Wood
C. Woolley

CHRYSANTHEMUMS.

E. MOLYNEUX.

PREPARATION OF STIMULANTS.

IN all matters of detail it is wise to look ahead and make preparations wherever possible for all things that are sure to be required. The application of stimulants to the roots of the plants will soon have to be commenced; therefore it is wise to be prepared with the necessary means, so that no delay may take place when the work of feeding the plants begins.

The term feeding means the application of stimulants at a time when the plants are supposed to have exhausted the greater part of the manurial matter in the soil, and is of the ut-

to apply, that the necessary preparations may be made to obtain what is required before the time arrives for using such stimulants. The time to commence is an important point in Chrysanthemum culture.

When the plants are potted in new soil they grow freely for a time if clear water only is given, and the leaves assume a colour natural to the variety, but after a time, if nothing but clear water is applied to the roots, the foliage in many instances changes to a sickly yellow and the lower leaves fall off. Many growers recommend the withholding of stimulants until the flower-buds are formed, but why, it is difficult to understand, as by that time the nourishing matter in the soil will have been absorbed by the roots, Chrysanthemums being such gross

how can the flowers be properly developed? When the plants are growing well, do not let them deteriorate by lack of attention in this point, but keep them advancing. When the pots are sufficiently filled with roots is the proper period to commence the use of stimulants. The strongest growing kinds, as, for instance, Prince Alfred and Lord Wolseley among the incurved, and Fair Maid of Guernsey and Boule d'Or in the Japanese section, quickly make roots, while the more delicate growing varieties, such as Criterion and Princess Beatrice, are not very free-rooting. It is much better to turn one or two plants out of their pots, that the progress of the roots may be more correctly examined, than to hazard a guess by the appearance of the plants. The time at which the plants received their last shift into the flowering pots, the size of the latter, and the kind of soil used, all tend to make a difference in the time required to fill the pots with roots. Some soils are more favourable to root-production than others. It will also depend upon how the potting was done. Roots come to the sides of the pot more quickly in loose soil than when it is made firm; the varieties grown also must be considered. Plants cultivated for specimens will first require attention, owing to their being grown on early in the season. Examples grown in the bush style and intended for conservatory decoration, where good foliage is a consideration of first importance, will also need stimulants early in the season. This applies especially to pompons, Anemone pompons, and single varieties, as they are generally grown in comparatively small pots.

Local circumstances, in some instances, must be taken into account, as well as the means at the disposal of the cultivator in determining what manner of stimulant shall be used, commencing with animal manures, as they are, as a rule, easily obtained, except in the case of those cultivators who reside close to or in large towns. Various kinds of liquid manures, such as the drainings from the cow-houses and stables, are excellent. I prefer the former, as being cooler than the latter. Where liquid manure cannot be had from tanks direct from the places named, a very good substitute may be had from a heap of mixed manure. The best plan is to throw clean water over the heap and allow the water to soak through the manure, and drain into a pit at the side of the heap. Sheep manure, where it can be had direct from the fields, makes a capital stimulant applied in a liquid form; so also do the droppings from deer or cow manure made in the same way.

The best way to prepare it is as follows: Place the manure in a bag to prevent its being mixed with the water, put the bag in a tub or tank of water and allow it to soak for twelve hours, when the water will be ready for use. And by moving the bag about in the water occasionally a regular supply may be maintained until the manure is exhausted. Soot is almost indispensable to Chrysanthemums; it gives a dark colour and robustness to the foliage, which is especially pleasing, as it indicates thorough health. Soot should be applied in a liquid state, placing as much as is required in a fine meshed sack, so that the soot does not wash out into the water, rendering the latter thick, which when applied to the roots settles on the surface of the soil, blocking up the passage-way for future waterings in the same manner as does the soot when sprinkled dry on the surface of the soil and watered in with clear water. All this choking of the passage-way for water is prevented by placing the soot in a bag, as the water soaking through the bag becomes charged with



Myrtle-leaved Ka'mia (*K. myrtifolia*). See p. 607.

most importance in the successful finish of the growth and development of the flowers. It is almost impossible, I might say absolutely so, that the finest Chrysanthemums of any section can be grown without the aid of stimulants. Much harm may be done to the plants by commencing to feed them at too early a stage before they had formed sufficient roots to enable them to assimilate the nourishment given in the form of a liquid application or by any other means. It is knowing when to begin and when to leave off that obviates such misfortunes as sometimes happen to collections of plants, while the manner of applying the food is but imperfectly understood by beginners in the growth of their Chrysanthemums. I venture to make these remarks in the hope of assisting those who do not well understand the best sort of stimulants

feeders, that some check to the plants must necessarily ensue if manure in some form or other is not given. Some varieties do not set their flower-buds until the middle of September, and some even later than that. From this stage to the time the plants are in bloom is much too short a space to allow them a chance of deriving much benefit from the application of artificial support. The plants ought to be fed long before the time arrives for the buds to form so that they may be strong at the critical period. If the plants are not sufficiently fed that they may retain their former vigour, how can they be expected to form strong and healthy flower-buds? Weakly plants never produce flower-buds of the same quality as stronger plants of the same variety, and if the buds are not produced in proportion to the necessary qualities of each variety,

the manurial properties. Guano finds favour with some growers, and is easily prepared, and when of good quality very stimulating; a 4-inch potful to 36 gallons of water, kept thoroughly stirred when using, is a safe quantity to use. Nitrate of soda used judiciously to strong growing varieties when the pots are full of healthy roots has a quick effect upon the foliage and growth of the plants, and tends to elongate or expand the tissues for the reception of other stimulants more solid; half a teaspoonful, powdered finely and watered in, once in a season is sufficient for a plant growing in a 10-inch pot. Used in excess of this it is a mistake. Plants moderately furnished with roots, owing to their being weak-growing varieties, or through ill health, should not have any nitrate, or the leaves are certain to be burnt around the edges, thus causing a serious check to growth by a partial, if not a total, loss of many fine roots. Sulphate of ammonia is a capital stimulant when applied judiciously and at the proper time. I have seen plants some of which have lost nearly all their foliage and others killed by its injudicious use. It is decidedly risky to use it in any other than a weak form. The advantage of chemical manures is their easy application, and each cultivator of experience has his own particular kind. Printed instructions accompany each kind, and the manure should not be applied in excess of what is recommended, or a proper test of each kind is not fairly given, and the manure is often blamed; whereas it is more often the fault of the cultivator in applying it that leads to failure.

NOTES ON CHRYSANTHEMUMS.

LEAVES OF CHRYSANTHEMUMS.—Now is a good time to commence the study of the leaves and habit of growth of the Chrysanthemum; much advantage is derived from this study, as almost every kind may be detected when not in bloom. When the cultivator is thoroughly well acquainted with these characteristic features of the plant it is easy to note a variety wrongly named, and therefore much trouble is saved. This is important, because every variety requires some special form of treatment at some stage or other of its growth. We will suppose that a Chrysanthemum grower has varieties sent to him that he is desirous of procuring and they are not sent true to name. If he were able to detect the mistake by the leaves in time for the error to be rectified it would be much better than waiting until the plant flowered. If for this reason only, the study of the characteristic features of different varieties is worth the knowledge. To those cultivators who do know the sorts in this manner, it is a source of pleasure to be able to point out the different varieties without the trouble of examining the names in the pots, and shows a much greater interest in the work. Many growers make a practice of arranging all the plants of one sort together; where this is done, the knowledge of each particular kind is much more easily gained, as its characteristics are then plainly brought out. It will be necessary to give a few instances of special varieties which show characteristic features to better explain what is meant, as some persons may not at the first glance consider it necessary to take the trouble to derive a knowledge of the Chrysanthemum even in this way; to them, all varieties are alike, but a very short study and a consideration of the advantages gained will convince the most sceptical on this point.

Just to show what is meant by a study of the leaves, I will name a few varieties with their characteristic marks explained. Peter the Great has green stems and broad leaves with short stalks, and they are cut but little compared with those of some varieties. Thunberg has the darkest stems of any variety; the leaves are long and drooping and often pale green in colour, imparting to the plant an unhealthy colour. Madame C. Audiguier

is a very tall-growing variety, with small leaves, often pale in colour, and which have a drooping tendency. This sort generally grows 4 feet 6 inches high before making its first natural break, owing, I think, to the constitution of this variety. The lower leaves generally turn brown very early in the summer, and eventually die off. Grandiflora has peculiar traits in its appearance; the leaves are thick and heavy in substance, drooping much, having very prominent midribs. Generally the leaves of this variety are dense green in colour, and very early in autumn assume a bronzy hue. Meg Merrilies, Boule d'Or, Golden Dragon, and Criterion are distinct from others by reason of their leaves being, as a rule, in some localities of a pale colour, owing possibly to the nature of the soil and water. The former has drooping, deeply-cut leaves. The third variety is similar, with the exception that the leaves are not cut quite so much.

The Queen family of the incurved section has strong distinctive features, and easily known from others. The leaves are stout, dense green, deeply cut, and more round than those of many other sorts. Refulgence has dense green, deeply-cut foliage, with green stems, which assume with age a purplish green. Cherub is easily known by its light green wood. The leaves grow in an upward direction; the veins are plainly seen, as they are generally much lighter in colour. This variety is quite distinct from all others.

NAMING THE PLANTS.—After the plants are arranged in their summer quarters it is the usual plan to re-name them. Generally, small labels are used when the cuttings are inserted, which is more convenient than large ones in small pots. A collection of Chrysanthemums is much improved in appearance if they are all neatly named on labels of uniform size. Visitors can then see at a glance what such and such variety is without any trouble. Some growers do not think it necessary to spend much time upon naming the plants, but I have tried both ways, and for the sake of the small amount of extra time required I prefer to have them all renamed at this time of the year when arranged in their summer position. Pieces of wood 6 inches long, cut from ordinary builders' laths, make capital labels, carrying generally a smooth face, which when rubbed over with white paint is soft and easy to write upon. A label of the length named allows space for any note which the cultivator might wish to add regarding any particular variety. E. M.

PROPAGATING.

BERTOLONIAS.—These stove plants, which are cultivated for the sake of their beautiful foliage, require very great care to grow them successfully; and, therefore, as a matter of course, to succeed in their propagation good treatment and constant attention are necessary. The cuttings must be kept close till rooted, and if an ordinary propagating case is intended for that purpose it should have a thorough cleansing before use, and no other subjects, except their allies the Sonerilas, be placed in the case with them. In any case, decay must be, as far as possible, guarded against, for a drop of water in the centre of a leaf when in a confined atmosphere will often cause not only that leaf, but also the entire cutting to damp off. By many the cuttings are, instead of being placed in a propagating case, protected by means of bell-glasses, which is in one respect an advantage, as they are more isolated, and, consequently, the decay will not spread from one to the other. B. Van Houttei and B. superbissima have by far the most handsome foliage, and at the same time require the greatest amount of attention to maintain them in health. Those specimens that have lost their bottom leaves are generally set aside for propagating. In this case the top of the plant will furnish a good cutting, and the remainder of the stem be cut up into single eyes. An open, yet at the same time fine soil is best suited for the propagation of the Bertolonias, a very suitable compost for the purpose being an admixture of peat, loam, silver sand, and pounded charcoal, the whole being passed through a sieve with a quarter of an inch

mesh. It is better to put the cuttings singly into small pots, which must be prepared for their reception by being thoroughly well drained, and filled to within a very little distance of the top with the before-mentioned soil, which should then have a layer of sand on the surface. The cutting having been taken off at a joint must be inserted securely in position, a very good practice being to work some silver sand around the buried portion of the stem, as by this thorough drainage is ensured and the formation of roots encouraged. The remainder of the stem may be then cut up into single eyes by dividing it immediately above each joint, and then splitting the stem down the middle, thus leaving an eye and a leaf (if any) to each. If cut in this manner each eye has a piece of naked stem below it, which greatly facilitates its insertion, as it should be dibbled into the soil at such a depth that the bottom of the bud is on a level with the surface. These eyes may be put several together in a store pot, and the probability is that many will not strike, but still, with care and attention, a fair proportion may be counted upon to root. When the cuttings are first put in a thorough watering should be given them, but care must be exercised not to wet the foliage any more than is absolutely necessary, and the pots may be allowed to stand a little while to drain before covering them up. The after treatment will be the same as that accorded to the cuttings of most delicate stove plants, the greatest possible care being taken to prevent decay. Sonerilas may be struck in the same manner, but they are not so particular in their requirements as the Bertolonias, and consequently do not need such extra attention bestowed upon them. Seeds are sometimes obtained, and from their minute character care should be taken in sowing them. The pots or pans prepared for their reception should have a good quantity of broken crocks in the bottom, and must then be filled with light, open, and finely sifted soil. A thorough watering through a fine rose having been given, the seeds may (while the surface is still wet) be sown, slightly covered with some dry sand, then a pane of glass should be put over them, or they may be placed in a close case. They soon germinate, and if pricked off as soon as they are large enough to handle the young plants grow away quickly.

PANDANUS.—The beautifully-variegated Pandanus Veitchii is propagated by means of offsets, which are often produced rather freely just at the collar of the plant. The offsets should not be allowed to reach too large a size before separating them from the parent plant, as the smaller and weaker ones root much more quickly than those that are stout and succulent. A very good plan, if these offsets are a little distance above the soil (which they often are), is to place some fibrous substance around their base to encourage the formation of roots. When sufficiently advanced, these offsets must be separated from the parent plant with a sharp knife, leaving as far as possible a root or two to each. In taking off the shoots, a heel of the old wood must be left at the base. When potted into small pots of sandy soil, the offsets must be plunged in a close propagating case where there is a bottom-heat of 85° or thereabouts, as by this means they are induced to root quickly; whereas, if they are not encouraged in this way, many of them will stand for a long while before they commence to grow. When the small pots become filled with roots, the young plants must then be shifted on and treated as established specimens. Many of the species are raised from seeds, those of P. utilis especially being sometimes easily obtained. They should be treated just as Palm seeds are—that is, sown as soon as possible after being received, using for the purpose soil principally composed of open loam and sand, and when the young plants make their appearance above ground they must not be allowed to get too large before potting them off, as from the stout, fleshy nature of the roots they are very liable to be injured unless potted when young.

ASPARAGUS TENUISSIMUS.—The present is a very good time to put in cuttings of this beautiful Asparagus, for if taken during the growing season they quickly root. The cuttings are formed of pieces of the

branches about 4 inches or 5 inches in length, just enough foliage being removed at the base for the purpose of insertion. All that is needed, then, is to dibble the cuttings into pots of sandy soil and keep them in a close case till they strike, which will not be long. From its delicate sprays, which resemble a cloud of mist, and the readiness with which it can be propagated, this *Asparagus* is perhaps the most useful of the species that are grown for ornament. The denser growing *A. plumosus* also strikes easily, while the beautiful frond-like *A. plumosus nanus* cannot be induced to root from cuttings, so that in this case it is necessary to rely upon seeds or division of the roots for its propagation. This circumstance, combined with the fact that berries are not often produced, fully accounts for this particular *Asparagus* not being more common. Division of the roots needs to be very carefully carried out. When it is intended to divide a plant the branches must all be traced to their source, and in order to do this thoroughly it is necessary to remove the whole of the soil. This is best effected by washing in water, either by soaking in a pail, or, better still, by holding under a tap, when, with a gentle loosening of the soil by means of the fingers, every particle of it will soon be removed.

EURYA LATIFOLIA VARIEGATA—This greenhouse or nearly hardy variegated foliaged shrub is propagated by means of cuttings formed of the current season's shoots, which are now in a very good condition for the purpose. They should be covered with a bell-glass, or, at all events, especial care must be taken to keep them from the air. It is an advantage to put them into gentle heat, as they will then be well rooted before winter. T.

DESTROYERS.

THE LEAF ROLLER MOTH.

THE well-known pest to Oak trees, the Oak-leaf roller moth (*Tortrix viridana*), seems unusually abundant this year in many places. Walking through Richmond Park about ten days ago, I was sorry to notice that many of the fine Oaks there had entirely lost their foliage through the ravages of the caterpillars of this moth. The number of trees affected is very considerable, so that what perhaps should be a group of trees in full foliage is now a series of bare stems and branches with hardly a green leaf to be seen; in places among a number of leafless trees, one, perhaps, will be to all appearance unharmed. The immunity of certain trees in close proximity to those which are badly infested is probably to be accounted for by their having been more exposed to the wind at the time the moths were laying their eggs; the moths would naturally select the more sheltered trees. Passing from Richmond Park to Wimbledon Common, the Oaks there proved to be in just as sad a plight. A correspondent to a newspaper, writing from the midland counties, says:—

Here, in North Warwickshire, we should like to know if the pest of caterpillars which is stripping our noble Oaks in the midland counties has been experienced elsewhere. Thousands of trees in our fields, hedgerows, and woods have been reduced to a condition which is heart-breaking to those who delight in "the leafy month of June," and especially in our Oaks, which are the pride of Warwickshire. It is no uncommon thing for a splendid tree to be attacked by this pest, and entirely stripped of every green leaf within three days. May I ask if this blasting pest has extended to other counties? Strange to say, not another tree is touched, but we dread and fear when all the Oak foliage is consumed the caterpillars will begin to devastate other trees.

A correspondent in the *Field* states that the Oaks on St. George's Hill, Weybridge, are suffering badly from this pest, and I have been told that the Oaks in Epping Forest are in the same dismal condition; so that, as this pest seems to be in unusual abundance in many parts of England, it would be very interesting to know

into what districts it extends. I do not think there is now much danger of other trees being attacked, as the caterpillars would have much difficulty in passing from one tree to another unless they were very close together. The moths are pretty certain to lay their eggs on the Oaks, and though the caterpillars have been found on other trees, Oaks are their favourites. Probably the present cold, damp weather will kill them off wholesale. Unfortunately, in the case of large trees nothing can be done to save the foliage which is so essential to the well-being of the tree; but smaller ones, particularly if placed in conspicuous positions in pleasure grounds, would amply repay a little care and trouble expended on them. The caterpillars may be easily dislodged by shaking the branches; this will make them fall and come swinging down, each at the end of a long thread. They may then be allowed to fall on a rick cloth, sheets, or something of that kind; or they may be caught in the air by a broom or bundle of twigs tied to a pole. When caterpillars appear in such numbers as they have this year, they are frequently very scarce for the next year or two, for all the leaves are devoured before they are full grown; consequently they are starved, and those who may try to go through the metamorphoses are unable to do so. Various birds feed on these caterpillars—rooks, jackdaws, starlings, thrushes, titmice, chaffinches, and even the much-abused sparrow destroy numbers of them. The moth is a pretty little green insect, measuring about an inch across its open wings. G. S. S.

THE CATERPILLAR AND THE FRUIT CROPS.

THE annexed cuttings are from *Berrow's Worcester Journal* (of a recent issue), one of our most reliable west midland organs. The outlook is terrible, and coming after the intense drought of last year, and of which we are now only beginning to realise the full force, means ruin to a great number of hard-working occupiers. Our only comfort is the knowledge that the thorough roasting which the soil underwent has brought about a most decided change for the better, not only in restoring it to its normal warmth, but also in putting the land in excellent tilth. A practical lesson, moreover, has been forced upon us, as there is no gainsaying the fact that one of the most important tasks landed proprietors now have before them is the preservation of water in large tanks and ponds, where hitherto it has been allowed to run to waste. Labour is plentiful enough, and those who can should lighten the poor rates by improving their own property in making provision for the next period of drought.

SERIOUS PROSPECT IN WORCESTERSHIRE.—A contemporary draws renewed attention to the great damage done by caterpillars to the fruit crops around Evesham, Bewdley, and Pershore. Mr. George Cole, who owns orchards in Evesham, Bengeworth, Pershore, Hampton, and Harvington, says that where he expected between 3000 and 4000 bushels of Pershore Plums he will not find a guinea's worth. Mr. Joseph Masters, who is one of the fortunate ones unvisited by the pest, says that scores of growers tell the same tale. One friend—the owner of a big estate, nearly all laid out in fruit gardens—told him that his orchards had been utterly devastated. Lord Sudeley's plantations at Toddington have been seriously affected, in spite of every precaution that prudence can suggest. At Bengeworth avenues of Plum trees can be seen literally stripped of foliage, and looking for all the world as though they had been singed by some great and sudden fire. In Pershore whole groves seem prematurely aged. The bright green leaves are turned a dull yellow, and their shrivelled and musty state suggests rather October than June. In the very heart of the Plum-growing district trees can be seen side by side—one healthy and laden with fruit, the other eaten dry and littered with grubs. So far as one can judge, the Evesham Plum crop has already been destroyed to the extent of one-tenth, and the plague is still at work. Myriads of caterpillars are as busy in the Vale as the locusts are in Algeria, and unless ex-

perts promptly step in with a remedy, the evil results will be proportionately disastrous.

Mr. Joseph Masters, of Evesham, writing on Wednesday on this subject to a contemporary, says, with regard to the remedy: "My opinions, based on thirty years' experience, must be regarded for what they are worth. I have plantations of fruit trees which were formerly of little value owing to the frequent caterpillar ravages, but now I never lose my fruit crop by its attack. One of my neighbours, whose occupation adjoins mine, has not failed in a crop of fruit for some years, but the last two years he has neglected to take the precaution of greasing his trees, and now his fruit crop is almost a wreck. I could multiply these and similar instances, but my object in writing this letter is to point out the fallacy of some objectors. It is said that on fruit trees in some localities where the suggested remedy of greasing the trees has not been adopted there is fruit, but that in some instances where the precaution has been used there the caterpillar has been most destructive. There are some localities that are rarely, if ever, affected with the caterpillar, because there are no winter moths, and there are no winter moths because of the number of small birds. The birds feed upon the caterpillars, and prevent them getting too numerous to seriously affect the trees or fruit. Now where there are no moths—and this may be ascertained by going out any evening with a light at the end of October—there is no need to adopt any precaution. As to some trees being more affected than others, this is due to the fact that the one has a greater number of the female moths which have crept up the trees than the other. Then as to the statement that some trees where the tar or grease has been used there is no perceptible difference, but in some cases it is said the tarred trees are worse than the others. This may be accounted for, viz., that the trees have not been properly dressed or that the compost has been allowed to get dry, or that some frosty nights have hardened the daub, so that in one, either, or all of these cases the moth has not been intercepted in its ascent up the tree. The 'magic' of the circle of tar is in keeping it moist, so as to catch the moth in its attempt to scale the tree. A mistake is frequently made in delegating the duty of tarring good trees to boys, and not personally superintending the work. The extermination of the caterpillar is due sometimes to atmospheric influences or other causes, such as the ichneumon fly, rendering human skill unnecessary. Small birds, too, should be encouraged; they compensate for their food and mischief. I prefer the best cart grease to the mixture of Stockholm tar and grease, being less injurious to the trees."

SPARROWS.—Mr. J. H. Donald, of Huntingfield Hall, Halesworth, writing on the subject of sparrows, remarks as follows: "I venture to say that nobody can estimate the loss we suffer from the sparrows in a harvest like that of 1879, when the grain has to remain a long time in the field. I do not say the sparrow will not take grubs, for I know he will; but I do say they are by no means his favourite food. If he can get grain or Peas or ripe fruit, the farmers are welcome to all the maggots, whether tasty or not. I do not know that I ever saw a sparrow, or any other bird, take the Gooseberry grub, which does such enormous damage every year, nor the filthy black maggot with which our hedges are teeming just now. The beautiful Spindle tree is a special object of attack; but so far as I see no public-spirited bird comes to its rescue. The gamekeepers have robbed us of our natural allies. The beautiful kestrel, the bold, restless sparrow-hawk, the silent flying owl, the active weasel, are nearly extinct, and so we have to try and check the sparrows in some other way, and submit helplessly to the increase of rats and mice. Some day there will be a cry for protection for hawks and owls, but I fear it will come too late."

Sparrows as bud-destroyers.—A paragraph has been going the round of the papers in which the plague of grubs in the Kent orchards is attributed to the scarcity of sparrows. I cannot help thinking the author of it is not very intimate with the habits of the bird he thus champions. The sparrow is not an insectivorous bird. I do not say insects do not form a part of his multifarious diet, but it is such a small part, that to pose him as a grub-destroyer is almost ridiculous. I have observed the habits of this bird for many years very closely, but only on two or three occasions have I seen him eating insects; whilst, on the other hand, grubs and other insect pests of all kinds live in security in the midst of his haunts. The appearance of certain kinds of insects in greater numbers some

years than others is difficult to account for, and, as far as I know, is a question which has not yet been satisfactorily answered. That the grub of the winter moth and others should be so numerous this year is no criterion that the same thing will occur next. In 1884, the Painted Lady butterfly, the Peacock, Red Admiral, in fact all the Vanessa family, were very abundant, but they have not appeared in any quantity since. Many other insects exhibit the same erratic habits. The Celery fly may be cited as another instance. In some years the plants are almost ruined by it, and one would be led to suppose that the next year would find it more destructive still; but such is not the case, as the following year we may enjoy complete immunity from it.—A. BARKER.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Indigofera Gerardiana.—This is the only species of the genus suitable for open-air culture, as it is quite hardy, and may be grown as a bush or against a wall, which it clothes in a most graceful way with its feathery pinnate foliage. Towards the close of summer it bears a profusion of small Pea-like blooms in dense racemes terminating the young shoots. The flowers are bright pink, so that a well-flowered bush has a pretty effect. In very cold districts it may be advisable to give it protection in cold winters if not against a wall, and the only attention it



Jamesia americana.

requires is close pruning in early winter. The kinds of *Indigofera* known under *I. floribunda*, *I. coronillifolia*, and other names are either synonymous with *I. Gerardiana* or varieties of it. *I. decora*, from China, is sometimes grown against a wall in warm parts, but is much less hardy than *I. Gerardiana*, which comes from the Himalayas.

Illicium floridanum.—This is merely worth mentioning as an interesting half-hardy shrub from the southern States of North America. It is an evergreen shrub, bearing fragrant flowers of a deep red, like those of the Carolina Allspice. *I. religiosum*, also known as *I. anisatum*, from China and Japan, with pale yellow flowers, is also interesting, but not worthy of general culture. It may be grown against walls in warm localities.

Itea virginica.—A little North American

shrub, often catalogued by nurserymen, but scarcely worth attention. It is dwarf, deciduous, and produces in autumn clusters of small white flowers. Suitable for growing in a damp spot at the foot of a rocky bank in an alpine garden.

Jamesia americana.—An extremely pretty shrub from the Rocky Mountains, deserving of more general culture than it at present receives. It is a compact-growing, bushy shrub, with deciduous leaves, and grows from 2 feet to 3 feet high. In summer every shoot carries a cluster of pure white flowers (see illustration), which, with the whitish foliage, give the plant a pretty appearance. It is peculiarly suitable for the rock garden, as it seems to thrive best when planted on an elevated, well-drained rocky bank, though its thorough hardiness is beyond a doubt. It belongs to the Saxifrage family.

Jasminum (Jasmine).—The common hardy Jessamines are so well known that little need be said about them, but there are a few others



The white Jasmine (*Jasminum officinale*).

equally important that deserve attention. The bright yellow-flowered *J. revolutum* from India is too little known, it being quite hardy enough for wall culture in all parts; moreover, it has evergreen foliage, which adds to its value. It flowers profusely, and its cloud of golden bloom midst the deep green foliage is most welcome in summer and autumn. It is a common plant in some tree nurseries, but is seldom sold. Another hardy evergreen shrub is *J. fruticans*, which has yellow flowers and may be grown as a bush, or may be supported by a tree stump. It comes from South Europe, as does *J. humile*, also with yellow flowers, and is quite hardy. The Chinese *J. floridum*, which bears yellow flowers in summer, is of less value, but worth growing in a collection of Jessamines. The common white Jessamine, *J. officinale* (here illustrated), should, of course, be planted in every garden, either against a wall, or it may be used for trailing over tree stumps or arbours. It is truly one of the most important of all

climbing shrubs on account of its extreme hardiness and vigorous and rapid growth in almost any kind of soil or situation. There are several varieties of it, all beautiful, the best being that called *J. affine*, whose flowers are



Golden winter Jasmine (*Jasminum nudiflorum*).

larger and more numerous than those of the ordinary kind. There is a variegated-leaved kind, but it is not of much importance, and another with golden foliage which is pretty. There is a double-flowered form, but this is rare. *J. officinale* is quite an Evergreen, except in cold, exposed localities. The winter Jasmine, *J. nudiflorum* (see illustration), is another indispensable shrub for every garden. Though its flowers wreath the leafless twigs, they are so bright and cheerful in the depth of winter, that a space should always be found for it against the house walls. When its branches are allowed to trail among Ivy or other evergreen growth, the golden blossom is shown better than otherwise.

Kerria japonica.—The double-flowered variety of this Japanese shrub is a very old favourite, especially in cottage gardens, where it is most commonly seen. The large rosette flowers of bright yellow are much more showy than those of the single-flowered kind, which is rarely seen. Though usually planted against walls, the *Kerria* is quite hardy, and may be grown as a bush in all but the coldest parts. There is a variegated-leaved form of the single-flowered variety, but it is much more delicate than the double or the green-leaved single form, and is more suitable for a cool greenhouse or warm wall. The double *Kerria* is despised because common, but it is a most worthy shrub.

Koeleruteria paniculata.—A large shrub or small tree, handsome in growth and foliage, and beautiful when in flower. The long-divided leaves are elegant throughout the summer, and in autumn die off a rich bright yellow. The flowers are yellow, and though small are abundant, being produced in large clusters overtopping the spreading mass of foliage. The *Koeleruteria* is of picturesque growth, and, therefore, valuable for planting in certain positions in tree and shrub grouping. It is a native of China, but is quite hardy and thrives in any

good soil, preferring always a sheltered situation.

Kalmia (Mountain Laurel).—The Kalmias are among the most beautiful of all North American shrubs, being handsome in foliage and charming in flower. The broad-leaved or large *Kalmia latifolia* is the finest, as it is the commonest in English gardens, and wherever the soil is suitable it should be planted. Like the *Rhododendron* and *Azalea*, the Kalmia must be grown in moist and peaty soil, or one that is light or sandy. It will not thrive in stiff or chalky soils. Where it flourishes well, it makes a tree-like mass 8 feet or 10 feet high, but usually it is seen about 4 feet or 5 feet high. Its clusters of lovely pink, wax-like flowers open about the end of June, when the *Rhododendron* and *Azalea* bloom is on the wane, and they last in perfection for a fortnight or longer. The broad foliage makes it almost as valuable as an evergreen shrub as the *Rhododendron*. There are varieties of the common kind having, in some cases, larger flowers; in others, of a deeper colour, the finest being that called *maxima*,



The Mountain Laurel (*Kalmia latifolia*).

which is much superior in size of flower and richness of tint. What is known as the Myrtle-leaved Kalmia (*K. myrtifolia*) seems to be only a variety of *K. latifolia*, with smaller Myrtle-like foliage. The growth is dwarf and compact, and the flowers almost as large as those of *K. latifolia*. The other species of Kalmia, though very beautiful, are of less value, because they are more delicate, smaller, and less showy, but in peat soil gardens they should be grown. *K. angustifolia* grows about 1½ feet high, and bears in early June dense clusters of rosy pink flowers. *K. glauca* and *K. hirsuta* are also charming shrubs, the first flowering in early summer, the latter in August.

Hardiness of Indian Azaleas.—That these Azaleas are as hardy as most of our common Evergreens I have long been ready to admit by having seen good-sized specimens growing in various parts of the country, and I have lately had a further proof of their hardiness. Some white-flowered Azaleas were put into a rather high temperature about Christmas for supplying cut blooms, and after flowering, one plant was found so badly affected with trips, that after being divested of its blooms it was set out of doors for the purpose of being thrown away. Being overlooked, however, it was exposed to all the cruel frosts of a bitter and protracted spring, the soil in the pot being frozen quite hard several times. With the return, however, of more genial weather, the plant, having started vigorously into growth, is now covered with healthy young

shoots, and will get a fresh term of service. After this experience I should feel quite safe in planting out any kind in the shelter of trees or shrubs, for it must be obvious that a shrub planted out is in a far more favourable position to resist the frost than one in a pot. On the margin of a shrubbery where overhanging branches would keep off the full glare of the sun would be a good position for a group of these handsome plants, and I have no doubt but that if once really effective groups of them could be seen, and notes respecting their progress were from time to time inserted in the horticultural press, we should soon find Azaleas being freely planted in the southern and western parts of the kingdom. Owners of gardens are glad of anything that is at all out of the stereotyped run of subjects for pleasure-ground decoration, and few plants offer such a wide range of colouring as the Indian Azalea.—J. G. H.

THE SILVER BELL OR SNOWDROP TREE. (HALESIA TETRAPTERA.)

As this beautiful tree is not liable to the attacks of hares and rabbits, I had a number of specimens planted out, partly as covert and partly for ornament, in an open sheltered place where the soil consists of thoroughly decomposed peat bog. Although this shrub had never attained any great size upon ordinary soil in the shrubbery, yet when planted under the conditions thus specified the rapid start which it made and maintained in the new quarters was very remarkable.

Some ten or twelve years have elapsed since I planted these trees, which at that time were about a yard high, and now I should say they are about 20 feet high, and in spring and early summer, when clothed with their beautiful white, silvery bell-shaped flowers, are highly attractive. Although the subject under consideration is by no means a tree of recent introduction, as it is recorded to have been introduced from South America about the middle of the last century, yet it is seldom to be met with even in first-class collections. This is to be regretted, as it is not only a tree of great beauty when in bloom, but after the flowers are shed the four-winged seed vessels adhere to the branches and thus impart a picturesque appearance to the tree for the remainder of the year. The seeds generally ripen in this country. This is one of the trees which only thrives under exceptional conditions as regards soil and shelter, and for want of a proper knowledge of these conditions I attribute in a great measure the non-success of its culture in this country. In order to plant the tree with a prospect of success the site should be sheltered and the soil naturally damp, but not wet, and rich in organic matter or alluvial deposit. It is but fair to state that in preparing the sites for the trees above referred to, I had a small quantity of clay mixed and incorporated with the peat bog at the places where the trees were planted. There are few estates of any extent that do not contain a spot of damp ground in a sheltered place suitable for the requirements of this tree, and to those who are possessed of such I can give no better advice than to say, plant at the first favourable opportunity.—J. B. WEBSTER.

SHORT NOTES.—TREES AND SHRUBS.

Pavia macrostachya was showing a mass of flower-spikes in the Coombe Wood Nursery the other day. It is a beautiful tree when in full bloom.

White Wistaria (*W. sinensis alba*) has flowered remarkably well on a wall in the Coombe Wood Nursery of Messrs. Veitch. It is like the type, except that the flowers are white.

Berberidopsis corallina.—In a large Sussex garden, with an ordinary collection of shrubs, I recently saw a large bush of the above, 5 feet high and as many through, which annually flowers profusely. It is absolutely elbowed out and is being choked to death by common *Arbor-vitæ*. This is another instance of the sad neglect of English shrubberies.—A. H.

A variegated Privet that rejoices in the name of *Ligustrum ovalifolium robustum aureum* is one of the best variegated forms we have seen. It is brightly variegated, retains its colour well, and is very robust. Those who like a variegated hedge would find this suit

the purpose. Also, mixed up amongst green-leaved shrubs it shows up well. There is a large batch of it in the Epsom Nursery.

Avenue of evergreen Oaks.—From the principal entrance through the grounds to Osborne House is a splendid avenue a quarter of a mile long formed with evergreen Oaks, and very well they look just now, and show how useful they are for this purpose. The trees, which are all standards with clean stems and well-developed heads, are particularly healthy, and contrast well with the row on each side of healthy specimens of the Lebanon Cedar, now showing their young growth.—M.

Wellingtonia gigantea.—A very handsome plant of this conifer is to be found in Mr. Smee's garden at Carshalton. It is planted near to the river Wandle on a slight knoll. It did not, however, make much progress for some few years after planting, when its character altered, and it began to grow freely, until at the present time it is nearly 50 feet high, dense and very symmetrical. It is supposed that the change came about when the roots had penetrated to the water. Is it an undisputed fact that this conifer thrives best in the vicinity of water?—W. H. G.

— In the autumn of 1855 I planted a very small *Wellingtonia*. I have to-day had it accurately measured, and the measurements may interest those who have trees of the same age. The height is 70 feet; girth of trunk (18 inches from the ground) 10 feet 6 inches; circumference of branches 80 feet. This outside circumference would have been greater, but that I have frequently removed the lower branches.—HENRY N. ELLACOMBE, *Bilton*.

The common Sloe, or Blackthorn.—In travelling through some parts of Ireland lately I was deeply impressed with the beauty and usefulness of this tree as a hedge plant. In many parts of that country it is used in the formation of hedges for the division of fields, as well as for forming a boundary fence in other places. It really seems to answer the purpose well, as it forms a close, thick fence, which affords excellent shelter, and is so hardy that it grows in the poorest of soil and most exposed situations. In Scotland I have found it growing in its natural state at an elevation of something over 1400 feet. Like the *Daphne Mezereum*, it produces its flowers before its foliage, and towards the end of April and beginning of May it exhibits a perfect mass of its beautiful white flowers, each branch and twig being encased in a snowy white garb. When grown as a single specimen or mixed with others, it affords contrast and variety, and on bare, exposed situations, where many other trees and shrubs would perish, it can be grown.—J. B. WEBSTER.

AMERICAN NOTES.

Magnolia stellata.—A fine specimen of this beautiful Japanese shrub, which flowered profusely a couple of weeks ago in a yard on Fifth Avenue, near the Central Park, attracted the admiration of the public. *Magnolia stellata*, which is also known as *M. Halleana*, was introduced a few years ago by the Messrs. Parsons from Japan, where it is a favourite garden ornament. It is a native of the forests which cover the slopes of Mount Fusi Yama, where it is said to become a small tree. Like *M. conspicua* and *M. obovata*, *M. stellata* belongs to the section of the genus in which the flowers appear before the leaves. They are white, deliciously fragrant, 3 inches in diameter, the sepals silky-hairy externally, oblong-obtuse, much shorter than the narrow linear oblong petals, which are at first spreading, giving to the flower when expanded the appearance of a pure white star. Later they become quite reflexed. The obovate leaves, borne on short petioles, are narrowly obovate, 2 inches to 5 inches long. *M. stellata* requires the same soil and cultivation as *M. conspicua* and the other Yulan Magnolias. It begins to flower freely when only 1 foot or 2 feet high, and is an important and interesting addition to our perfectly hardy early-flowering shrubs.

Heuchera sanguinea in Mexico.—Accustomed during several years to meet with this plant on the mountains of Arizona and Mexico, and always admiring its mottled leaves and striking flowers, I feel grateful to Mr. Hatfield for recommending it for cultivation, and am prompted to tell of a visit

made last September to the station (or, at least, the vicinity) of its original discovery, whence Wislizenus in 1846 brought dried specimens to Dr. Engelmann, who praised it as "beautiful and elegant, and certainly the most ornamental species of the genus." The station is on La Bufa Mountain, overlooking the mining town of Cusihiuiriachic. Here, hanging from fissures of cliffs of porphyry facing northwards, or planted on their narrow shelves, 1500 ft. above the din of the town and the smoke of its smelters, an abundance of strong plants were seen, their rosettes of leaves beautifully marked with white and purple in the strong light of the place, and their flower-scapes—bright scarlet when fresh, but maturing or dying crimson—like light plumes tossing on the mountain breezes. From the nature of its habitat—cool ledges, either wet or dry, and even the rich humus at their base—this plant may be expected to thrive on rockeries; and that it will prove hardy in most climates may be inferred from the fact that along the northern limit of its distribution it is exposed to many degrees of frost.

Delphinium viride.—This Larkspur of the mountains of Chihuabua is a novelty in its combination of colours. We have blue and white Larkspurs, also pink and scarlet, and even occasionally yellow varieties; but here we have the sepals and the long, stout spur of a decidedly yellowish green, while the short petals in the centre are deep purple. The species is probably a biennial or a winter annual, with a rather stout root, and is about 2 feet high. It was found during the last season by Mr. Pringle on gravelly bluffs along streams at the eastern base of the Sierra Madre. Seeds were secured, and it is hoped that it may be successfully grown.

Japanese Apples.—Of the many species and forms of the Apple cultivated for the sake of their flowers, none is more beautiful than the plant introduced from Japan by Von Siebold, and known in gardens as *Pyrus floribunda* or *P. malus floribunda* (*Flore des Serres*, xv., t. 158; *Revue Horticole*, 1866, p. 312 with t.). Maximowicz has referred this plant to the Chinese *P. spectabilis*, but the deciduous calyx and very small persistent fruit seem to point rather to a derivation from the Siberian, Manchurian, and North China *P. baccata*. It is a vigorous shrub or small tree, very common in Japanese gardens, with long, straggling branches, forming a head sometimes 20 feet through. The bark is dark brown, or nearly black, smooth and shining. The leaves are oval, rather coriaceous, dark green above, lighter, and somewhat pubescent on the under side. The numerous large flowers appear with the leaves; they are borne on slender peduncles 3 inches or 4 inches long, and completely cover the branches. The abundant fruit from which the calyx falls before maturity, leaving a minute eye, is hardly larger than a Pea; it is round or sometimes oval, dull yellow or red in colour, decays, and then dries upon the branches before separating from the peduncles, which remain attached to the branches until the following spring. A semi-double form found a home in Mr. Francis Parkman's garden in Jamaica Plain, where this Apple, now a stout bushy tree, perhaps 18 feet in height, still flourishes. The same variety was afterwards sent to the Messrs. Parsons, of Flushing, by Dr. G. R. Hall, an American physician, long a resident in Japan; and it now appears in trade catalogues both as *Pyrus Parkmani* and *P. Halleana*. It only differs, however, from Von Siebold's plant in its semi-double, dark coloured flowers; in the deeper colour of the young leaves and peduncles, and in its smaller fruit. No shrub or shrubby tree surpasses these Japanese Apples in marvellous abundance and beauty of bloom, which is most attractive, perhaps, just before the pink or red flower-buds expand and display the lighter colours of the interior of the flowers. It is astonishing that they are not better known and more often planted. They are beautiful as single specimens and still more beautiful when grouped in great masses. They flower profusely when very small, grow rapidly and continue to improve for years. They thrive in all soils, and neither intense cold, great heat, nor drought affect them. No foreign ornamental tree introduced into this country adapts itself more readily to its peculiar climatic conditions. As Mr.

Dawson has shown in some remarkable seedlings which he has raised at the Arnold Arboretum, the Japanese Apple, like the rest of the family, varies considerably from seed, and can be still further improved by careful selection—a fact of which enterprising nurserymen should not be slow to take advantage.

Prunus Davidiana.—The earliest of all the great collection of *Prunus* in flower is *P. Davidiana*, a shrubby Peach from Mongolia, where it was discovered by the Abbé David, who found it also covering the hills in the neighbourhood of Gehol (the summer residence of the Emperor), and near Pekin. The specimens in the Arnold arboretum were raised from seed sent by Dr. Bretschneider, long a member of the Russian Legation at Pekin, to whom the arboretum owes many interesting plants. *Prunus Davidiana* is a shrub 3 feet to 6 feet in height, or, in cultivation, according to Franchet ("Plantæ Davidianæ," p. 103), a robust tree 15 feet to 20 feet high. The bark of the branches and stem resembles that of a Nectarine, and without the fruit the most experienced Peach grower would hardly guess the true character of this plant. It has considerable ornamental value. The white, or sometimes pink flowers are produced in great profusion, and the flower-buds are much harder than those of other Peaches. This suggests the possibility that this plant might be used in creating a new race of flowering Peaches able to bear the cold of the Northern States. The fruit, however, of *Prunus Davidiana* has no value. It is small, downy, nearly spherical, less than an inch in diameter, greyish white, turning yellow when ripe. The flesh is very thin, separating easily from the stone, even before the fruit is ripe, and is dry and tasteless, and lacking almost entirely the odour of the Peach. It shrivels on the branch before maturity, and soon decays. *Prunus Davidiana* is interesting as the representative of what seems a type intermediate between the Peach and the Almond.

Prunus tomentosa.—This is a shrubby Cherry, forming a dense, compact and handsome bush 3 feet or 4 feet high, and coming into bloom a few days later than *P. Davidiana*. It is a native of Northern China, whence, probably not long ago, it was introduced into Japan, where Von Siebold met with it occasionally in gardens, and admirably figured it in his "Flora Japonica," t. 22. This species can be distinguished from the other members of the genus *Prunus* by the thick, long tomentum which covers the entire under side of the leaves. The flowers are sessile or short-stalked. They are white, tinged with pink, and about the size of those of the common Cherry tree. They open when the young silky leaves are about one-third grown, and the association of the handsome abundant flowers and delicate young foliage is particularly attractive. The handsome fruit ripens in July; it is round or nearly oval, almost transparent, deep scarlet in colour and has a pleasant, but rather insipid flavour. It is perfectly hardy, and its neat habit, handsome foliage, early flowers, and showy fruit entitle it to more general use along the margins of shrubberies or in the borders.

The Mayflower or trailing Arbutus (*Epigæa repens*) is now well established in the Arnold arboretum, and is in full flower—almost ten days later, however, than in the woods at Plymouth, where it abounds. It is a prostrate, trailing and scarcely woody plant, with evergreen, rounded, reticulated leaves and deliciously fragrant, rose-coloured flowers in small axillary clusters. It is the best known and most popular wild flower of New England, and efforts to cultivate it are often made. The Mayflower, however, is extremely impatient of confinement and can be naturalised in new localities only with the greatest care. Young plants (it is useless to try to transplant old plants) should be taken up late in September or in October, and carefully potted or planted in shallow boxes, in a compost of sandy peat, and then kept in a close atmosphere in a greenhouse or frame until new roots are formed. The plants can then be wintered in a cold pit, but should not be planted out until the second spring, by which time they will be strong and vigorous and able to take care of themselves. They will do best

if planted on the north side of a hill in a compost of rather light sandy soil mixed with leaf-mould. When once it has a firm hold of the soil, the *Epigæa* will spread rapidly, and will repay the labour necessary to establish it.—*Garden and Forest*.

KITCHEN GARDEN.

HAMPERS OF VEGETABLES.

DURING the London season especially immense quantities of vegetables are sent up by rail from all parts of the country. Those owning gardens have the greater portion of the vegetables required sent to them, and not a few people who do not possess a vegetable garden still find it advantageous to arrange for a regular supply from the country. Whether these consignments arrive in a comparatively fresh condition or not depends greatly upon the method of packing adopted. They may, and very frequently are unpacked in a fresher condition than any that can be bought from the greengrocers, and, on the other hand, the bulk of the produce when received may be so battered and bruised as to be scarcely fit for use, and certainly of no value whatever after being kept a few hours or a day. When proper judgment is exercised in selecting vegetables for the hamper, and these are packed in an intelligent manner, they ought to arrive at their destination quite fresh, and keep at least two or three clear days after being unpacked.

When the hampers are sent by passenger trains they usually arrive at their destination more quickly and in a less damaged state than when sent by the "fast goods." The latter medium, however, is by far the cheapest, and a great number of hampers are sent in this way from districts through which these trains run, but owing to the trucks and vans being loosely coupled together, the vegetables are liable to have a very rough time of it; indeed, the concussion at times is sufficient to reduce those loosely packed to a pulp. We send a large hamper twice a week by fast goods train, and no complaint ever reaches us that the contents are spoilt in the journey, yet they are at least twenty hours covering a distance of 130 miles. When sent by a goods train they have to be packed and started over-night, while those going by fast train may be despatched by the first morning train and reach their destination as early or earlier than those carried by the night train. As it happens, the great saving in the cost of carriage by the goods train more than compensates for the slight difference in point of freshness in favour of the passenger trains, and those who have not yet tried the former ought to do so, at any rate if economy is the order of the day.

Whether despatched by fast or goods train, the method of packing adopted ought to be much the same. It is of the greatest importance that the hampers be well filled, loose packing being the most frequent blunder made. Better even crush the vegetables somewhat when closing the hamper than that they should crush each other in the journey. The hampers may be handled carefully enough at the outset, but when once they are out of the senders' hands they are tossed and pitched about in a most reckless manner, especially if extra large and heavy. The worst treatment imaginable must therefore be always prepared for, and if the hamper cannot well be filled with vegetables, a false bottom of hay or clean straw should first be made, so that the other contents may be tightly packed. All the heaviest produce, such as Turnips, Carrots, Onions, new Potatoes, and

other roots, should be placed in the bottom, these being kept from contact with the sides of the hamper with the aid of either canvas, Cabbage, Cauliflower, Rhubarb leaves, or hay. On these we place more of the same packing material, and the next layer is composed principally of light boxes containing choice vegetables and fruit for the kitchen. Any spaces not occupied by boxes are filled with Rhubarb, Cabbages, or any vegetable not easily injured. The topmost layer may consist of Lettuces, Globe Artichokes, Cucumbers, Spinach, Peas, Beans, Vegetable Marrows, Cauliflowers, and more Cabbage. This should bring the contents slightly above the rim of the hamper, and if a few bundles of herbs and plenty of Lettuces are neatly packed on the top the lid will fit down very tightly, and much shrinkage will have to occur before the vegetables will shift their position. When one man has to press down the lid while another makes good the fastenings I am well satisfied the contents will travel and turn out in a satisfactory condition. Even when sent by a fast train the vegetables require to be nearly, or quite, as firmly packed. In order not to crush Asparagus, forced Beans, frame-grown Lettuces, Endive, and other choice vegetables it is advisable to pack these with Spinach in boxes, and Mushrooms are also packed closely in boxes. Tomatoes may be placed in a single layer in shallow boxes, and well surrounded or bedded in soft Moss, fine partially hayed Grass, or cotton wool.

In hot weather a mass of vegetables is liable to heat badly, this quickly blanching and spoiling the softest or most succulent of them. Collecting, packing, and starting the vegetables by an early passenger train is to a certain extent a preventive of this occurrence, as while the dew is yet on them they are in a perfectly cool state. Left till mid-day, or even later, before they are collected, the chances are that Lettuces, Cabbages, Cauliflowers, Peas, and other vegetables will be quite warm, and massing them together in that state soon starts fermentation. If the contents of the hamper cannot be collected early and placed in a cool Mushroom house or other cool unexposed position, the least that can be done is to divide them as much as possible when packing. We find strips of old canvas bags very serviceable for both lining the hampers and excluding the warm or cold air, as the case may be, and also for dividing the layers of vegetables. Failing these, the next best thing is plenty of strong paper. In either case such packing material should be returned with the empty hampers, as it can be used several times. Very large hampers, or any, say, which when filled are as much as two strong men can lift, are objectionable, these invariably meeting with the roughest treatment. Better by far to send two hampers holding about three or four bushels each than one that will contain six, or more, bushels. Two flat iron bands round each hamper, clasps, rod, and padlock are required for each hamper, and these may well be further "shod" at the corners. Unless the corners are extra strong they soon wear out, as the whole weight of the hamper is frequently pitched on one of these. I ought, perhaps, to add that square hampers are much the best in every way, these being made in sizes to meet the requirements of each particular establishment.

W. IGGULDEN.

Hick's hardy White Cos Lettuce.—In point of hardness this Lettuce is superior to the old Brown Cos. During the past trying winter a large percentage of the young plants have survived, and have turned in much sooner than those of the Brown Cos; the heads are also more compact than those of this variety, and, owing to the incurved character of the leaves, Hick's hardy White Cos blanches well without being tied up.—E. B. L.

Braised Lettuce.—There is a note setting forth the praises of the above in THE GARDEN, June 9 (p. 525). Having a good many Lettuces about to bolt, I was anxious to try them in this way. As my memory of cooked Endive in Paris was not very satisfactory, I read the paragraph eagerly for some gleam of light on the mysteries of braising. Finding none, I turned to Cassell's dictionary, and found that to braise was to bake, to cook in a braising pan, a term given to a process of cooking meat which combines the advantages of baking and stewing. Usually, or properly speaking, it is performed in a braising pan, which is a stew-pan with a closely fitting lid, constructed to hold live embers, so that the meat can be cooked from above and below simultaneously. Though, adds the dictionary, it is often in an ordinary saucepan kept tightly closed. There is hope in this if the writer of the paragraph will only instruct us in a few words how to braise our surplus Lettuces and Endive so as to render them as valuable as well as more pleasant in the kitchen as in the salad bowl.—HORTUS.

* * We can only say that braised Lettuce is very good, but it must be for a cook to tell how it is done. It is only one way, however, of cooking Lettuce. The large Batavian Endive is cooked generally and is good and distinct.—ED.

Late Broccoli flowering.—There seems to be an idea prevalent that all the winter members of the Brassica family flower simultaneously. That is far from being the case. Cabbages, Borecoles or Kales, and Brussels Sprouts flower together, but Broccoli are later, and late Broccoli very much later. For instance, a breadth of Brussels Sprouts is entirely out of flower, whilst some selected late Broccoli has not yet opened a flower. It is not generally realised by some who have written on this subject, and caution against the dangers of intercrossing of diverse kinds, that Broccoli which are heading in just about the time at which sprouts, &c., are starting into bloom, will take all the time to develop flower-stems which the sprouts are occupying in blooming. There is a great difference between ordinary sprouting forms of Brassica in the rapidity or otherwise of developing flowers and Broccoli or Cauliflowers. The former will run away and be in bloom in some ten or twelve days, whilst the latter have to change the heads into flower-stems, and it is a very slow process usually. I find Cauliflowers, from the time of heading in—the summer—so as to be fit for cutting, until the bloom is fairly expanded, occupying six weeks, and another six weeks elapse ere the seed is ripe enough to gather. The seeding course runs thus: Cabbages and Kales flower from the middle of May to middle of June; Broccoli to the middle of July or later, and Cauliflowers (Snowball) usually during August. Thus danger of intercrossing is nil, and cautions are verbiage.—A. D.

KITCHEN GARDEN NOTES.

ENDIVE.

A SUPPLY of well-grown, perfectly blanched Endive frequently proves very serviceable in August and September, especially when Lettuces are either scarce or not very good. Now is the time to sow for the main crop, another month or six weeks later on being quite soon enough to raise plants for wintering in frames, houses, and sheds. The ground being at liberty, the simplest plan is to sow the seed in drills where the plants are to grow, but if this is not possible, the requisite number of plants may be raised on a border and transplanted when large enough. The Moss curled is of neat habit and blanches early, but keeps badly. A good strain of green curled is the best for successional supplies, and the improved broad-leaved Batavian is very fine late in the season. All delight in a fairly rich, well-pulverised soil; in fact, unless grown strongly and quickly, the quality is apt to be inferior. The first-named may be sown or planted in drills 9 inches apart, a distance of 6 inches dividing them in the row. The others should be in drills 12 inches apart and on good ground, not less than 9 inches from plant to plant. When drills are opened for seed in dry weather they ought to be watered before the seed is sown, the moisture enclosed when the seed is covered with the rather dry soil ensuring a quick and even germination of the seed in the hottest weather. Endive raised early, or which later

on may be transplanted either from borders or rows of plants, succeeds remarkably well in drills. These should be drawn about 4 inches deep, and the plants, if taken from a seed bed, dibbled in, but if previously pricked out, they must be moved and replanted with a trowel. Being in drills, water or liquid manure may be quickly and effectively given at any time, and the plants are also more easily blanched either with the aid of boards, slates, hay, or by tying up in a similar way to Lettuces.

PARSLEY.

This is really indispensable at nearly all times in most establishments. The evenest and best beds are obtained by raising a number of plants in a frame, the seed being sown early in the year. In May or early in June the seedlings are strong enough to afford a few pickings if need be, and during the latter month all may be dibbled out. Having a strong tap-root, they transplant readily, especially if this is done in showery weather. Our Garlic and Shallots are planted on a well-prepared border, in rows 12 inches apart, and between these we dibbled out the Parsley about the same distance asunder. The Garlic and Shallots ripen early, and are cleared off the ground before the Parsley interferes with them in any way. Parsley raised early in the open ground should be freely thinned out, and, if need be, a few hundreds of the thinnings may be dibbled out elsewhere. Given good room, all should form handsome plants; though, unfortunately, the earliest raised and best grown Parsley is not to be relied upon for hardness. Nor are the extra fine curled strains as hardy as the older and in other respects rather inferior stock, or such as can often be found in many farmers' gardens without the trouble of sowing seed. Where the flat hoe is freely used, however, very few plants of "self-sown" Parsley are to be found, and more seed ought therefore to be sown at the present time. The plants thus obtained will usually stand a severe winter, and in any case will be very useful for lifting and storing in frames, fruit houses, or boxes. We dibble out a large number of plants among the fruit borders, the slight protection afforded by Apple and Pear trees saving them when others in the open were killed by frosts.

HERB BORDER.

Dried herbs are not so much in demand as they used to be, but we invariably store a quantity in order to have them when wanted. The proper time to cut any of them is when they are fully grown and commencing to flower, a dry time being chosen for the operation. They ought not to be bunched and hung up in the full sunshine, this spoiling the inner leaves and literally baking those exposed. Instead of this spread them out on paper in a dry room or shed, where they will dry gradually and retain their full flavour. When thoroughly dried they may be bunched and hung up in a dry place, and will be available any time during the winter. Cutting down Tarragon induces a late growth of young shoots for salads, while Chervil, which is also much in demand for salads, ought to be again sown in drills and duly thinned out. Borage grows rapidly and soon gets too old for using in cooling drinks. In our case seedlings are constantly coming up, otherwise more seed would be sown now.

DIGGING VACANT PLOTS OF GROUND.

According as late Broccoli, early Cauliflowers, Peas, Potatoes, Spinach, and other crops are cleared off the ground, it has to be decided what next shall be done, or whether to dig it or not. Much should depend upon circumstances. Some soils may be dug and worked almost at any time and in nearly all weathers; others are much more difficult to deal with. Where the soil is of a rather stiff or clayey nature it is apt to become hard and unworkable a short time after it is dug, and not till heavy rains have fallen is it easily got into a suitable condition for seed-sowing. If wanted at once for seeds of any kind, we would prefer not to dig such land at all, the surface being merely cleaned and well stirred with hoes. Thus treated it will grow better crops than will roughly broken loose land. If plants are to be put out dig and plant before the ground becomes dry. Land cleared of Potatoes

merely requires cleaning and levelling, and is then fit for almost any crop. If they are lifted as wanted the ground should be levelled as the work goes on, all large lumps being broken before they become baked. Any ground that has been manured and dug for some time in readiness for late crops should be well firmed down at once with the aid of trampling and rakes, choosing a dry day for the work, and, treated in this manner, it can be planted and sown on during the hottest weather. For some crops the ground cannot well be too firm, this being especially the case with Broccoli required to stand

occupied by Onions, these being closely followed by Coleworts and Cabbages. Plots just cleared of late Broccoli may well be manured, deeply dug, and laid up roughly for a few days or weeks in order to get into good condition for the autumn Spinach.

W. I. M.

POPPIES AS CUT FLOWERS.

THE many forms of the large annual Opium Poppy are nearly all good for cutting, their massive forms, both of leaf and flower, being

Munstead flower-glasses, simple, strong, good in form—all that we require in a flower-glass. The fashion of covering glasses with hard floral patterns so largely followed was a stupid and inartistic one. If we have the flowers, we do not care for hard pattern outlines of them. People say this is a matter of taste, but it is not. If anyone who thinks so will place a beautiful group of flowers in one of these pattern glasses and get a good photograph of it, he will at his leisure say it is an ugly and needless association.

X.

GARDEN FLORA.

PLATE 655.

MOROCCO NARCISSI.

(WITH A PLATE OF *N. BROUSSONNETI*.)

THE great headquarters of the numerous species and varieties that comprise this highly popular genus is in the south of Europe, the greatest number having probably been found in the neighbourhood of the Spanish Pyrenees, Oporto, &c., and at the present time the happy hunting-ground of one of our most enthusiastic bulb growers. The species and varieties being so numerous, it is quite impossible to treat them with anything like justice in the space allotted to us here, and in consequence we have thought it best to confine ourselves to the geographical area to which the subject of our coloured plate belongs. *N. Broussonneti* is, so far as we know, the only indigenous species in Morocco, the others being found elsewhere. *N. serotinus* is found throughout the Mediterranean region, from Spain to Greece and Palestine; *N. viridiflorus* on the rocks at Gibraltar, Tazetta, forms of which are found almost everywhere, and papyraceus being found in various localities in Italy.

With the exception of the two last species, which are well known in gardens, the others are most difficult to manage under cultivation, and it is only with the greatest care that they can be grown at all. The climate of Morocco, and especially in the vicinity of Mogador, is perhaps the most equable of that of any country in the world, ranging from 53°, the mean of the annual minima, to 82°, the mean of the annual maxima, the mean for the hottest year (1867) being 68°, that of the coldest 65°. With such data, it is no wonder that we find a difficulty in dealing in the open air at least with bulbs from Morocco, and we can only grow them by a liberal use of squares of glass during the resting season, the bulbs appearing to stand any amount of cold so long as they are kept dry. If seed could be procured and grown, there would perhaps be a better chance of success in the open air.

THE *MOGADOR NARCISSUS* (*N. Broussonneti*).—This almost unique species, of which the present coloured plate is probably the first taken from a living specimen, has had a similar experience to *N. cyclamineus* in being lost to gardens for such a long period. It was eventually rediscovered by Dr. Leared, and living bulbs were, we believe, introduced, though we can find no record of their having flowered anywhere. It was again found by Sir J. D. Hooker and Ball, and, later on, living bulbs were introduced by Mr. Maw of Crocus fame. Mr. Payton, the Consul at Mogador, sent over a large



Poppies in a vase. Reproduced by a process from a photograph.

through the winter. If these are put out on rich, loose ground they grow much too rankly, and are the reverse of being hardy. It is those planted on firm, undug ground, or say in close succession to Peas, Strawberries, winter Spinach, and early Potatoes, that are usually the most to be relied upon, the firm root run inducing a sturdy growth. Savoy and Borecole also do well on undug ground, and now-a-days few think of digging ground recently

unusual among annuals, though a few are spoiled by being too tightly double, when the beauty of form is lost. The half-double white, such as those in the illustrations, have a refinement that makes them the best indoors. They like an abundance of water, as indeed do all cut flowers, hence the capacious, low-priced glasses now available suit them well. We refer to the

* Drawn for THE GARDEN in the Royal Gardens, Kew, January 9, 1888, by H. G. Moon, and lithographed and printed by G. Severeys.



MOCADORE NARCISSUS (N. BROUS)

importation, many of which, towards the latter end of last year, flowered at the Royal Gardens, Kew, and also, we believe, at Sir E. J. Loder's seat, near Weedon. Without, perhaps, a single exception, *N. Broussonneti* is the most curious, and certainly the most difficult to manage, of all the *Narcissi* known to us, and although one of four of the newly imported bulbs that pushed up leaves flowered, we are very much afraid it will never become of sufficient commercial value to claim the attention of those

from Mogador. Three of these bulbs were planted in good light soil against a south wall in just such a position as suits *N. elegans* and *viridiflorus*, and they all produced leaves about a foot long, but so far have failed to show any signs of flowering. The remainder were put in pots in a loamy compost, and although the bulbs are even now perfectly fresh, rooting annually, not a single leaf from any of them has been developed. Those bulbs sent by Mr. Payton last year were planted in a prepared bed

of flowering in this country, this species will be quite useless as an open-air bulb, even were it hardy enough without shelter to withstand our damp climate, which has none of the periodical rainy and dry seasons, nor yet the equable temperature of its native Mogador. The leaves grow from 1 foot to 2 feet in height, three quarters of an inch broad, pale glaucous green, with a blunt point, and twice or three times twisted from left to right; flower-stems about as long as the leaves, each head bearing from eight to nine flowers, with only about five open at once, the outer ones going off before the inner are fully expanded. The blooms are from three quarters of an inch to 1 inch in diameter, pure white, thin-textured, with a tube $1\frac{1}{2}$ inches long, white. The crown is obsolete, or nearly so, three of the stamens inserted in the tube, the other three inserted at the mouth of the tube, and much longer than the other three. With regard to its origin, Mr. Burbidge, in his "*Narcissi*," says:—

It is possible that this plant may be the result of a cross between a *Narcissus* and some other amaryllidaceous plant belonging to a different genus. In a dried state the inflorescence bears a marked resemblance to that of *Nerine pudica* (*Botanical Magazine*, t. 5901), and there is also a great similarity in the bulbs and foliage.

It seems to us to more nearly resemble one of the small-flowered *Eucharis*, or *Calliphurria Hartwegiana*, a genus nearly allied to *Eucharis*. This *Narcissus* has been described under the generic names of *Aurelia* and *Hermione*, but included in *Narcissus* in Baker's last "*Monograph of Amaryllideæ*."

N. ELEGANS is somewhat like *N. viridiflorus* in habit, but with white instead of green flowers. It is widely distributed, but only to be recommended for botanical collections. *N. serotinus* is a larger flowered species, with pure white segments and a lemon-yellow corona.

THE PAPER-WHITE NARCISSUS (*N. papyraceus*) is a native of Morocco, but also found in Italy, near San Remo, and elsewhere. Salisbury says:—

This is tender, but so beautiful, that it deserves all the care and labour a gardener can bestow. The leaves are very glaucous, forming a strong contrast to those of other plants, and the flowers are produced in large bunches, their delicate snow-white petals hanging lightly in the air, which they fill with a perfume resembling that of *Jasmine*. In naming it, therefore, instead of our shopmen's vulgar comparison of paper-white, I have adopted *Clusius'* more appropriate one, which is, in fact, likewise a specific character. It is probably wild near some of the coasts of Asia Minor, having been sent from Constantinople to Brussels in 1597; but the Dutch florists never succeeded in cultivating it, and we are still, as formerly, supplied with the bulbs from Italy. Anxious to establish here, I planted it repeatedly in the borders at Chapel Allerton, but the leaves were generally more or less blasted by the frosts, and the roots never survived longer than two or three years. At Mill Hill I had better success for one bulb under the shelter of a Laurel on the terrace where the soil was deep loam thrown up from the adjacent field continued to live and increase during all the seven years of my residence there with no other shelter than the dead leaves blown over it in autumn.

This proves that it may be grown in our island, and I have no doubt in many situations, by covering the beds with long straw during winter, advantageously for the market; it would probably require no protection whatever close to the sea. A deep sandy loam, rather moist than dry, free from manure, is by far the best soil to use. It is used largely for forcing for greenhouses, &c., and is one of the sights of Covent Garden during the season. Mr. Baker places it as sub-species No. 5 under *Tazetta*; also known as *N. unicolor* and *niveus*. The variety *incurvatus* is also very useful for forcing.

THE GREEN NARCISSUS (*N. viridiflorus*), though of absolutely no garden use whatever, is of no less interest than any of the foregoing species mentioned. It is perhaps easier to cultivate than any



Poppies in a vase. The same subject as that on opposite page engraved on wood from a photograph.

growers who cater for the millions. As a flower, however, it is of peerless beauty, delicate, highly fragrant, and indeed, to our mind, unequalled by any other species in this deservedly popular genus. Even this will be insufficient to make up for its difficulty of management so far as present experience goes. *Broussonnet's Narciss*, we are told, has been at Kew for the last three or four years, the bulbs having been sent to England by Mr. Maw

under glass with a bottom heat of about 50° during autumn and winter. They began to root almost directly, and in little over three weeks had begun to throw up strong leaves, producing their first flowers about the end of December, 1887, and continuing until the middle of February, 1888. Possibly the bottom-heat may have influenced the bulbs in throwing up their flower-stems out of season, but should this prove to be the usual time

of the Morocco species, excepting papyraceus and Tazetta, and is perfectly hardy at the foot of a south wall, where it never fails to throw up, about the beginning or middle of November, its peculiar green flowers. The segments are very small and narrow, and the cup is almost obsolete. Leaves roundish, not produced with the flowers. The chief thing to notice with regard to this species is to see that it is well roasted during the early summer months, and to obtain this we place sheets of glass over the bulbs, as well to exclude rain as to concentrate the sun's rays. D. K.

FRUIT GARDEN.

MAKING NEW STRAWBERRY PLANTATIONS.

STRAWBERRIES here are looking well at the present time and promise a good crop of fruit; the bloom was not quite so abundant as last year, but still it was ample for a full crop, and the recent showery weather has come at the right time for swelling the fruit.

As the time of preparation for new plantations will soon be at hand, a few remarks upon the subject will not be inopportune. Great difference of opinion exists as to the duration of a Strawberry bed, but I think soil and locality rule this point more than theory, for whilst on some soils and situations a bed may keep on producing excellent fruit year after year, on others it is not worth while to retain a plantation after the second season; in fact, it is simply a waste of ground to do so. Where a large supply of this delicious fruit is required considerable space is occupied by it; therefore, it is desirable that a full crop should be obtained from every plant. We always gather the earliest and best fruits from young plantations, that is, those which were planted the previous autumn, and never retain a quarter after the second year. The Strawberry thus follows in rotation other crops in the kitchen garden. Generally the new bed follows early Peas, and Broccoli succeeds the old one, which is destroyed as soon as the fruit is gathered. I am aware that this is considered a wasteful practice by some, but I do not find it so; on the contrary, when I have retained a bed beyond the second year I have always been sorry for it, as the new one has always far exceeded it both in quantity and quality. But to ensure success with annual plantations close attention must be given to securing the young plants in the best condition, also to the preparation of the ground for their reception, so that they may be put out the day they are ready. Many gardeners make a point of sowing their Onions or Cabbages within a few days of a certain date, and, considering that the Strawberry is a much more important crop, it may justly claim special attention in this respect.

I like to have the site and the plants ready for planting out during the second week in August, as there is then a long season for them to grow and become well established before winter sets in. As before mentioned, our new plantation follows early Peas, and as soon as these are all gathered the ground is cleared and given a dressing of burnt refuse and manure and bastard trenched.

I have tried planting after Peas or Onions without any further preparation, but on our heavy soil the results are not nearly so satisfactory as when the quarter is broken up and specially prepared for the Strawberry. It delights in a deep tilth, which is even more desirable than a rich staple, as manure can be applied to the surface afterwards. The aim of the cultivator should be to encourage a firm,

hardy growth of both roots and leaves and well-ripened crowns such as will withstand frost and snow with impunity.

The layers, as soon as they can be obtained, are pegged into small pots (3 inch is the size we use), and when sufficiently rooted, and before they become pot-bound, they are severed from the parent plants, carried straight to the site prepared for them, and planted out in rows 18 inches apart, and the same distance from plant to plant in the rows. If the weather is dry a good watering is given to each plant, and a little later on the soil is made firm by treading.

The surface between the rows should be occasionally stirred with the Dutch hoe, at the same time removing all the runners. When planted the above distance apart, there is no room for any other crop between; in fact, I do not approve of cropping between Strawberries at any time, but prefer to give every encouragement to the new plantation so as to obtain a full crop the first season. Immediately after the first crop of fruit is gathered every other row is taken out, leaving the rows 3 feet asunder, the plants in the rows remaining the same as before. Runners and litter are then cleared off and a dressing of fresh soil applied to encourage surface roots, mulching with manure being deferred until the following spring. If manure is given in the autumn a too succulent growth often follows, which does not mature, and consequently often leads to barrenness. After the second season's fruiting the plants are chopped off with a spade close to the ground, and with the mulching of litter thrown into heaps and burned. The site then, without further preparation, forms one of the best for Broccoli. The varieties which succeed best here are Vicomtesse Héricart de Thury, President, Dr. Hogg, and British Queen, which ripen in the order named. The first gives the earliest fruit, the largest of which are used for dessert and the others for preserving, the colour, size, and flavour rendering them most suitable for this purpose. Dr. Hogg gives the finest and best flavoured fruit, and is preferred to British Queen. For continuing the supply as long as possible, two or three of the latest varieties should be grown on a north border or the coolest spot in the garden, so long as it is not shaded by trees. Oxonian is a good variety for late use; the quality may not be so good as that of those above named, but good fruit of it can be gathered when the other varieties are over. Frogmore Late Pine is of first-class flavour, but rather uncertain with us; while Elton Pine is liked by some for its brisk flavour. A. BARKER.

Hindlip.

Thinning fruit blossom.—"A. D." in THE GARDEN, June 16 (p. 546), gives as his opinion that the thinning of fruit bloom is unnecessary and uncalled for, as Nature invariably does these things better if left to herself. But I would remind "A. D." that the art of gardening is that "which does mend Nature," and although in the main it is advisable to observe and follow her teachings, we can often assist and improve her products. Nature thins because we neglect to do it for her. This fear and timidity of thinning which "A. D." would encourage often ruin many a good crop of fruit, as well as the trees. A sparsely flowered tree invariably sets all its blossoms, and they swell into fine fruit, but one that is, as it is termed, smothered with bloom fails to set any, or if it does the fruits are undersized, proving that the tree has lost severely in the fight. I have seen Peach trees which have cast their buds so severely that I feared none would remain, and yet just sufficient was left for a crop, and apparently every one set and swelled into extra fine fruit, finer than would have been the case had all the buds opened, followed by a thick set requir-

ing severe thinning. A very successful fruit grower once told me the finest Muscats he ever grew were thinned before they came into bloom. As to "A. D.'s" argument that in thinning the buds we might take the wrong ones, I contend that by removing a part we contribute towards the fertilisation of those remaining. Neither do I think that this point is settled by Nature so easily as "A. D." imagines, unless the buds are unripened and imperfect.—A. BARKER.

SUMMER PRUNING OF FRUIT TREES.

It has been said that pruning tends to reduce the growing force of the tree or plant. To a certain extent this is true, but it is not the whole truth. It may be stated as a fact that excessive pruning at any season does weaken the tree, and if persisted in will doubtless bring on decrepitude and premature exhaustion. But this is not the intelligent pruner's object. In the first place, he aims, or should aim, at checking the excessive vigour of the tree, and bringing it into a fertile condition; though in cutting off a young shoot progress in that direction is stayed, yet the removal of one part concentrates the force upon another, and also tends, by a more perfect exposure to air and sunshine to develop and mature the growth. For instance, in shortening back the summer growth at this season, the growing force is thrown back upon the buds at the base of the young wood, where we hope fertile buds will form in the future. Other outlets will be found for the sap, but for a time, at any rate, the buds at the base of the amputated shoot will get some benefit from the retarded growth. In like manner the spurs on a thickly branched tree are thinned at the winter pruning for the double purpose of concentration and permitting the sun and air to do their work. There has probably been much injury done by thoughtless pruning in summer, for anyone can slash away with a knife, or use a pair of shears, but comparatively few take the trouble to think out their position in all its bearings, being content to follow in the track of those who have gone before, possibly accentuating the evils of a system, whilst minimising or ignoring altogether its good fruits.

Each tree has a separate individuality. Even those of the same variety may differ largely in constitution, and each tree should, therefore, be made a particular study independently of its neighbours. It is not the man of science, but the quack who prescribes a universal medicine for all peoples and all diseases. Though in the pruning of fruit trees there should be no hard-and-fast line laid down, it is well enough known that in the management of the summer growth we have the key to their future well-being. The best way to do the summer pruning would doubtless be to go over the trees every week and cut back the strong shoots a few at a time to four perfect leaves, spreading the work over the whole summer, from say the 20th of June to the end of September. In this way the regulation of the flow of the sap could be managed to a nicety, and the pruning could be so carried out that every part of the tree should be kept in a healthy, fertile condition. There would be no undue encouragement at one time and no sudden check given at another, but the progress would be regular and steady. Where this cannot be done, the next best plan is to divide the work into sections, doing the top of the tree first, the centre ten days or a fortnight later, and the bottom last. Thus the bottom branches would for a time be the only position where any outlet for new growth existed. It is true that no sooner is the head cut off a tree than Nature sets to work to restore the loss; but it is also true that if half the branches of a tree are cut off and the other half left, that those which have been relieved from competition get such a start that it virtually places them in the front rank. By dividing the summer pruning into three sections and leaving the bottom to the last, it therefore tends to equalise the flow of the sap and thereby strengthens the bottom branches, which are usually the weakest parts. Wherever there is space to fill on wall or trellis, the best placed young shoots should be trained in, and this applies to all trees, but the very natural desire to increase the

fruit-bearing capacity of the tree, which the possession of abundance of young wood tends to stimulate, must not be allowed to lead to overcrowding, as this would defeat the object in view.

E. H.

INFLUENCE OF LOCALITY ON HARDY FRUIT PROSPECTS.

It is very annoying to East Anglians to read Mr. Coleman's glowing prospects of heavy crops of fruit in the open in Herefordshire. True, he hints something of a scarcity of pollen and a prodigality of grubs. But, in spite of these, there is a profusion of blossom and an average set of fruit. Mr. Coleman reserves Apples for notice last, not because they have failed, but because the fruit needs thinning, as well as the grubs decimating and destroying. Here, in East Anglia, we may indulge in any amount of grub-slaughtering, but I have not yet met with an Apple tree to need any thinning, though yesterday I drove about twenty-four miles through Suffolk eagerly in search of such a pleasing phenomenon without finding one fairly cropped, to say nothing of an over-burdened Apple tree. Neither would it be fair to attribute the loss of the crop in the main to the grubs. Full half the trees bloomed imperfectly or not at all, and three-fourths of those that bloomed more or less well failed to set; and all this happened before the advent of the grubs in anything like destructive strength, though the dropping or ruin of the beggarly shadow of an Apple crop left may, and possibly will be the work of the Apple grubs, yet assuredly neither the lack of bloom nor the failure to set can be credited to their account.

Taking the fruit alphabetically, Apricots have failed to bloom or to set almost more generally and completely than the Apples. What blossoms opened seemed smaller, weaker, and, were that possible in so white a bloom, paler than usual, and, writing in general terms, none set. We have, however, comparatively few grubs on the trees, which, relieved of their usual load of fruit, are growing freely.

Cherries here, as in Herefordshire, blossomed and have set well. They are swelling fast, and few or none have dropped—in fact, they may be said to have passed that stage now.

Figs have wintered well in East Anglia without protection, and are showing full crops.

Pears have fewer grubs, and, I had almost written, fewer fruit than Apples. However, a fresh inspection to-day and the discovery of a fair crop of Beurré Diel and Uvedale's St. Germain on walls, enables me to correct the statement by stating that we shall probably have more Pears than Apples this season. As affording a sort of cue to the wreck and ruin that have been wrought among our Apples, I may add that in ordinary seasons we have a sackful or more of Apples to a peck of Pears.

Plums may be said to be wholly nil. From all sorts, sizes, ages, and conditions of trees, from cordons that have frequently yielded a couple of pecks apiece, it is doubtful—it is extremely doubtful—if we shall gather a peck from the whole this year. Like the Apples, some of the trees blossomed freely, some very sparsely, and others, in one case a row of about twenty pyramids, not at all. The failure in the Plums cannot be attributed alone to insect pests, and though some sorts are considerably punctured with the Plum saw-fly, many of the trees are particularly clean and healthy.

Peaches and Nectarines, though not such a full crop as last year, are the stone fruit of the year, and promise a fair, if not very full crop. The wood is also clean and healthy, free from blister and gum, and almost so from aphides.

Raspberries and bush fruits promise well, especially the former. Gooseberries, though a fairly full crop, have a rusty appearance in some gardens, as if the fruits and leaves had been partially frozen.

Strawberries are coming blind in many places, and in not a few they failed to flower freely. They are also swelling at a snail's pace, and few are likely to be ripe in the open should the cold nights continue till July. As a contrast between East

Anglia and Hereford, I may note that, while Mr. Coleman refers to an excess of leafage, all our older plantations were wholly denuded of their leaves during the winter right to the ground-line, a thing that had not happened to our Strawberries before for twenty years. Neither was the loss of foliage at all general, though the cry of blindness has been heard all through the forcing season, and threatens to be severely felt among the main crops in the open air in this district.

I have already referred to the probable causes of the poor and beggarly prospects of our hardy fruit crops, and may recapitulate them here in a sentence—the intense and unnatural heat and drought of last summer, and the unprecedentedly long spell of cold and drought that prevailed from October, 1887, to June, 1888, and still (June 16) continues; for as I write the wind seems once more glued in the north-east, and I have to sit by a fire to keep the ink liquid, my hand from shaking, and my teeth from chattering.

D. T. F.

FRUITS UNDER GLASS.

PINES.

WHERE the oft-suggested method of dividing the Pine houses into small sections or compartments is adopted, the one devoted to the earliest batch of Queens will soon be cleared and ready for the reception of another set of plants. If the latter are losing time by delay, a step forward may be taken by the removal of the relics of the ripening Queens to a dry, airy, early vinery where they will finish quite as well as in the Pine stove proper. Once cleared, advantage should be taken of so favourable an opportunity for a thorough scalding and cleansing of the walls, glass and woodwork, at least before it is again occupied. Many Pine growers are averse to much disturbance of the beds on the eve of midsummer, but unless they are in thoroughly good condition and free from destroyers, I would suggest a complete turn out and risk a strong bottom heat for a time from new or partially new materials. The most troublesome pests are woodlice, cockroaches and crickets, which not only eat the flowers and pips, but, being active travellers, they turn up in pastures new a considerable distance from headquarters in the course of a hot, dry summer. A small trap of simple and ingenious construction, supplied to me by Messrs. Veitch, is a capital contrivance for keeping in dry, out-of-the-way corners, and requires no setting, only baiting; prolonged neglect only sharpens the appetite when the prisoners find themselves in close quarters. In these traps we have taken 100 crickets in a night, but complete extermination can only be secured by a thorough raid whenever the pits are at liberty. Before the pits are refilled with fresh fermenting material, the leaves or tan should be well worked, that is, turned over several times to get rid of rank steam and noxious gases; then the firmer the bed is made by treading and beating the better the prospect of a mild, steady, continuous bottom heat. As Pine plants once fixed are not improved by lifting and shaking, to let out strong heat, it is good practice to place the pots in shallow basins, which can always be filled up as the heat in the beds declines. Newly-potted plants will stand a bottom heat that would be fatal to others with their roots working round the extremities of the balls, but for all this, fresh compost is not improved by exposure to a bottom heat exceeding 100°.

Houses in which the main crop of fruit is now swelling fast will require plenty of atmospheric moisture and regular attention to watering, as an excess of the latter clogs and sours the compost and produces black hearts, whilst too little stunts the fruit and induces premature ripening. The temperature in this structure may now range full 70°, with a chink of air along the front at night, 80° to 85° by day, and 10° higher for a short time after closing, with sun-heat and moisture. Fire-heat to some extent will still be necessary, but, provided the bottom-heat ranges from 80° to 90°, and early closing is practised, the consumption of fuel for the next two months should be very small. If shading is absolutely necessary, the material used for this

purpose should be of the lightest description, and the top ventilators during the time it is in use should be nearly closed to prevent the escape of air faster than it can be supplied from the front; that is, unless the external temperature is equal to, or in excess of, that of the house.

Successions potted in May will now be thoroughly established in their pots and growing fast, especially where a good body of fermenting leaves forms the plunging material, and the bottom-heat ranges about 80°. If bottom-heat pipes run beneath the bed, the latter should be examined and well watered with hot water or diluted liquid if at all dry. If this is not attended to, the drought at the base of the pots will extract moisture from the roots, and frequent watering, whilst drenching and souring the surface, will barely produce a happy medium in and about the corks. The plants, at the same time, should be set level and well packed with a few fresh, sweet leaves, which will absorb moisture and give it back to the atmosphere in a most genial form through the hottest part of the day. Here, as in the fruiting house, the less dry fire-heat the better; indeed, for the next two months good average summer weather should enable the plants to do almost, if not entirely, without it. The night heat, it is true, may sometimes sink rather low; but of two evils I would rather risk this, and resort to good covering with sheets of oiled canvas.

Young stock in small pits and frames will require frequent attention, particularly where top and bottom-heat is obtained entirely from fermenting materials. Suckers plunged in these beds make roots quickly and soon become fit for a shift; they also require thinning out and replunging with their heads close to the glass, a position in which they soon assume a dwarf habit of growth so essential to future success, as no amount of care will restore a "drawn" plant to the short, broad-leaved, outward-curved specimen so keenly wished for, but not always secured. The great stumbling-block in the succession pit is the crowding of too great a number of plants together, where not unfrequently one-fourth of them are never wanted, whilst those retained are reduced to second quality. I know a place in which this superabundance of plants is grown up to the "starting" stage when all the inferior "shows" are thrown away; but what an amount of unnecessary labour might be saved by taking a smaller number of suckers at the outset and treating each young plant as a valuable specimen.

STRAWBERRIES.

Once more forced Strawberries are over, but the good manager will still have one or two substantial batches of late sorts in cold pits and frames for giving fruit in quantity which will lead up to the first picking from the open air. British Queen, Paxton, Napier, Filbert Pine, and Oxonian are excellent varieties for this work, and in order to have the fruit plentiful as well as fine the pits should have been plunged sufficiently early to favour the crotch roots creeping out into the bed before they threw up their flowers. Shade in May and June being so acceptable to the Strawberry even in cold pits, I have always gathered the largest, brightest, and best coloured fruit from all with the exception of the Queen, when the trusses have been kept off the bed by a few twigs of Birch laid horizontally between the rows and the foliage has taken its natural position. In houses the same result follows; the late Mr. Barnwell, of Worthing, one of our best market growers, having always trained the trusses over the north sides of the pots, and brighter fruit free from mildew no one could wish for. As late plants require retarding rather than forcing, the lights, more for protection from frost when in flower and rain when in fruit, may be thrown off every day after the 1st of June, pushed back and tilted through the night to maintain a free circulation of fresh air, one of the best preventives of mildew. Water in plenty is another, whilst clear sulphur water syringed freely amongst the plants is the best, as it is the most harmless antidote.

Future operations.—The Strawberry forcer is barely off with the old before he is on with the new, for just now good maidens put out last August are pushing

out vigorous runners, which by the time these lines appear in print will be fit for layering. It is of no use giving instructions for the performance of this work, as everyone follows his own course, and all, I hope, are successful. Layering, however, crops up at a very busy season; therefore, as few gardeners in these times are over-done with strength, the shortest cut to a satisfactory result must be acceptable. Having so often recommended pegging down at once upon the fruiting pots, I may say I still look upon this method as being the cheapest, the quickest, and the most natural. When runners are transferred from 2½-inch pots to the larger size it is so easy to pot them too deep, but, independently of double labour, this cannot happen when the base of the runner is secured with a small peg upon the surface of the compost tightly rammed into the fruiting pot. These plants, like runners which ramble over a gravel walk or hard-trodden path, form crowns resembling hard brown Nuts, which must ripen well, seldom split, and invariably throw up good trusses. Next as to varieties. The variety *Vicomtesse Héricart de Thury* has, I am afraid, suffered in reputation, but generously treated with stimulants, as Wildsmith treats it through the autumn, it will not disappoint; moreover, no sort will stand harder early forcing. *La Grosse Sucrée* is equally good, many think better, and perhaps a little earlier; the colour is good, quality excellent, and throwing fewer small fruits, the berries which swell are large and handsome. *Pauline* with me does not improve; many fine young plants on a warm border having gone blind, I intend to discard it. Sterility this season, it is only fair to say, is very prevalent, and yet I never saw the leafage more vigorous. Sir Charles Napier, where it does well, *Crimson Queen*, *President*, *Paxton*, and *Filbert Pine* should be grown for the general crop. The *Queen* and *Dr. Hogg* will always stand well, as they give exquisite fruit large enough for an emperor. If monsters are wanted, then we have *James Veitch*, *Souvenir de Kieff*, and *Auguste Nicaise*, but the less said of their quality the better.

ORCHARD HOUSES.

As many of the trees in the forcing house will still contain ripe or ripening fruit, direct syringing for some time to come must be suspended, but liberal watering must not be neglected, neither must the ventilators be closed, a free circulation of fresh air being so essential to flavour, whilst genial warmth and light improve—I may say produce—the colour which adds so greatly to the value of Peaches and Nectarines. If the house is at all crowded, the earliest trees as they are cleared of fruit may be taken out and re-arranged at the coolest end, where they can remain until the mid-season varieties are clear and ready for potting. Meantime, the compost may be prepared and kept dry and ready for use, as all mixtures, especially those containing bones, are greatly improved by lying for a few days or weeks before they are wanted. Watering and syringing will now form heavy items in the daily routine; indeed, many of the trees occupying extra small pots will require water twice within the twenty-four hours. The best time to water pot trees is immediately before the house is syringed in the afternoon, when a thorough soaking with weak diluted liquid, soot, or guano water will benefit all trees swelling up crops, whilst those from which fruit has been gathered may be confined to the pure element. This supply will invigorate the trees through the night and carry them well ahead of the morning syringing, but towards mid-day their wants must be again attended to. If Figs are grown they will have the warmest end of the structure, and being so subject to spider and scale, rich top-dressing, copious watering with warm liquid, and vigorous syringing with soot water, will be necessary. Soot water in a mild form and always ready for use is easily provided by dropping a small bagful into the soft-water tanks and changing it once a week or so, according to the demand for daily use. Top-dressing is a fancy compound with many, all ordinary, and not a few extraordinary highly concentrated stimulants entering into its manufacture. Good calcareous loam, of course, forms the staple when bones or bone-dust, guano, spent hops, malt dust, and animal manures are

added. As these composts ferment and become highly odorous and disagreeable, their use in houses much frequented by the family is objectionable. Moreover, not unfrequently they are sharp-edged tools in the hands of attendants who think a tree or plant cannot have too much of a good thing. In this way trees, as well as promising crops of fruit, are often seriously injured, when moderation in their use or constant resort to good spit or cow manure, than which there is nothing better, would lead to the most satisfactory results. As Figs never fruit well until they become pot-bound, these in the orchard house where the heat is not excessive should be kept on the safe side and extra well fed with the stimulants I have named. The fruit will then be fine and of good flavour, and the trees composed of short, stunted-looking growths will require very little pinching. Vines, again, are sometimes grown in the warm orchard house, but, like the Fig, they are not the most suitable companions for the Peach, the legitimate occupant, and for this reason I would give each fruit a small space, be it ever so small, to itself. When Vines in pots or planted out are introduced, they should be trained where they can have most heat and light, and water from the syringe will not be likely to spoil the fruit.

General house.—In this department a mixed selection of fruits in various stages will now be coming on, and all, with the exception of ripening Cherries, will derive the greatest benefit from the daily bath and copious root watering. Cherries, on the contrary, must be kept dry overhead and only moderately moist at the roots, two conditions which will test the ingenuity, unless the trees can be blocked together and protected. Thinning in the latest houses will now be pretty well finished, that is, as thinning too often goes, a great number of covetous people frequently, that is, as often as they have the chance, leaving double the number of fruit a tree is capable of carrying to maturity. When this happens, the trying ordeal of stoning prostrates the tree, and it not unfrequently resents unjust pressure by casting a large portion of the crop, whilst the small percentage left never attains full size and flavour. The first care, then, should be severe thinning, as trees so treated rarely cast their fruit at stoning time, neither do they fail every alternate year. Being so entirely dependent upon top-dressing and feeding, there must be no lack of either, especially of the liquid, as one check from drought will put an end to all hopes for the season. Syringing or hosing, as I have just remarked, plays a very important part in summer culture, and may be performed twice a day, the first time soon after six o'clock in the morning, the second time immediately after the trees have been watered in the afternoon, when every part of the house as well as the trees should be thoroughly washed. Rain water answers best, as it is free from sediment, but, lacking this, water which has been for some time exposed to the atmosphere not only to become soft, but also to deposit lime, may be used. Conjointly with the thinning of the fruit, the stopping of all gross or even moderately strong shoots must be carried on and repeated from time to time to maintain the proper shape and balance of the trees. The first pinching generally is made when the premier shoots which are to bear fruit the next year are about 1 foot in length, and leading laterals are sometimes allowed to extend, but space being limited and light an important factor, all laterals and sub-laterals are quite as well stopped at the first or second joint.

PLUMS

will require liberal thinning with Grape scissors and continuous pinching where the trees have attained full size, otherwise, like Peaches, they may be allowed to make a clear foot of growth before the points are taken out. When the fruit has passed the stoning process and shows signs of swelling, the period of ripening, to a certain extent, may be regulated by shutting up with sun heat or otherwise, but time being no particular object, the best and most natural course is full ventilation through the day, complete closing, say from five till eight o'clock, to swell the fruit, and a liberal supply of night air. If Strawberries have not been removed from the shelves, every plant should be cleared away without

delay, when the space they have occupied must be well scrubbed with strong soap water to free the house from spider. Other insects met with in the orchard house are green and black aphids and brown scale. The remedy for the first is smoking; for the second dipping in tobacco water; for the last, scraping the old wood where it starts with a sharp edged stick, or scrubbing with a small brush charged with strong soapsuds. W. C.

ORCHIDS.

W. H. GOWER.

ORCHIDS AT ROSEFIELD, SEVENOAKS.

It is an old saying that "first impressions are everything," but I do not think I am apt to be misled in this way. At any rate, on my first visit to the above-named establishment, the residence of Mr. De B. Crawshay, I was immensely interested and highly gratified with what I saw. The houses are of good proportions and sufficiently large to accommodate excellent specimens. Mr. De B. Crawshay appears to be a thorough believer in the cool treatment of Orchids, and grows them well. The cool house was a novel feature to me, for it was glazed in front quite down to the ground level, and this has been done with a view of eradicating the slugs, which usually hide themselves in the daytime under a dark stage. But here there is no hiding-place, and therefore the pests are more easily caught. It also produces a greater amount of light in the house in winter, but in the summer this is scarcely requisite, situated, as this place is, at some 400 feet elevation. In the cool house were examples of *Disa grandiflora* which were not yet in bloom, and also a fine plant of what is said to be an extra good variety of the form called *Barelli*, in which the flowers are of an intense deep vermilion colour. It was, however, not yet in bloom, and it would be as well to point out that the flowers of *Disa grandiflora* are, like those of *Masdevallias*, indebted for their gorgeous beauty to the sepals alone, the petals and lip being small and inconspicuous, which is unusual in the Orchid family, the fact being frequently overlooked in the case of *Disas*.

I was too late to see the finest varieties of *Odontoglossums*, but there were some excellent forms of *O. Alexandre*, *Uro-Skinneri*, *Cervantesi*, and *Rossi*, and, in company with these, were also growing some nice examples of the *Mocassin Flower* (*Cypripedium spectabile*), very rich in the colour of the pouch, and bearing, in some instances, two flowers upon a stem. There was also a very highly coloured form of *Sophranitis grandiflora*, the flowers, although upon a small growth, being large and of a deep vermilion-red, almost entirely destitute of the orange hue, which is such a feature in the typical plant. *Epidendrum vitellinum majus* is another plant which thrives well here, the plants forming fine bulbs, all of which are producing strong spikes of their conspicuous flowers. These were standing quite close to an open door, so that all the winds that blow are admitted without fear. *Cattleyas* and *Laelias* were blooming in profusion. Amongst the former were numerous forms of *C. Mossiae* of rare beauty, and also some exquisite varieties of *C. Mendeli*. The delicate and beautiful *Laelia elegans alba* was also flowering profusely, and *Laelia purpurata* was represented by numerous immense specimens, which, by the manner in which they are growing and the profusion of bloom, appear quite at home. *Laelia Russelliana* was also represented by several large examples, its numerous chaste flowers being very conspicuous. *Cattleya Skinneri* and

a superb plant of *Lælia grandis* also deserve notice. *C. gigas* is represented here by a quantity of plants, which were not, however, in flower. This species and *Sanderiana* are quite a speciality with Mr. Crawshay, who flowers them regularly. The plants appear to belong to the type with medium strong bulbs, but not to the strongest growing form; they are making good growths with flower-sheaths, and are rooting superbly; their flowers I hope to report upon later. I could not perceive anything special in their treatment. They are planted in earthenware pans, and suspended near the roof-glass, so that they enjoy an abundance of light, and they do not appear to receive a great amount of water to their roots. Dendrobes were represented by *D. albanguineum*, *D. Falconeri*, and the superb *D. thyrsoflorum*; whilst the distichous-leaved section of the *Vandas* contributed a fine example of the Rosefield variety of *suavis*, a form with a very long spike, and bearing as many as sixteen blooms on each spike, and with a very deeply coloured lip. *V. tricolor*, *V. tricolor Patersoni*, and *V. Denisoniana* complete the show of these plants, which, by the way, are grown in an intermediate temperature. Of other plants contributing to this display were such as *Odontoglossum citrosimum*, *Cypripedium Lawrenceanum*, *Trichopilia coccinea*, *Epidendrum prismatocarpum*, *Cattleya Mossiæ callistoglossa*, and many others. These, with the numerous kinds which are growing well, and promising to flower later on in the season, comprise a somewhat extensive collection.

Odontoglossum Halli.—This plant thrives superbly under the coolest treatment in Mr. Buchan's gardens at Southampton, and some excellent dark varieties are amongst them. On one plant just now is a large branched spike bearing fifty flowers. This is the greatest number of blooms I have yet seen upon a single spike of this species, and it produces a marvellous display.—W. H. G.

Cattleya Sanderiana is another flower from Mr. Buchan's bouquet. It measures nearly 9 inches across, the sepals and petals being deep rose colour, the latter undulated at the margins. The lip is deep magenta-purple, and bears two large orange-coloured spots, one on each side of the throat, which is bordered with white on the upper edge. The throat is deep rose, through which runs a quantity of orange-coloured radiating lines. It is a gorgeous flower, yielding a delightful fragrance resembling that of Primroses.—W. H. G.

Vanda tricolor planilabris.—In Mr. James' nursery I recently noted some fine flowering examples of this, one of the very finest variations from the type; it produces large flowers of great substance. The sepals and petals are broad, the ground colour being pale yellow, profusely blotched and spotted with brown; lip large and flat, rose-coloured, streaked on the disc with purplish brown, and edged with lilac. In addition to its great beauty, it is a free grower, which cannot be said of some kinds, such as the true *V. insignis*, which is not so much sought after on account of its being so shy, but all the forms of *tricolor* are of free habit.

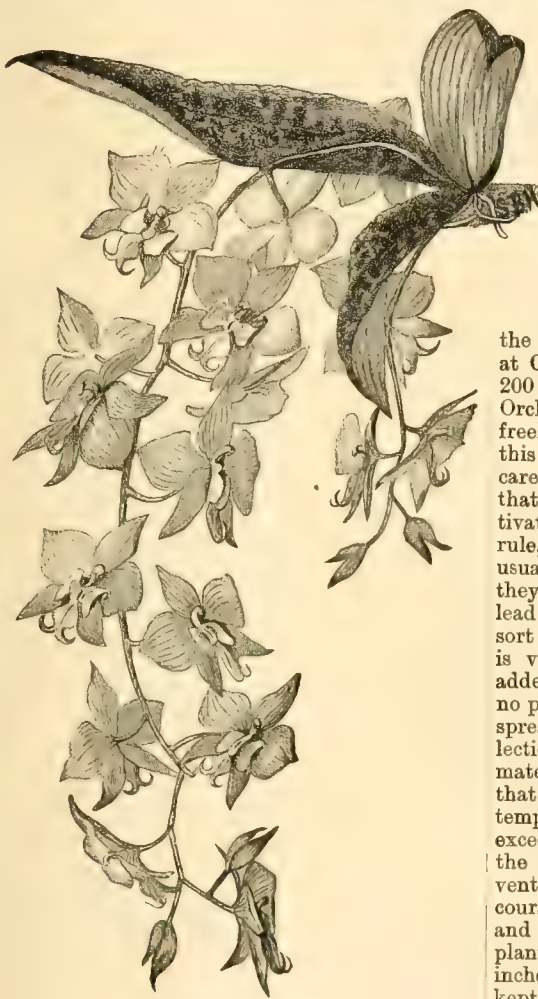
Odontoglossums are largely represented in the gathering of flowers from Wilton House, Southampton, the most notable a superb form of *O. cirrhosum*, the flowers measuring upwards of 5 inches across, the ground colour snow-white and heavily spotted, saving at the base of the sepals and petals. Amongst the crispum section was one of the most perfect flowers I have seen, which, although it did not measure more than 4 inches across, the sepals and petals are very broad, and so fill up between each other as to produce almost a round flower; the dorsal sepal and the petals are snow-white, crisp and toothed at the edges, whilst the lateral sepals are faintly flushed with rose; lip large and bold, pure white, with a few spots of brown just below the yellow crest.

Another remarkable form amongst these flowers is that of a very fine variety of *O. luteo-purpureum*.—W. H. G.

SCHILLER'S MOTH ORCHID.

(*Phalænopsis Schilleriana*.)

I FIRST made the acquaintance of this plant in the famous collection of Consul Schiller, in whose honour it was named by Professor Reichenbach. The plant has been introduced to cultivation now nearly thirty years, and although many new forms of *Phalænopsis* of this section have from time to time been imported, and very much shaken one's faith in the origin and value of supposed species, Schiller's plant still maintains its proud position as being the grandest of them all. It is also the most easily grown, and flowers the most profusely of all the cultivated kinds.



Phalænopsis Schilleriana.

Phalænopsids are not nearly so much valued as they were some few years ago. The importation of the plants is not now attended with the same difficulties, as the transit being more rapid, the risk is reduced to a minimum, especially when the plants have been packed by those experienced in the various minutiae which lead to success in their introduction; the result has been, that with the large number of the plants in the country, a dozen examples can now be obtained for the price realised by a single specimen in days gone by, and yet they are not popular. I say this advisedly, because whenever *Phalænopsids* are seen in flower, they are highly appreciated, their lovely blossoms

fixing the attention and eliciting the admiration of all beholders, but yet so many hold aloof from their culture, under the impression that they are difficult to cultivate. This, however, is entirely a mistaken idea, for, with proper care, they grow freely enough and bloom profusely, but they certainly do require somewhat more careful tending than other Orchids possessed of stout fleshy pseudo-bulbs to support them during the winter months. The Messrs. Low, of Clapton, undoubtedly import the largest quantity of these plants, and probably hold in their possession at the present time more plants of this genus than could be mustered by all the Orchid growers in the country, and they do not complain of the difficulty of their culture; their only grievance is the London fogs, which sometimes cause great destruction amongst the flowers and buds before they open. Mr. R. Warner, of Broomfield, near Chelmsford, formerly grew very large quantities of *Phalænopsis*, and *Schilleriana* in particular, and these never appeared to cause him any extra anxiety, whilst the display of bloom in his houses during the spring months was marvellous; indeed, a plant of this species from this collection exhibited by him at the first International Exhibition held in St. Petersburg in 1869 bore nearly 150 perfect, fully expanded flowers. This is the greatest number of blooms upon a single spike of any *Phalænopsis* I have ever seen. Again,

the now celebrated collection of Mr. Partington at Cheshunt, which contains, I believe, nearly 200 plants, is at once a marvel and pattern to all Orchid growers, as the plants which grow so freely are undoubtedly the largest specimens in this country, and are not found to require extra care in their management. Why is it, then, that *Phalænopsids* are not more extensively cultivated? To this, I can only answer that, as a rule, they are kept too hot, their roots are usually encumbered with too much soil, and they are too heavily shaded; these conditions lead to unhealthy growth, which leads to a sort of dropsical disease, which once started is very difficult to stop, to which may be added the before-mentioned fact, their having no pseudo-bulbs, and therefore the disease soon spreads into the heart of the plant and the collections of *Phalænopsids* grow smaller and ultimately their cultivation is relinquished. I find that in Mr. Partington's collection the artificial temperature in winter during the night does not exceed 60°, which rises some few degrees during the day, and, except in severe weather, the ventilators are always open. In summer, of course, a much higher temperature is produced, and during the season more air is given. The plants are shaded by a thin blind kept some few inches above the glass, and the atmosphere is kept well charged with moisture, and the whole of the roots are bare, the entire collection scarcely having so much potting material about them as I have frequently seen used for a single specimen. The above system I would recommend to all for the successful cultivation of these plants, feeling fully persuaded that were it more generally adopted we should soon see collections of their beautiful forms springing up in all directions. I am also under the impression that *Phalænopsids* do not take kindly to the great amount of stonework, slate, and metal which is to be found in Orchid houses of the most "approved construction." They rather like a wooden stage and ground for the floor, from which there is a steady and healthy exhalation continually arising. These plants must not be kept dry through the winter months; if this i

attempted, loss of leaves is sure to be the result. More especially is this the case with the subject of our illustration, which at this season of the year is developing its flower-spike, and, therefore, requires careful attention in the matter of watering. The blooms of *P. Schilleriana* begin to appear about the middle of January, and continue on through April and sometimes into the month of May, but to have them at this latter time the plants require retarding; but the flowers that are developed so late in the season are seldom so fine as the earlier blooms. Some of the other kinds of *Phalenopsis* frequently produce flowers twice in one season, but *Schilleriana* seldom or never does. In the marbling of its leaves this plant varies considerably, but its foliage does not afford any clue to its flowers, as I have seen some of the most beautiful leaved kinds produce the poorest blooms.

W. H. G.

NOTES FROM AMERICA.

CYRTOPODIUMS.—I was much pleased to read Mr. Gower's article in *THE GARDEN*, May 19 (p. 455), on this genus, and quite agree with all that he has written respecting their beauty. I feel sure that if well grown, and consequently well flowered, *Cyrtopodiums* would soon become more popular. *C. Andersoni* and *punctatum* (the former especially) with us grow very strong, and usually produce two spikes from each growth. The young growths, which appear very early in the season, grow so rapidly that they are finished by the middle of June, and have all the rest of the summer to ripen in a very light, airy house. In this well-ripened condition doubtless lies the whole secret of their abundant flowering. We pot in rough peat and loam, with a good proportion of Sphagnum and cow manure. The pots must be thoroughly drained, and scarcely too much heat can be given them while the bulbs are forming, with, of course, abundance of water, especially overhead, as the bulbs are maturing. *Grammatophyllum speciosum* is doing well with us under the same growing treatment, but it is not as yet strong enough to flower.

ERIOPSIS BILOBA.—This is a beautiful Orchid when in flower. The long arching spikes of yellowish brown flowers, relieved by the bold dark green leaves, are very conspicuous in the Orchid house. It is worthy of a place in every collection. Our plants, collected on the Rio Negro, seem to grow best on blocks of half-rotten wood in a warm house, with plenty of water at all seasons.

ADA AURANTIACA.—Among a batch of this showy Orchid now flowering in Mr. Corning's collection there are several plants very conspicuous for their immense growths and flower-spikes. The flower-spikes, which are very strong and more than 18 inches long, are bearing from twenty-five to thirty flowers of unusual size and much paler than those of the ordinary type. This variety may have a distinctive name, though I have not seen any reference to it. Probably Mr. Gower can enlighten me. These plants do exceedingly well in the *Odontoglossum* house, which we keep about 60° at night. The plants delight in abundance of water, and do not like the roots to be confined, but allowed to ramble among loose Moss on the top of the pot.

Kewwood.

F. GOLDBRING.

Cattleya Morganæ.—This comes from the Cambridge Lodge collection, and is a beautiful example of the true plant. The sepals and petals are of the purest white; lip also snow-white, beautifully undulated and crisp round the edge, bearing in front a small blotch of bright magenta; throat stained with lemon colour, through which run some pale crimson streaks. To my mind it is a variety of *Mendeli*, and second only to *Blunt's* variety.—G.

Vanda teres candida.—This appears to be a free-flowering form, judging by the manner young plants of it are now flowering in Mr. Williams' nursery at Holloway. The sepals and petals are pure white, and the lip, although coloured, is much paler than that of the typical plant. It is, I believe, still a rare form, but it affords a pleasing contrast to the rich

coloured variety called *Andersoni*, which also flowers freely in a young state.—W. H. G.

Cattleya Buchana.—The most distinct and highly-coloured form of *C. gigas* which I have hitherto seen, and although somewhat small, measuring scarcely 7 inches across, produced, I am told, blooms last year nearly 9 inches over. The sepals and petals are very deep rosy purple; lip very deep purplish magenta, this colour extending all over the side lobes and up the throat to the base of the column, where there are a few faint lines of orange. On either side of the throat there is a small, somewhat reniform spot of orange. It is a superb *Cattleya* in its present condition, and must be magnificent when it is stronger. It is the richest-coloured flower in the Wilton House gathering.—G.

Vanda Denisoniana.—A grand form of this plant is now flowering in the Castle Nursery, Norwood, and it is probably the purest white form of this species yet seen. The species is one of Colonel Benson's discoveries in Burma some twenty years ago. It grows upon large trees on the Arracan Mountains, in company with *Dendrobium crystallinum*, at an elevation of some 2500 feet above the level of the sea, where the average temperature is about 70°. In general habit it much resembles *V. Bensoni*, but the flowers are pure white, the terminal lobes of the lip diverging, resembling in shape the tail of a black cock; these are slightly tinged with green, and the inside of the spur is orange.—W. H. G.

STOVE AND GREENHOUSE.

HARD-WOODED HEATHS IN LONDON.

EVIDENCE still exists that these plants will thrive well in the London smoke by a visit to the Castle Nursery, Norwood, where a great number of specimen plants are grown. Many of these are now flowering superbly, amongst the most notable being *ampullacea*, which produces terminal umbels of large white flowers; *Candolleana*, flowers tubular, rosy red near the base, passing upwards into pure white; *Cavendishi*, flowers tubular and bright yellow; *depressa*, a compact-growing kind, with long tubular flowers of a pale yellow; *Denisoniana*, similar to *Candolleana* in colour, but not possessed of the glutinous matter peculiar to the majority of *Ericas* of this class, and therefore its flowers keep cleaner than those of the others. The production of a race of Heaths destitute of this gumminess was one of the objects of the Messrs. Rollisson when at Tooting. This and a few other kinds were all they obtained from amongst their numerous seedlings. Amongst the tricolor section I observed grand specimens of *tricolor Wilsoni*, which produces large blooms much swollen at the base, where they are rosy pink, narrowing upwards and passing into white, with a green neck, and tricolor *impressa*, which is a smaller form, *Vernoni*, *insignis*, and *Lindleyana*, whilst the lovely *Parmentieriana rosea* was wonderfully well flowered, as were also numerous kinds of the showy and popular *ventricosa* section; whilst numerous other hard-wooded greenhouse plants which were standing amongst the Heaths afford proof that some persons yet feel kindly towards these plants, which were once the glory and pride of English gardens, but are now nearly lost to cultivation.

W. H. G.

Stove climbers in "My Garden."—Examples of several kinds of these plants were conspicuous at the time of my visit; especially so was *Stigmaphyllon ciliatum* (of which a coloured plate was given in *THE GARDEN*, Feb. 25, 1888), with its trusses of yellow flowers, much resembling those of *Oncidium ampliatus*. The sweet-scented *Stephanotis floribunda* was flowering in profusion, and this in a house seldom above 60° in winter. The system

adopted is to cut away the wood after it has done flowering to within an eye or two of the old wood from which the shoots started in the previous year. Upon this annual growth the flowers are produced from every joint. Another plant seldom seen is the yellow-flowered *Gloriosa* (*G. grandiflora*). This form I had not seen for years, and I was under the impression it had become lost to cultivation. It differs from *G. Planti* and *G. superba* in being of a uniform clear yellow throughout, not tipped with crimson, as in these two last-named kinds. *Gloriosas* are tuberous-rooted plants, their stems dying in the autumn, during which time the tubers should be kept in dry sand in a comparatively cool temperature.—W. H. G.

THE HYACINTH AND TULIP FOR POT CULTURE.

IT will soon be time for gardeners and amateurs to order their bulbs for next season's display. The Hyacinth is, perhaps, a more popular plant for pot culture in England than the Tulip; but those who admire beautiful flowers, as well as old garden favourites, will grow both. The taste for these handsome spring flowers is undoubtedly increasing, especially in the suburbs of large towns, where numerous villas are springing up, each with its greenhouse or conservatory and a few frames to aid in supplying them with flowers. The Hyacinth and Tulip seems to have been brought into cultivation in England about the same time. The Hyacinth was undoubtedly known to Gerard in 1598, but had years before this been improved by the Dutch florists. Loudon says the Tulip was first cultivated in England by James Garnet in 1577. Both were well known to John Parkinson, and are well illustrated by him in his "Paradisus." When double varieties of the Hyacinth were first produced it is probably not known, but they became for a time more popular than single varieties. It was about the beginning of the last century that a certain Dutch grower named Peter Voerhelm paid great attention to raising double varieties. It is said that a variety named *Mary* was the first he produced, but a later variety, *King of Great Britain*, was a great advance, and bulbs of it were sold for 1000 florins, or £100. Up to the middle of the last century the greatest attention was paid to the raising of these double flowers, and as much as £200 was given for a single bulb. Very few persons would be able to look upon such expensive varieties. Indeed the taste for double varieties gradually declined; the varieties were also too numerous. Nearly 2000 varieties were distinguished by name in Miller's time, but these were gradually discarded, and at the present day very large quantities of the popular sorts are grown, which can be sold by the hundred or thousand. Having been so long under cultivation, the Hyacinth has been brought to such a height of perfection, that the improvement in the colour, form, or quality of the flowers cannot be very rapid, but when one examines the new varieties grown in the leading nurseries in Holland, and also when they are seen in England, the advance, even during the last decade, is quite surprising.

New varieties are produced in two ways, viz, from seeds and from certain varieties sporting to another colour. The greatest number of new varieties are to be seen in the bulb garden of Messrs. J. H. Kersten and Co., of Haarlem. For many years they and their predecessor, Mr. J. H. Veen, have been engaged in the work of seedling raising, and have been very successful both with single and double varieties. Some of them have been sent out, and others are yet being grown into stock sufficient to justify their being sent out at a reasonable price. Very few persons in England would give a high price for a new Hyacinth that would flower once and be of little or no value afterwards. The growers are careful to produce flowers that are likely to be appreciated in the English market, varieties with distinct colours, well-formed bells and spikes. In the yellow-coloured varieties there has been considerable improvement. The variety *Ida* (primrose) used to be the best, but *Bird of Paradise*, and later *King of the Yellows* have contested the pre-emi-

nence with it. Now Messrs. Kersten have Criterion, superior to any of the others, as I saw it in Holland and also at the London exhibitions. These four varieties are certainly the cream in this colour. Amongst light blue varieties there was nothing to be had at a reasonable price twenty years ago so good as Grand Lilas; it is an old, but excellent variety certainly, but Czar Peter, Princess Mary of Cambridge, and Lord Derby are much superior to it. Queen of the Blues (Kersten) is a distinct and handsome form of this colour; Praaltombe I noticed as a variety with light blue flowers on a handsome spike. In dark blue colours King of the Blues has now become common, and is the best of this section. Souvenir de J. H. Veen has also handsome spikes of dark purple-blue flowers, and Sultan is also very fine in this colour; the bells are larger. Sir Charles Napier is also an excellent dark blue. In single red kinds a great surprise to me was Annetje, but the flowers are semi-double with a spike much like that of Koh-i-noor. King of the Reds is not likely to be a rival to King of the Blues; the flowers are of a rich rosy red colour, but the spike is narrow at the base as grown in our gardens here; as seen in the garden at Haarlem the flowers were rich in colour and the spikes very good.

Roi de Belge, compact spike of rosy scarlet flowers. Mrs. Veitch, deep blush, large bells, forming a handsome spike. Blush Perfection, semi-double, handsome spikes, pale rosy blush flowers. Challenger is a very distinct variety, it has a well formed spike, and bells of a deep blood colour. Galatea, pale rosy lilac, quite unique in colour. President Lincoln and Peter Barr are the best reddish purple varieties. La Victoire, double lilac-purple, is very remarkable and very double; it forms a compact spike. Venus de Medici, double rose, long spikes. I saw also in Messrs. Kersten's garden large masses of the double Rose, Bouquet Tendre, a variety which has been grown for over fifty years. Disraeli has larger bells of a brighter colour and better spikes; this is now plentiful and cheap, and ought to displace it. Very fine varieties have been produced by sports. Some varieties have more tendency to sport than others; for instance, the single blue Charles Dickens has produced, by sporting, a single pink and single purple, also a double red and double blue, the latter plentiful and very good. The finest sport I saw in Holland was a very lovely white flushed with blue, sport of Lord Byron, single blue. It is not yet common.

There is a rose sport of the very large double blue Van Speyk, and a bluish sport of the double rose Lord Wellington. There are white and pink sports of the blue Van Tuyl. Besides the above, I noted the following very good varieties that seemed to be plentiful, viz., Duchess of Edinburgh, pale pink, long spike; Lord Percy, pink, dense spike; Sir Henry Barkley, blackish purple, long solid spikes; Eldine, blush, better bells than those of Grandeur à Merveille; Sarah Bernhardt, bright pink, long dense spikes; Nesselrode, pale rose, good spike; Meteor, scarlet; Cardinal Wiseman, rose, large broad spike. The growers in Holland complain that they must grow large numbers of the old varieties, though they well know them to be inferior, as the trade continue to order these old kinds, because their customers will have them. If the newer sorts were ordered, they could, in many instances, be supplied at as low a price as the older kinds.

Many persons do not trouble themselves at all about the names of their Hyacinths and Tulips. They require a certain number of bulbs, and they order so many dozens at so much per dozen, rightly supposing that the higher priced bulbs will give the best results. The amateur who is specially interested in his garden will have his own favourite flowers, and will order what he requires; so also with the grower for exhibition. He soon finds out the varieties that give the best spikes, and purchases the largest number of roots of those varieties.

The culture of the Hyacinth and Tulip is so very simple, that anyone with the least knowledge of gardening may accomplish it. The best way is to mix the compost say in July or August. It should be formed of two parts loam, one of leaf-mould, one of sand, and one of cow manure, mix it well to-

gether, and leave it in a heap out of doors until it is time to pot up the bulbs. This may be done from the 1st of September to the end of November—the earliest for forcing into flower from Christmas onwards. For exhibition, the third week in October is a good time. I pot the whole collection of Hyacinths, Tulips, Narcissi, Crocuses, &c., at that time. Careless potting is an error of the gravest kind. The pots, 5 inches or 6 inches in diameter, should be drained well, and some rough fibre should be placed over the drainage. Press the compost in moderately firm, and make holes for the bulbs with the fingers rather than press them into the soil without making a space for them. Place a little clean sand under each, and press the compost firmly round, finishing off with the top of the bulb projecting from the soil. Place another pinch of clean sand over each. When all the bulbs are potted remove them to an open position out of doors, and cover them over to the depth of about 6 inches, with cocoa fibre refuse, spent tan, leaf-mould, or any material of a like nature. They will be well rooted, and have made some growth by the second week in January, when they may be taken into the house, greenhouse, or heated pit. Invert a small pot over the crown of each for a week, so that they may not be too suddenly exposed to light and air. The best spikes are produced when the plants are not exposed to a low temperature, especially when the bells are opening. A steady, uniform, warm greenhouse temperature, with moderate ventilation, suits them best if it is necessary to place them in a hot-house temperature to open the flowers by a certain date; this will, probably, cause the leaves to become drawn, and the flower-stems will not be so sturdy in character. The spikes must be prepared for exhibition by bringing the bells up to a level position and arranging them regularly. Many varieties have the bells drooping, and too thick in one place, too thin in another. The best support for the spikes is a wire bent in this form—

In conveying the plants to the exhibition all that is required is to tie the leaves together at their base, pressing them gently against the spike; the leaves tied in this way prevent the bells from shaking about. A list of the best exhibition Hyacinths are—Single blue of light shades: Blondin, Czar Peter, Lord Derby, Princess Mary of Cambridge, Queen of the Blues (Kersten). Dark blue: King of the Blues, Marie, Souvenir de J. H. Veen, The Sultan. Single light red: Fabiola, Gigantea, Princess Amelia, Cavaignac, Koh-i-noor. Single dark red: Garibaldi, Lord Macaulay, Solfaterre, Von Schiller, and Vurbaak. Single white: Alba Maxima and La Grandesse. Single violet-purple: Peter Barr and President Lincoln. White with rose shade: Grandeur à Merveille. Yellow: Ida, Bird of Paradise, and Criterion. The above are all single, double varieties not developing well formed spikes.

Tulips require much the same treatment as Hyacinths, except that stable manure should be used instead of that from the cow-house, and three bulbs should be planted in a 6-inch pot instead of one.

J. DOUGLAS.

SHORT NOTES.—STOVE AND GREENHOUSE.

Steam heating.—Would some of your readers tell me if steam heating as described in THE GARDEN of June 16 is used in England, and if so, is it successful?—W.

Gladiolus Lemoinei and varieties of this class are useful for cutting at this season. In the Espora Nursery a few days ago there were several plants in bloom, which had been kept in an ordinary greenhouse through the winter. The Bride is the chastest variety.

Hoya Shepherdii.—This is a somewhat scarce plant outside of botanic gardens, but it is sufficiently handsome to become generally grown; the leaves are linear-lanceolate, deflexed, some 6 inches long, thick and fleshy in texture, and deep green; from the axils of these leaves are produced trusses of flowers which are white, prettily flushed with rose colour. I recently noted it flowering in great profusion amongst the numerous rare and beautiful plants grown in Mr. Smees's charming garden at Carshalton.—W. H. G.

Oreopanax dactylifolia.—This is a somewhat rare and extremely ornamental araliaceous plant, which I saw recently in the Castle Nursery, Norwood. It is a bold-growing species, the stems and leaves being

covered with a ferruginous tomentum. I do not know a ready method of propagating this plant, but it a great pity it is not more generally to be met with, as I should imagine it would form a conspicuous feature in shady nooks in the open air during the summer months.—W. H. G.]

WORK IN PLANT HOUSES.

STOVE.—**ERANTHEMUMS.**—The winter-flowering kinds of *Eranthemums*, of which *E. pulchellum* is one of the best, will now require attention, as they should now be moved into the pots in which they are to flower. With these, as with all quick-growing soft-wooded plants, it is a mistake to allow them to stop too long in the pots they occupy during the earlier stages of their growth, as if this happens the plants become stunted. And even if by subsequent careful treatment the plants are again induced to start, they will never make such fine specimens as if they had received no check. The size of the pots must be determined by the size the plants are to be grown to. Medium sized examples will be found the best; for such 8-inch or 9-inch pots will be large enough, especially in the case of young stock. Where old plants have been cut back and are to be grown on for another season, it will be an advantage to give them a size larger. If stopping the shoots has been attended to, the plants will now be sufficiently furnished with branches, which as soon as the potting is completed should be neatly tied out. This is necessary, as most of the kinds have an erect, somewhat close habit of growth, and unless they are kept sufficiently open the leaves do not get sufficient light. Rather light turfy loam is the best for them; to this should be added a liberal amount of rotten manure and a little leaf mould, both of which should be passed through a fine sieve, so that if the material contains any worms they may be seen. Mix sand more or less according to the nature of the loam and pot moderately firm.

PLUMBAGO ROSEA.—The plants should have their final potting now; 8-inch or 9-inch pots will be large enough for winter-struck cuttings; cut-back plants may have 10 inch or 11 inch. Soil of a like description to that advised for the *Eranthemums* will answer. This *Plumbago* is spare in its growth, running up, if allowed, without forming enough shoots to enable it to flower sufficiently, as the flowers are produced in racemes from the extremities of the branches. It will in most cases be better to again pinch out the points of all the shoots. Train the strongest loosely to thin sticks inserted just within the rims of the pots, leaving the weaker ones in a more erect position, by which means they will gain strength, and in this way the growth will be more equally balanced.

SCUTELLARIA MOCCINIANA.—The flowering of this plant is not confined to the winter season, as when it receives fair attention it keeps on making growth and producing flowers almost the whole year round. There is, therefore, no stove that should be without its bright, cheerful-looking bloom, which is equally adapted for cutting as for ordinary decoration when allowed to remain on the plants. Cuttings that were put in during the winter or early in spring will now need moving into 7-inch pots, which in most cases will be large enough for them at present, as if later on towards autumn the roots are found to be too much confined they can be again moved. This also is an erect-habited subject that is not inclined to branch out much if left to itself; therefore, the shoots which will have already had their tops pinched out had better be again stopped. This will to some extent delay their flowering, but as the object is to have them in flower during the latter end of the year, it is better to lay the foundation for well-shaped specimens than to have them in bloom early. Older examples that were cut back freely in spring and afterwards shaken out and put in smaller pots should now be shifted into those in which they are to flower. Give pots proportionate in size to that of the specimens, but as this *Scutellaria* does not usually attain a very large size, those from 10 inches to 11 inches in diameter will generally suffice.

SERICOGRAPHIS GHIESBREGHTII.—Winter and

early spring-struck plants of this useful winter flower should be moved on. In most cases 9-inch pots will be large enough to sustain the plants through the rest of the season. Use soil of a like description to that recommended for the *Eranthems*. The plant is a free grower, but not so vigorous as some things. It requires attention in stopping, which should be repeated in all the specimens until they consist of eight or ten branches each. They should be fairly strong, and any that take an undue lead of the others should have their points pinched. This should not be delayed much longer, or it will not give time for the growth that follows to attain the requisite size and strength. All the above-mentioned plants will do much better in a low pit or house where they can be stood with their tops near the glass than if kept in a larger structure, where necessarily they will be further away from the light. The cold, unseasonable weather that we have had all but continuously through the spring has kept winter-blooming stock such as under notice backward, unless a corresponding amount of fire-heat has been used. Where the

size in a short time, as they will generally be found the most useful when confined to a single stem not more than 8 inches or 9 inches high. Three-inch or 4-inch pots are large enough. Where stock of this description is required, cuttings should be struck at different times; some should be put in now. When to be grown on quickly in the way named, the cuttings are best put singly into small pots, so that when sufficient roots have been made they can be moved into others large enough to grow them up to the requisite size. Kept close and moist in a temperature of 75° or 80°, they will root in two or three weeks, after which gradually expose them to the full air of the house. Give plenty of light, but shade in sunny weather. Cuttings that were struck in the spring should now be moved to 3-inch or 4-inch pots, and grown on in a moderately warm house. They will be ready for use through the latter part of summer and early autumn. The plants will thrive in either peat or loam. Mix a moderate amount of sand with it, but no manure.

BOUVARDIAS.—Plants that, after blooming during the past autumn and early winter, were cut

cuttings in the winter or early spring should now be moved to the pots they are to bloom in. Five-inch pots will do for the weaker growers, and those an inch larger for the strongest sorts. Keep the stock, especially the young portion, in a growing temperature. This is necessary after the cold, sunless springs we have now had for three or four years in succession. Plants like *Bouvardias*, that make much more progress in a warm, genial temperature than when cooler, are necessarily backward. The amount of bloom that may be looked for will largely depend on the size of the plants. T. B.

FERNS.

W. H. GOWER.

ORNAMENTAL NEPHRODIUMS.

THE species and varieties of *Nephrodium* are spread all over the Fern regions of the tropical and subtropical portions of both hemispheres, and whilst some have a very common-place ap-



Nephrodium Rodigasianum.

plants are in a backward state means must be taken to get them on without delay; if this is not attended to the necessary amount of growth will not be made in time to get it firm and well matured before autumn. If the plants are stood as advised close to the glass in a structure that admits a full volume of light, much may be done to accelerate growth by giving a less quantity of air than is often supposed necessary. This, with shutting up early during the next five or six weeks, will do a good deal towards making up any deficiency in the size of the plants. Shade is needful in bright weather, but it must not be too heavy. Syringe overhead once a day in the afternoon at the time of closing the house.

ACALYPHAS.—These plants are most effective when used in a small state for room decorations. Their highly coloured leaves tell well when associated with other things of a less conspicuous character, but coming, as they do, from the South Sea Islands, they cannot bear a low temperature; consequently, they are only fit for the purpose named during the summer and autumn. They can be struck from cuttings and grown to the requisite

back and afterwards partly shaken out and put into limited-sized pots, should by this time be shifted into those in which they are to flower. A small sort like *B. Vreelandi* does not need more than half the root-room that the strong growers require, and in most cases, when flowers for cutting are the principal object, it is not well to give larger pots than will suffice to support the plants. Much may be done to help them by the use of manure water applied during the time the growth is being made, and also when they are blooming. Eight-inch pots will be large enough for examples of the strongest varieties that have been cut back; whilst an inch or two less will do for the smallest growers. Good fresh loam, with some leaf mould, rotten manure, and sand, answers well for *Bouvardias*. If after cutting in the plants broke fairly, they will have enough shoots without stopping; it is much better to be content with a limited number of strong branches than to have a larger quantity of weak ones, as after the flowers are removed the lower eyes will produce quantities of flowers much finer in size of truss than those that will be produced by weak shoots. Small plants that were struck from

pearance, others are singularly beautiful and extremely ornamental. These are for the most part plants of strong constitution, and, consequently, are easily grown into large and handsome specimens in pots, but if opportunity occurs to plant them out in a fernery, they grow rapidly, and speedily become objects of great beauty, whilst their free seeding habit renders them plants of great service, as their spores, resting in the crevices and chinks of the rockwork, speedily spring up and clothe them with verdure. The following are a few of the most distinct and effective kinds:—

N. MOLLE is at once the commonest and the oldest of the known species, although I believe there is more than one species which does duty under this name. It grows from 9 inches to 2 feet in height. It is a most useful Fern, as it can be grown as a window plant by the cottager, and also thrives well in a greenhouse during summer, whilst in the stove it increases so rapidly that it requires continually thinning out, in order to prevent it overwhelming the more delicate varieties. Again as an

ornament in a Wardian case, where space permits of its development, it has few equals.

N. MOLLE CORYMBIFERUM.—This is a crested form of the preceding; the fronds usually divide into a pair at the base, the pinnae being somewhat contracted, with a globose crest at the apex, whilst the top of the frond is surmounted with a large globular head; the colour is deep green.

N. MOLLE POLYDACTYLON is another crested form of robust habit; the fronds are divided, but in this instance they fork about mid-way; the pinnae are of the normal size, and in addition are furnished with a long tassel-like crest at the ends, whilst the top of the frond is also terminated by a large tassel. It is a very pretty and effective variety.

N. ABORTIVUM.—The fronds of this superb species, a native of Java and Ceylon, attain a height varying from 1 foot to 3 feet, while the broad pinnae, some 6 inches or 9 inches long, are set closely together.

N. HOOKERI is another Eastern species of great beauty, being a native of Madras and Ceylon. Its fronds are soft in texture, and attain upwards of 3 feet in height and some 6 inches across in the centre. The frond tapers gradually to a point, whilst the lower pinnae, which are continued nearly to the base, are much reduced in size.

N. CYATHEOIDES is a noble species, with fronds from 1 foot to 3 feet or more high and from 9 inches to a foot broad, regularly and deeply toothed at the edge; the colour is light green. It is one of the rare Ferns from the Sandwich Islands.

N. PTEROIDES.—The fronds of this species vary in length from 1 foot to 4 feet and a foot or more broad. They are pinnate, the edges deeply lobed, and bordered on the under side with a thick and continuous row of brown sori, a character which has given rise to its name. When it attains to its full size the fronds assume a graceful arching habit. From the East Indies.

N. EXTENSUM.—Allied to the preceding, especially in the marginal sori, the lobes, however, being more deeply cut. East Indies.

N. VENUSTUM is a native of Jamaica, and grows to a height of 2½ feet or more and a foot broad.

N. ARTICULATUM.—A fine bold plant, growing to some 4 feet in height. The pinnae, standing at somewhat right angles, are divided into somewhat shallow oblong lobes. It contrasts well with the more spreading kinds.

N. RODIGASIANUM.—A superb form (here illustrated) of somewhat recent introduction from the island of Samoa. It has a beautifully arching habit, the edges of the pinnae deeply toothed, and of a rich green colour. For the introduction of this species and use of illustration we are indebted to the Messrs. Linden, nurserymen, of Brussels.

THE GREAT THUNDER, RAIN, AND HAIL STORM OF THE 26TH INST.

THIS seems to have concentrated its force over a comparatively limited area, with Bury St. Edmunds, probably, for its centre. And yet, it is said, places within a mile of Bury on the north, and four miles on the south, felt little or nothing of it. The clouds began to muster up in peculiar form, and from various directions, about 2 p.m. About 3 p.m., the lightning leaped forth with great vividness, and the thunder rolled long and loudly. But there was little in these preliminaries to forewarn of the storm of rain and hail about to descend. True, the darkness was abnormal, and the clouds were dark and troubled looking. Very soon the rain descended in torrents, or rather the water was shed down in sheets without raining. For a period of five minutes, or more, enormous hail-stones also fell with the rain. Crops of all descriptions were battered flat under the impact of this combined torrent of rain and hail. The rain lasted for nearly an hour, and flooded fields and gardens, roads, streets, houses and cellars in all directions. Very few roofs proved proof against this enormous downpour, which beat up and along in opposite directions, as if the body of the atmosphere were suddenly transformed into a tempestuous sea of falling water. Within less

than ten minutes every walk and road became a roaring torrent, carrying stones and gravel over flower-beds, fruit and vegetable quarters, meads and fields, and in some cases also crops on light soils away bodily. We had just finished top-dressing the [major] portion of our walks, and now the gravel has engulfed portions of our ribbon borders, Onion quarters, Rose borders, and other crops; and one of the most curious sights ever seen by the writer after the storm was the crowns of Lettuces and other crops appearing above veritable floods of mud and water. Tons of soil and manure also covered the bright gravel walks of a few hours before, and the whole place looks desolate and wrecked through the tremendous rain-storm.

It is greatly feared that the hail has sadly bruised as well as severely chilled fruits and tender vegetables, as well as battered the Roses in bud as well as in blossom. But surely such a terrific deluge in so short a time has done something to rid us of the greatest pest of the season up till now (the Apple maggot), that has riddled our trees as if by a charge of grapeshot. If so, even this destructive storm will not have raged in vain. D. T. F.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

JUNE 26.

THE display of summer flowers and Orchids at the Drill Hall, Victoria, on Tuesday last, was contributed mainly by a few of the leading nurserymen, the exhibits consisting principally of herbaceous Pæonies, Irises, and tuberous Begonias. It is a pity more uncommon plants were not exhibited, as used to be the custom, as in this way the interest in the meetings is sustained.

First-class certificates were awarded as under:—

CALOCHORTUS VENUSTUS CITRINUS.—A beautiful flower from Mr. T. S. Ware, of Tottenham. There are several handsome Mariposa Lilies, or Calochortus, and this is one of the best. It has a large, cup-shaped flower, the colour of a fine shade of yellow, and thickly spotted within the interior at the base, each segment having a blotch of crimson. The Calochorti are not hard to grow in a frame, but will not live out everywhere.

DAPHNIPHYLLUM GLAUDESCENS.—A Japanese shrub that will be valued for its luxuriant, Rhododendron-like foliage, its bushy habit, and its reddish bark and leaf-stalks. *D. viride* has not the red tinge so marked a feature of *glaucescens*. There are large bushes of it in the Coombe Wood nursery of Messrs. Veitch, and there it can be seen how well it is suited for shrubbery borders owing to its bushy and vigorous character and handsome leafage. From Messrs. J. Veitch and Sons, Chelsea.

EULALIA JAPONICA GRACILLIMA.—This is appropriately named, as nothing in this class of plants could be more graceful or beautiful. Its slender, narrow foliage bends over like a reed, and a vigorous specimen, isolated on a lawn or by the side of a stream in the garden, must be a delightful picture. As in the case of the well-known type, it grows when well situated about 5 feet, spreading on all sides, as its habit is strong. We have in this a noteworthy addition to the Eulalias. From Messrs. J. Veitch and Sons.

CÆSALPINIA JAPONICA.—A leguminous shrub from Japan, and belonging to a genus represented in our stoves by several species. The spikes of flowers which were shown by the Messrs. Veitch were cut from a specimen growing in the open in their Coombe Wood nursery. It is allowed to ramble over sticks in a fairly exposed position, and is found quite hardy. Thus we have here a hardy shrub of the greatest value, as the pinnate foliage is as elegant as that of the False Acacia, and a charming contrast to the flowers, which are like those of *Celsia Arcturus* in character, about the size of a halfpenny, and of the clearest yellow, the only other colour being the long-branched reddish stamens. It is a decided acquirement.

RHODODENDRON HIPPOLYTA.—This is a hybrid

between the Sumatran *R. multicolor* Curtisi and *R. Queen of the Yellows*. It has a truss of bloom about as large as that of the last-named and similar to it in size, but of a brilliant carmine shade, of good form, and well displayed. From Messrs. J. Veitch and Sons.

ROSE STRIPED BRIER.—This does not appear to be half so beautiful as the common Dog Rose of the hedgerow, but it is hard to judge of a flower when only a cut bloom or two on short stalks is shown. From Rev. H. H. D'Ombraim, Westwell Vicarage, Ashford.

EPIDENDRUM ATRO-PURPUREUM RANDI.—This was exhibited both by Sir Trevor Lawrence, Bart., Dorking, and Mr. F. G. Tautz, of Shepherd's Bush. It is a good variety, the leaves narrow, deep green, and the pseudo-bulbs rich brown. The spike carries several flowers, the sepals and petals being brown, margined with green; the lip white, and on the front lobe richly stained with crimson.

DELPHINIUM FIGARO.—A rich blue semi-double Larkspur, the centre of a reddish colour. It has a bold, handsome spike. From Messrs. Kelway and Sons, Langport.

D. BASSANTIO.—This is of a brilliant gentian-blue, the centre white. We have not often seen such a colour as this, except in the Gentians. From Messrs. Kelway.

PELARGONIUM SPOTTED BEAUTY.—A large-flowered variety of considerable beauty, the pink flowers being spotted with a reddish colour. From Mr. C. Turner, Slough.

P. AMBASSADRESS.—A useful addition to the charming fancy class; the flowers of an attractive soft pink colour, the centre white. From Mr. C. Turner.

To the following Pæonies, all from Messrs. Kelway and Sons:—

LADY CARRINGTON.—A double-flowered variety of a lovely blush tint; very large.

MARIE KELWAY.—This is also double; the flowers pink with a few yellow petals; it is large, full, and handsome.

AGNES MARY.—This is a striking double flower, the guard petals large, flesh-coloured, and with a crowd of thread-like yellow segments, the large petals in the centre being also of a blush tint.

MISS SALWAY.—This is a double variety of the palest yellow colour; it is full, and of excellent shape.

CYCLOP.—This is one of the finest of the double Pæonies in its line of colour; it is very full, and of the deepest blood-red shade imaginable.

MISS BRICE.—A beautiful double flower, the guard petals brilliant rose-pink with white inner petals, and the centre petals broad, large, and also pink.

HARDY FLOWERS were especially fine, particularly the Irises and Pæonies. A great bank of Pæonies and Irises, Delphiniums, and double and single Pyrethrums came from Messrs. Kelway and Sons, Langport. Amongst the Pæonies well worth noticing were, besides those certificated, the following: *Dunni*, a lovely deep crimson single variety, the colour very rich; *Lady Bramwell*, of a brilliant pink shade and quite double; *Dirceyllis*, single carmine, the stamens yellow; and *Sencadia*, a very rich rose single form. Indeed, the single varieties we admire quite as much as those with double flowers, as the colours are brilliant and the form graceful. *Abotis*, double white, with an occasional shade of pink, is also a useful variety. There was not a bad variety amongst the whole collection. The same firm also had *Gaillardia Hero*, rich yellow and red; and *G. Sirius*, a self yellow. Amongst the Delphiniums, *Banquo*, deep blue, and those certificated showed how much this charming flower is improving under cultivation. The same firm showed also a bunch of the beautiful yellow *Lupinus arboreus*, a hardy flower not often seen. A silver-gilt medal was given. Mr. James Walker, of Whitton, received a similar award for his splendid display of Irises and Pæonies, with a few miscellaneous things. The Irises were mostly of the Spanish class, and amongst the most striking

varieties were Mrs. Beecher Stowe, rich yellow; Bilderdijk, deep blue, the lip richly blotched; Canary Bird, brilliant yellow; Blanche Superbe, white, with a bold deep yellow central band on the lip of the fall. Such kinds as these should be largely grown in gardens, and with them the beautiful English kinds. *Gladiolus The Bride* was also exhibited in excellent condition.

Mr. T. S. Ware, of Tottenham, had a silver medal for a large and representative display of hardy flowers. The bunches of Iceland Poppies in the several varieties—white, sulphur, yellow, and orange-scarlet—show what gay things these are, and their increasing popularity shows their great worth. One named *Papaver nudicaule sulphureum* is of a soft sulphur shade. There was a large mass of the true *Chrysanthemum maximum*, with white flowers like those of the Ox-eye Daisy, varieties of *Lilium pardalinum*, umbellatum or davuricum, and the strongly scented *Martagon*. *Chrysanthemum semiduplex* is a white semi-double flower, and on that account valuable; the blue-flowered *Triteleia laxa*; different kinds of *Pæonies*, and the quaint *Morina longipetala* were included. *Pæony Philomele*, a double variety with pink guard petals and a white thread-like central petal, and *Gaillardias* deserve a note. Messrs. Paul and Son, of Cheshunt, had *Pæonies* in several varieties, and an interesting display of alpine flowers; *Mme. Verneille*, white, double; *Mme. Calot*, blush; *Mme. Lebon*, rich crimson; and *Jeanne d'Arc*, guard petals pink, those in the centre yellow with a tinge of blush, were the finest varieties of *Pæony*. The same firm also had the pink and white *Dianthus Grievei*, a cross between *D. barbatus* and *D. alpinus*; a well-grown plant of *Phyteuma comosum*, the carmine *Epilobium obcordatum*, *Thymus serpyllum coccineum*, crimson, a mass of flowers; *T. s. albus*, pure white, and *Mimulus radicans*, dwarf, bronzy leaves, and white and blue-violet-like flowers, very pretty. Mr. G. F. Wilson, Heatherbank, Weybridge, showed an *Anemone*, allied to *A. polyanthos*, the flower white with black anthers, and about as large as a halfpenny; the stems slender and tall; also a *Campanula* of the *carpatica* character called *G. F. Wilson*, the flowers deep blue, distinctly bell-shaped, and freely produced, the growth dense and neat; and also cut flowers of the delicate blue-coloured *Milla laxa* and *Cereus Alice Wilson*, a splendid new Cactus, the flower very large and resplendent in its scarlet colour, flamed with a purplish shade in the centre segments; the stamens white.

A most interesting exhibit was the Shirley Poppies, from Rev. W. Wilks, Croydon. The flowers have been, by careful culture, raised from the wild field Poppy. The soft pinks, deep reds, and brilliant scarlets are delightful, but there are intermediate shades of all kinds; the frail beauty of the Poppy is charming as here seen.

Messrs. J. Laing & Co., of Forest Hill, were awarded a silver medal for a fine bank of single and double-flowered tuberous *Begonias*, showing that there is still no check yet to the development of this flower, and also showing that the interest in it is as great as ever. Amongst the single varieties, *Monarch*, crimson-rose; *Celeste*, a delightful pink flower; *Mrs. Petch*, white margined with scarlet; *Guardman*, brilliant scarlet; and *Empress Victoria*, a delicate salmon, were the best, and the double varieties, *Lord Loughborough*, scarlet, and *fimbriata rosea*, salmon-pink, are great additions. Messrs. H. Cannell and Sons, of Swanley, also showed tuberous *Begonias* of great merit. Plants of *Carnation Gloire de Nancy*, pure white and very fragrant, came from Messrs. C. Collins and Sons, Camberland Park Nurseries, Willesden.

Mr. Charles Turner, of Slough, had a collection of *Pelargoniums*; the plants were well grown and a mass of bloom, and the zonal *Pelargonium inquinans*, an interesting plant, was sent from the gardens at Chiswick.

Messrs. J. Veitch exhibited a group principally of shrubs. There were varieties of *Acer palmatum*, *Escallonia exoniensis*, deep green foliage and pinky white flowers; *Weigela rosea Looymansii* aurea, yellow foliage; *Raphiolepis ovata*, *Robinia hispida*, large deep pink flowers; *Pæonia Artimense*, rich pink,

double; *Escallonia macrantha sanguinea*, small shining green leaves and deep red flowers; *Philesia buxifolia*; *Elæagnus pungens variegata*, green margined with yellow; the yellow-leaved *Ligustrum vulgare aureum*; *Juniperus virginiana alba spica*, tipped with a silvery white colour; and *Veronica Girdwoodiana*, the flowers rich blue and the growth rather rigid. The same firm also exhibited greenhouse *Rhododendrons*, the result of crosses with *R. Taylori* and *Teysmanni*. *Portia*, pale yellow, and *Juliet*, chrome-yellow, were excellent additions.

ORCHIDS were fairly numerous. Messrs. H. Low and Co., Clapton, were awarded a silver medal for a group of much interest, including some excellent varieties of *Cattleya Mossiae*. There were several specimens of the new, but now comparatively common *Cypripedium bellatulum*, *Vanda Roxburghi*, pale brown sepals and petals, silvery reverse, and rosy lilac lip; *V. teres*, *Dendrobium Bensoniæ*, the yellow *D. Cambridgeanum*, the pure white *Phalenopsis grandiflora*, and the brilliant *D. suavisimum*. Sir Trevor Lawrence, Dorking, showed an imported clump of *Dendrobium Bensoniæ* one mass of bloom, and plants of the magnificent crimson Bull's Blood variety of *Masdevallia Harryana*, also an almost pure white *Miltonia vexillaria*, the lip very large; *Thunia nivalis*, purest white, sepals and petals narrow, and the lip comparatively small; *Cattleya Mossiæ Reineckiana*, white, the lip freckled with purple, and golden colour in the throat, and *C. Warneri*, very rich in colour. Mr. F. G. Tautz, Studley House, Hammersmith, had the interesting, but scarcely attractive, *Ornithocephalus grandiflorus*, which has on medium sized spikes small white flowers, deep green at the base of the sepals and petals; it is also sweet-scented. An excellent form of *Cattleya Aclandiae* was exhibited, and a specimen of the pretty pinky magenta-coloured *Saccolabium Rheedii*. Mr. T. R. White, Drayton Villa, Winchmore Hill, had a good specimen of *Brassia caudata*, the flowers pale brown and white, and with long tails—hence the name.

Mr. Ross, gardener to Sir G. Macleay, Pendell Court, Bletchingley, sent the interesting *Aristolochia trilobata* and *A. ornithocephala*. It would be well if a few more such uncommon plants were shown. The first of the two is very free, and, like a *Nepenthes*, the lid has a long tail, and the leaf is thrice divided. The other is a remarkable plant, the lip about 10 inches in breadth, creamy white, ribbed and spotted with dull brown; the pouch is extended and the beak yellow, lined and blotched with brown.

FRUIT—Of this there was scarcely any. Mr. C. Ross, Welford Park Gardens, Newbury, had a white Grape called *Mrs. Eyre*, a seedling from Black Monukka. It somewhat resembled this Grape; the flesh firm, juicy, and agreeable. Laxton's Noble, King of the Earlies, and other early Strawberries came from the Chiswick gardens, and Laxton's Noble from Messrs. Paul, of Cheshunt. Laxton's Noble is a wonderful cropper, the fruits large, crimson, and handsome.

Council meeting.—A report was read from the sub-committee of council in regard to the arrangements for 1889, and it was decided to give publicity to the following notice:—

That the council, having now in hand the composition of the fruit and floral committees for 1889, would be glad to receive any suggestions from the general body of Fellows as to any Fellows whom they may consider eligible to serve on either committee.

Letters of thanks were read from the Royal Society, Linnean Society, and Society of Antiquaries for the contributions of flowers and foliage plants sent on the occasion of their respective annual *soirées*. A letter from the society's solicitors was read, promising that the new bye-laws, duly revised, should be put before the council within a fortnight.

Royal Botanic Society of London.—The council of the Royal Botanic Society, in communicating with the secretary of the National Co-operative Flower Show, states—

That although it does not come within the province of the society to offer or award medals or prizes other than at its own exhibitions, and has never done so, yet, in consideration of the special features of your national festival and exhibition, the society will be pleased to add one of its bronze medals to your list of prizes.

We understand that the medal will be offered for the best collection of botanical specimens.

ALEXANDRA PALACE ROSE SHOW.

THE Rose season has commenced, and was inaugurated on Wednesday last by an exhibition at the Alexandra Palace, where, considering it is only the end of June, there was a fair display. It is, however, too early a date to get together an exhibition of any extent, and especially so in this backward season, while the dull weather of the last few days has not tended to improve matters. There were a few varieties shown in true exhibition form, and amongst them were the charming *La France*, that is as popular as ever, and the now almost as well known, but yet newer *Madame de Watteville* and *Ulrich Brunner*, two varieties that seem destined to hold the highest places in the list of exhibition Roses. *Maréchal Niel* was also in good character. Judging from this first show, we anticipate a season by no means disappointing. The flowers were displayed to the best possible advantage in the centre transept, and amongst the numerous blooms were a few of surprising merit, though some appeared to have suffered from the heavy rains and storms which we have experienced lately. Messrs. Paul and Son, of Cheshunt, won the first prize for the best forty-eight varieties, distinct, showing flowers of excellent size, finish, and colour, the second award going to Mr. Charles Turner, of Slough, with Mr. W. Rumsey, of Waltham Cross, third. We give all the prize-winners here, as the flowers were, on the whole, extremely good. Messrs. Paul and Son were again in the first place for twenty-four Hybrid Perpetual blooms, the second award going again to Mr. Charles Turner. In the class for twenty-four Tea Roses, Mr. George Prince, Oxford, was first, with Messrs. G. and W. H. Burch, of Peterborough, second; and Mr. Prince was also first for twelve Tea Roses, the second prize being won by Mr. G. Piper, Uckfield.

In the amateurs' section, the best thirty-six blooms were put up by Mr. S. P. Budd, of Bath, the second being Mr. J. Brown, of Reigate. The first-named exhibitor was also the most successful in the class for twenty-four flowers. The best bloom in the exhibition was shown by Rev. G. King, Madington Vicarage, Cambridge, and was a beautiful specimen of *La France*, the colour and form excellent. The *Maréchal Niel* Roses shown by Rev. J. R. Burnside, of Chipping Campden, were charming in colour and quality; he was well placed first, the second prize-winners being Messrs. Harkness Bros., of Bedale, Yorkshire. The *Lady Alice* variety, which has been so much admired this season for its delicacy of tint, was well exhibited by Messrs. Paul and Son, who had twelve good blooms of it, Mr. Budd following with *Alba rosea*, Mr. Rumsey staging *Violette Bouyer*. For the best twelve flowers of that glorious dark Rose, *Marie Baumann*, Messrs. Turner, Paul, and Rumsey were the principal prize-winners. Mr. Brown had the finest pink-coloured flowers.

The miscellaneous exhibits comprised an excellent group of plants from Mr. B. S. Williams, of Holloway, containing fine Orchids and Ferns. Messrs. Hooper and Co., of Covent Garden, showed *Gloxinias*, *Caladiums*, &c.; and Messrs. Cutbush and Son, of Highgate, had miscellaneous plants. Mr. May, of Edmonton, staged a splendid collection of Ferns in pots. Messrs. Paul and Son, of Cheshunt, showed a fine group of pot Roses; and there were many other exhibits, including a good group from Mr. William Colchester, of Ipswich. Mr. T. S. Ware, of Tottenham, had a tasteful group of hardy flowers, the Iceland Poppies being especially gay.

The Gardeners' Orphan Fund.—A meeting of the committee took place at the Caledonian Hotel, Adelphi, W.C., on the 22nd inst., Mr. George Deal presiding. The minutes of the last meeting having been read, the hon. secretary announced that the sum of £40 had been contributed during the past week, £12 10s. of which amount had been sent by Mr. D. T. Fish, local secretary for Bury St. Edmunds. Some discussion ensued on a letter of

inquiry from a local secretary, with the result that the committee laid down two important principles, which, it is believed, will meet with general approval. The first is: That any local secretary obtaining in small sums the amount of £5 in any one financial year shall have a vote for every such amount so obtained, but it is not inclusive of any annual donations or annual subscriptions. The second is: That in the case of donations from local associations, corporate bodies or individuals, such donations will accumulate year by year, and when the sum of £5 is reached it shall be counted as a life subscription and carry a vote accordingly. Some addition to Rule 2 being considered necessary, it was resolved that the committee recommend that Rule 2 be amended at the ensuing annual meeting as follows: Line 3, to add, "in private, public, and market gardens," so that the new reading will be, "foremen in private, public, and market gardens." It should be stated that the committee bring forward this addition in order to widen the basis of the institution, many persons having been led to the conclusion that the market gardening element in particular was excluded from the benefits of the fund. Due notice of this recommendation will be given in the notice convening the meeting in compliance with the regulation set forth in the last rule.

TULIPS AT MANCHESTER.

THE Tulip growers held their annual flower show at Manchester on June 9, and, as is now usual, in the exhibition house of the Manchester Botanical and Horticultural Society at Old Trafford. On this occasion the exhibition was confined mainly to flowers grown in Manchester and its suburbs. There were a few flowers from Wakefield, but Manchester and Stockport contributed the main part. The Rev. Mr. Horner's best flowers were over before the 9th, and he could not compete, and Mr. James Thurston, of Cardiff, was also absent. The incidences of the season had been against a good head of bloom. What with hot scorching sunny weather one day, and on the next a low temperature, biting winds and frost, it was impossible that the flowers could show themselves in their best form. But all who could exhibit did their best, with the result that there was, as usual, an interesting and instructive display.

That curious feature in the physiology of the florists' Tulips, viz., the almost invariable rule that florists' Tulips take the self or breeder form in the seedling state, is not sufficiently understood. I presume they are called "breeders," because they have not yet shown their true character; and season after season as they are grown, now one and now another, in no order of rank or age, will rectify or break, as it is called, into either feathered or flamed flowers, or some mixed attempt at either; and to quote from the Rev. F. D. Horner:—

It is strange that the breeder or mother colour is not simply driven or collected into beautiful markings on the rectified petals, but that it disappears from the flowers altogether, as a mist or veil lifted off. The base colour floods the whole flower with its pure white or yellow, and a new and marvellous colour strikes in to feather or flame the petals.

It is not that the Tulip loses in vigour of constitution by becoming rectified, but growers say that the growth is rarely so tall as in the breeder state. Some of the self-coloured breeders are indescribably beautiful in colour, especially in the case of the roses, and byblœmens; the former is an especially attractive division, whether in the breeder or broken stages.

There are three main divisions of rectified Tulips, the bizarres, the roses, and the byblœmens. The bizarre has a ground colour of yellow, and the markings are black, red, and varying shades of brown. The roses and byblœmens alike have white grounds; the former are marked with rose-red or scarlet; the latter have markings of some shade of purple, from light lilac or pale mauve to all but black, and it is considered the most difficult one of all in good flowers. But each of these divisions is made to form two subdivisions, one composed of feathered and the other of flamed flowers, regulated by the markings upon the petals. Either

the markings are laid on in varying styles of pencilling round the edge only of the petals when it is a feathered flower, or this pencilling is joined by bold beams of colour, that rise like fire-flashes up the petal centre and strike into the pencilling of the rays with their sharp tongues. It must not be supposed that a feathered flower will always bear this character; it makes offsets yearly and so reproduces itself, but the following year the flowering bulb may show the flamed character. In like manner, a flamed flower may the following season be revealed in the form of a feathered variety.

In judging Tulips, the work is done according to certain well understood and to some extent unwritten rules that are handed down from generation to generation by word of mouth and practice. The feathering round the petals should not "skip"—that is, break off at any point before it naturally ceases at the base, nor the flame be thin, undecided, scratchy, or insufficient to strike the feather. The base of the flower must be pure white in a rose or byblœmen, and yellow in the case of a bizarre, and the stamens surmounted by the black anthers be pure also. The property of purity is a very important one, and it has been gained after very many years of careful work with seedlings. Purity gives a life and vivacity to the bloom. A perfect flower has six petals with an anther to each; flowers have been seen with only four petals, and some with as many as eight. The petals are required to be broad, smooth on the edge, as level as possible on the top, and of fine polished surface and substance, and so bending upwards from the base as to first form a good shoulder. These are but a few of the leading points considered in judging Tulips.

A stand of twelve dissimilar varieties is invariably the largest class at a Tulip show, and it must contain one-third part bizarres, two feathered and two flamed; one-third of roses, and one-third of byblœmens, similarly divided. The same variety is frequently shown both feathered and flamed. At Manchester the first prize in this class, generally regarded as the cup, was awarded to an old grower at Stockport, Mr. Alderman Woolley, who exhibited the following: bizarres, feathered—Sir J. Paxton and Sir Sidney Smith; flamed—Dr. Hardy and Sir J. Paxton; rose feathered—Heroine and Mabel; flamed—Mabel and Triomphe Royale; byblœmens, feathered—King of the Universe and Jeannette; flamed—Chancellor and Duchess of Sutherland. The second prize lot from Mr. J. H. Wood, Royton, showed some variation from this, and consisted of bizarres, feathered—Sir J. Paxton and Masterpiece; and flamed, the same varieties; roses, feathered—Modesty and Mabel; flamed—Mabel and Lady Catherine Gordon; byblœmens, feathered—Bessie and Talisman; flamed—Friar Tuck and Talisman. In these two stands we get a fair representation of the leading Tulips in cultivation. The feathered Tulips make a pretty class, and there is always one for three varieties, one of each. Mr. Alderman Woolley was placed first with bizarre, Typo; rose, Alice; and byblœmen, Adonis. The best three flamed came from Mr. A. Fearnley, of Lowton, and consisted of bizarre, Sir J. Paxton; rose, Mabel; and byblœmen, Maid of Orleans.

There are also classes for the breeder Tulips, the largest for six. As a matter of course, in the self state they are neither feathered nor flamed, and so a stand of half a dozen contains two of each division. Mr. Samuel Barlow, Stakehill House, Castleton, was the winner of the first prize. And it is not too much to say he has the finest collection of breeder Tulips in the world. His flowers were bizarres two seedlings, roses Miss B. Countts and Mr. Barlow, byblœmens Glory of Stakehill and George Hardwick. It is quite certain that the breeders whose names are given will break into rectified form of the same varieties when their time comes. Mr. Barlow also had the best three breeders, one of each class.

It used to be thought, and still is thought, by some having but a slight knowledge of the Tulip that means can be adopted to force the breeder Tulips into the broken state. The Rev. Mr. Horner, who has studied the physiology of the Tulip more

than any other living man, states with the authority of a long experience:—

When they will break, and how to break them, no one knows, or ever will know. It is hidden in the silent mystery of the flower's nature. Many coaxings and many hardships, many bribes and tortures have failed to elicit it. Eccentric experiments have been made with different results and no revelations. Change of soil, and especially of locality, seem to do something, perhaps more than anything, towards rectifying breeders, but all is uncertain, and every result past anticipating. All this makes the work wonderfully interesting. The foliage shows long before the bud colours. A mottling and streaking with lighter green, the habit of rectified Tulips, and a certain sign that such a bulb, whether it flower that year or not, has passed from the transient to the permanent stage of its existence.

It is the invariable custom at a Tulip show to select from the whole exhibition a few of the best flowers, and they are denominated premier blooms. At Manchester the premier feathered flower was byblœmen King of the Universe, the premier flamed flower bizarre Sir J. Paxton, the premier breeder byblœmen Glory of Stakehill.

Thirty years ago several collections of the florist's Tulips were grown about London, and also at Hampton, Staines, Slough, &c. It is said there is a collection at Great Gearies, but excepting that it would be difficult to find one within fifty miles of London. A revival of the Tulip in the south is urgently needed, but time alone will show if the Tulip is destined once more to be generally grown in the metropolitan county. R. D.

LAW.

THE NON-GUARANTEE CLAUSE.

REYNOLDS v. WRENCH & SONS. THIS case, which involved the question of the validity of the non-guarantee clause used by wholesale seedsmen, came on in the Court of Appeal before Lord Esher and Lords Justices Lindley and Lopes on the 21st inst. It was an appeal by the defendants from the refusal of the Divisional Court (confirming the judgment of Mr. Justice Denman) to allow their counterclaim against Mrs. Reynolds for damages claimed under the circumstances reported in THE GARDEN, April 28 (p. 399). The court dismissed the appeal, and the question is now, therefore, finally decided, unless the defendants take the case to the House of Lords, which, it is understood, it is not their intention of doing. The clause has now been upheld by every Court before which it has been argued.

BOOKS RECEIVED.

"Journal of the Linnean Society." "Bulletin of Miscellaneous Information." Kew. "An Essay on Food Reform." By H. S. Salt. London: Wm. Reeves, 185, Fleet Street, London, E.C. "Flower Gardening for Amateurs." By Lewis Castle. London: Swan, Sonnenschein & Co., Paternoster Square.

Names of plants.—W. W.—Clematis florida.—F. T. P.—Oncidium Gardnerianum.—W. M.—1, Acries crassifolium; 2, Cattleya Forbesi; 3, Odontoglossum Egertonii, material very poor.—W. Robinson.—1, Dendrobium thyrsiflorum; 2, Acineta Humboldtii.—Geo. Wall.—1, Linaria Cymbalaria; 2, Medicago sp., send when in fruit; 3, Reseda luteola (common Mignonette).—G. M.—Stantonia latifolia.—W. F.—A very fine form of Odontoglossum cirrhosum, but not dark enough for the variety you name.—T. H. A. H.—Olearia Gunni.—F. T.—1, Adiantum pedatum; 2, A. macrophyllum; 3, Asplenium Belangeri; 4, Blechnum longifolium.—M. T.—1, Cattleya Morganiana, and 2, a very fine variety of C. Sanderiana.—Clio.—1, Acries virens; 2, A. Lobbi; 3, Vanda tricolor Melegaris.—X. F. Z.—1, Oncoclea sensibilis; 2, Anchistea virginica; 3, Lastrea Goldiana.—G.—Rhododendron Falconeri.—G. B.—1, Aotus gracillima; 2, Hovea purpurea.—R. C.—Saxifraga rotundifolia.—J. C.—1, Veronica tucurum var.—J. M., Bath.—1, Ethionema grandiflorum; 2, Lysimachia thyrsiflora; 3, Ixiolirion tataricum.—E. M.—1, Saxifraga Willkommii; 2, Saxifraga caespitosa hirta; 3, Saxifraga hypnoides leptophylla; 4, Saxifraga hypnoides; 5, Laburnum alpinum.

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WOODS & FORESTS.

PRUNING.

NOTWITHSTANDING what has appeared in *THE GARDEN* of late for and against the practice of pruning forest trees, I see an excellent article in the issue for June 16 (p. 570) on the same subject, and quoted from the *Farmers' Gazette*. The writer does not give his name, but from first to last, with a few exceptions, the article bears the marks of being compiled by the hand of a practical man. As, for instance, the writer says:—

The season at which all pruning should be performed is winter, or very early in the spring, because if deferred until the roots have sent a supply of sap all over the tree, the quantity in the branches to be lopped off will be lost.

Now, this statement, in its entirety, is rather sweeping. No doubt, the Oak, Ash, and some others will stand pruning in winter or early spring with impunity, but then, again, the common Sycamore, which is one of our best trees both for ornament and utility, cannot be pruned at that season without serious injury on account of bleeding, and the same may be said of the Spanish Chestnut, Walnut, Birch, &c. These trees not only bleed after the operation, but in some cases the wound refuses to heal up, and thus lays the foundation of rot and decay. I have always found it best and safest to prune this class of trees about harvest, and in writing upon this important subject, I consider it best to be particular in specifying the difference thus indicated in order to prevent mistakes. It sometimes occurs that hands can be spared to carry out pruning operations in winter better than at any other period during the year, and in cases where the woods and plantations are of limited extent, and chiefly planted for ornament and shelter, it is an advantage to have the work done and all branches and rubbish removed before the hurry of the spring work sets in, but if the trees are pruned indiscriminately much harm is the result, and this should always be guarded against. Trees that can be pruned in winter and early spring can likewise be pruned when in active growth, and I have never seen any evil results follow such practice, as the healing process commences immediately after the branch is removed, and there is less risk of the tree producing a bundle of suckers at the place where the branch is cut off as is generally the case after winter pruning. With regard to the loss of sap in a branch cut

off when the tree is in active growth, this is a matter of minor importance in comparison to the waste of sap incurred in the production of useless spray produced after winter pruning; and as such spray has to be cut off, this entails extra labour and expense, all of which may be saved by summer pruning. The writer says:—

The plan to prune, then, and it is one which we have invariably pursued, is to do a little at a time, leaving the tree in possession of as many of its top branches as you can consistently with the required length of bole; but the pruner is not to go regularly upwards with his operations, but he is to take out first the larger branches, leaving the smaller ones to swell out the trunk, which in their turn will be removed when that object is fulfilled.

This implies that there is to be a periodical system of pruning carried out, always removing the larger branches along the stem, and although this may be desirable in some isolated cases, yet where trees are grown on a large scale for profit it is too expensive, and the price to be realised for timber as a general rule does not sanction such practice. Few proprietors are able or willing to pay away money in support of a system that will not yield a profit after paying ground rent and incidental expenses. My practice has always been to keep the tree to one stem by the removal of superfluous leaders at the top, cutting back any unwieldy side branches in order to preserve a uniform balance of the top, and removing dead stumps from the trunk to prevent the formation of a black knot in the timber. Thinning should then be conducted in such a way that the trees prune themselves, and as practical experience and observation tell us that the cleanest and finest of timber can be produced in this way, the periodical system of stem-pruning is only an unnecessary waste of time and capital. Large branches cannot be removed from the stem of a tree to any extent without reducing the leafage, and thereby impairing the functions of the tree in the formation of timber, but when the larger branches die gradually and fall to the ground through confinement, the tree receives no sudden check to its growth through the loss of leafage, never gets bark-bound, nor suffers in the least by exposure. The writer is perfectly right in recommending that little be done at a time and the operation repeated often, and, with the exception of cutting back a branch to keep it within due bounds, perhaps this is the nearest approach to Nature's system of pruning. When a tree is confined in the early stages of its growth to such an extent that the side branches lose their

vitality, such a tree is always deficient in roots, and as these are assigned by Nature to purvey food to build up and support the stem, they cannot be impaired to any great extent without reducing the cubic contents of the trunk; therefore, I say allow the young plants space to furnish both root and branch, and cut off any rival leaders. In making these remarks, I by no means despise the paper alluded to, as it contains a good deal of sensible matter, and in pointing out its defects, my aim is to direct attention to the necessity of planting and managing plantations in such a way as to produce the largest quantity of clean-grown timber at the smallest outlay of capital. J. B. WEBSTER.

An unusual crop of Elm seeds.—The Elms are very common about here, and I may say that I have never noticed on them such a crop of seeds as this year. Early in spring the trees assumed quite an unusual reddish grey tint which has only just disappeared. Probably owing to the number of fruiting buds the leaves seem scarce, and branches are only partially clothed, especially at the top of large trees. Caterpillars are also very numerous. This over-production of seed has become quite a nuisance in some gardens. The Grass in places under the trees was covered with a thick layer of seeds, and all the paths required a daily sweeping to keep them clean. In dwelling-houses, as soon as the windows were open, the seeds were flying in all directions. They also came through the sashes of the greenhouses, and are found in the axils of our Vandas, Bromeliads, &c., where, unfortunately, they begin to spring up.—T. SALLIER, *St. Germain-en-Laye*.

Pine woods.—Pine woods possess attractions of a peculiar kind. All lovers of Nature are enraptured with them, and there is a grandeur about them which is felt at once when we enter them. Their dark verdure, their deep shade, their lofty height, and their branches, which are ever mysteriously murmuring as they are swayed by the wind, render them singularly solemn and sublime. This expression is increased by the hollow reverberating interior of the wood, caused by its clearness and freedom from underbrush. The ground beneath is covered by a matting of falling leaves, making a smooth brown carpet, that renders a walk within its precincts as comfortable as in a garden. The foliage of the Pine is so hard and durable that in summer we always find the last autumn's crop lying upon the ground in a state of perfect soundness, and under it that of the preceding year only partially decayed. The foliage of two summers, therefore, lies upon the surface, checking the growth of humble vegetation, and permitting only certain species of plants to flourish with vigour.



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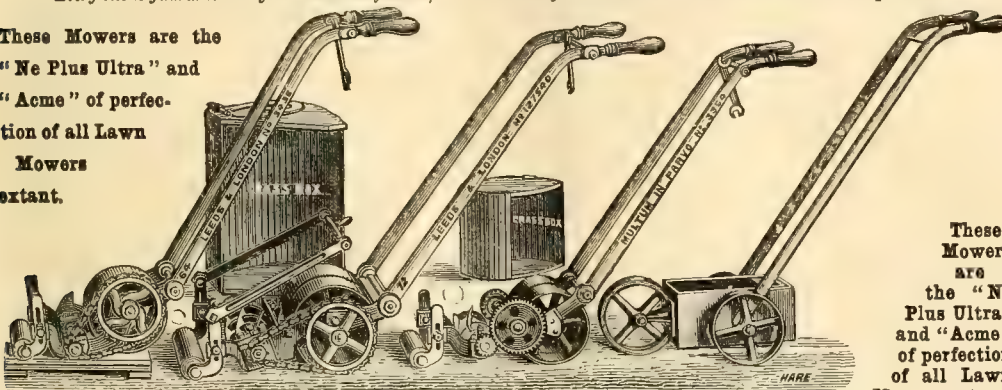


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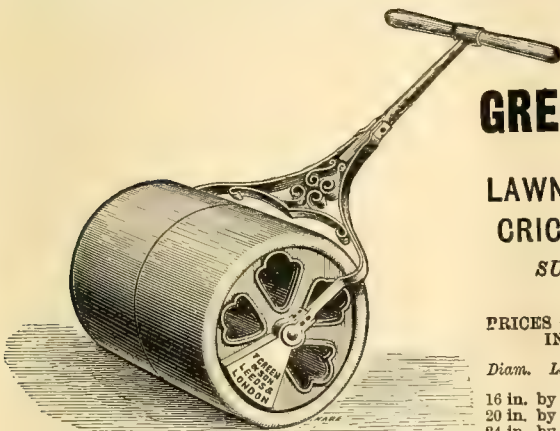
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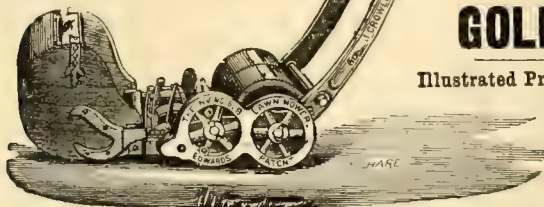


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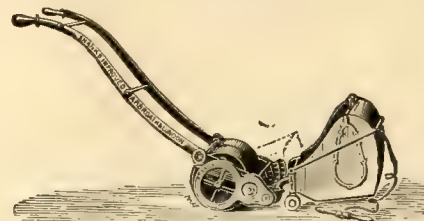
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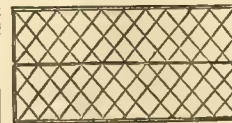
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SOUTH AMERICA.—Wanted, for an English gentleman's house in the Argentine Republic, a married couple, no incumbence; man as Gardener, &c., and woman as Cook; state wages required; board, &c., free.—**WM. SANDEMAN, junr.,** Church, Lancashire.

SITUATIONS WANTED.

To Noblemen and Gentlemen requiring Land Agents, Stewards, Bailiffs, or Gardeners.

JAMES CARTER & CO. have at all times upon their Register reliable and competent men, several of whom are personally well known to Messrs. Carter. Inquiries should be made to 237 and 238, High Holborn, W.C.

RICHARD SMITH & CO. beg to announce that they are constantly receiving applications from gardeners seeking situations, and they will be happy to supply any lady or gentleman with particulars, &c.—**St. John's Nurseries, Worcester.**

SCOTCH GARDENERS.—**JOHN DOWNIE,** Seedsman, 144, Princes Street, Edinburgh, has at present on his list a number of **SCOTCH GARDENERS** waiting re-engagements. He will be pleased to supply full particulars to any Lady, Nobleman, or Gentleman requiring a trustworthy and competent Gardener.

CLERGYMAN is anxious to recommend a Gardener experienced in all branches of profession; age 42; married; earnest churchman and churchworker; good references and testimonials.—Address "J. J. W.," Eton Mission, Coffee Palace, Hackney Wick, E.

FOREMAN in good establishment; age 28; thirteen years' experience; well versed in all branches; filed two similar situations; two years in present.—**G. HOLLIESTER, Redfield, Winslow, Bucks.**

FOREMAN; age 25; abstainer; twelve years' experience in stove and Orchid work, plant and fruit growing, &c.; excellent testimonials as to character and abilities.—"W. W.," 55, Cottesloe, Hemel Hempstead, Herts.

GARDENER (good Single-handed, or where help is given).—**MR. W. DANCE, The Gardens, Gosfield Hall, Halstead,** can highly recommend a man as above; well experienced in all branches; married, no family; age 26.

GARDENER, age 32.—Wanted re-engagement as Head or good Single-handed; thoroughly competent in all branches of the profession; married, one child.—Address **R. BUSHBY, The Lodge, High Bank, Tonbridge.**

GARDENER (Head Working); thorough practical knowledge of Vines, Pines, Peaches, Melons, Cucumbers, stove and greenhouse plants, flower, fruit, and kitchen garden; wife could be useful; no family; age 30; good personal character.—**H. TULLETT, 5, Streatham Terrace, Eardley Road, Streatham, S.W.**

GARDENER (Head Working); practical and trustworthy; age 43; one boy, seven years; wife understands dairy and poultry if required; eight years' excellent reference.—**G. ALLEN, 26, William Street, Reading.**

GARDENER (Head Working); married, no family; age 37; thoroughly practical in all branches of the profession; over twenty years' experience in some of the best places in England; ten years' first class character as head gardener from last employer.—"M. L.," No. 1, Castle Place, Nottingham.

GARDENER.—Wanted by a thorough practical Gardener a re-engagement; eight years with present employer as Head Gardener; good reference; age 35; two children; cause of leaving, gentleman giving up establishment.—Address "H. N.," 30, Albert Street, Wisbech, Cambs.

GARDENER (Head); age 28; married; thoroughly experienced in stove and greenhouse and fruit department, also flower and kitchen garden; highly recommended by present employer, having been with him nearly five years as Foreman.—**J. FRYNELL, Monkshatch, Guildford, Surrey.**

GARDENER (Head); age 37.—Miss Sheridan wishes to recommend **S. PULLMAN**; thoroughly experienced in all branches; highly successful as an exhibitor at Crystal Palace and other shows; had charge of plantations; fourteen years' personal character (ten years as head); leaving through death.—Miss **SHERIDAN, 77, Eaton Sq., S.W.,** or **S. PULLMAN, Evershot, Dorchester.**

GARDENER (Head); has a practical experience of modern gardening in extensive places; qualification good; age 36; married, no family.—Write "W. R.," May's Advertising Offices, 159, Piccadilly.

GARDENER (Head Working); Vines, Peaches, stove, Orchids, Melons, &c.; life's experience; age 40; married, no family; abstainer; wife, house or laundry if required; good character.—**F. SQUIRE, 30, Townshend Cottages, St. John's Wood.**

GARDENER (Second); age 24; abstainer; good experience in all branches of gardening; two years in present situation; highly recommended by present and previous employers.—**FLETCHER, Temple Gardens, Marlow, Bucks.**

GARDENER (Head); thoroughly practical; over twenty years' experience; seven years head in last situation; good references; age 36; married, no family.—"S. K.," Barton Lodge, East Cowes, Isle of Wight.

HEAD Working Gardener; age 39; married; over nine years' good character in present situation as above, where gardening is well carried out; thoroughly practical in every department; large experience in the renovation of gardens, &c.—**J. W. HALL, South Villa, Inner Circle, Regents Park, London, N.W.**

IMPROVER or Under Journeyman, under a good gardener; age 21; three years at Ferryby Brook, Moiley, Derby, under Mr. Whittaker.—Address "W. B.," Ferryby Brook, Breadsall, Derby.

JOURNEYMAN, in a good establishment; eight years' experience; excellent references; age 22.—"J. H. G.," Rectory Cottage, Whitechurch, Oxon.

JOURNEYMAN in the houses, in a good establishment; age 22; four years in present situation; can have excellent recommendations.—**H. SILCOCK, Doveridge Hall, Derby.**

WANTED, a Situation as Second or Under Gardener; two and a half years' good character.—Address **R. ASHMORE, Aldwarke Hall, near Rotherham.**

WANTED, a Situation as Gardener; understands Vines and forcing; seven years' good character; married, one child.—Apply **F. BOOBYER, Iwerne Minster, near Blandford, Dorset.**

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In a great variety of Geometrical Plans and Sections for **GARDEN BORDERS, CONSERVATORIES, JARDINIÈRE, ROOF GARDENS, &c., in Hard, Durable**

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Photo Illustrated Lists sent for Six Stamps on application; also the greatest variety of **VASES and FOUNTAINS.** Photo Illustrated Book sent for inspection on receipt of Twelve Stamps.

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PULHAM & SON, BROXBORNE, HERTS.

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PILLS.—The Great Need.—The blood is the

life, and on its purity our health as well as our existence depends. These Pills thoroughly cleanse the vital fluid from all contaminations, and by that means strengthen and invigorate the whole system, healthily stimulate sluggish organs, repress over-excited action, and establish order of circulation and secretion throughout every part of the body. The balsamic nature of Holloway's Pills exercises marvellous power in giving tone to debilitated and nervous constitutions.

FERNS.—The newest book is Drury's

"Choice British Ferns," descriptive of the many beautiful variations of common Ferns, and instructions for their cultivation, splendidly illustrated. Price 2s. 6d.—London: **L. UPCOTT GILL, 170, Strand, W.C.**

BEES.—All who grow Plants or Fruit should

have Bees.—"The most practical work that has appeared" (*The Field*) is Webster's "Book of Bee-Keeping." "We believe this is the first really practical, well written, and low priced work of the kind yet issued."—*Poultry*. Price 1s., cloth 1s. 6d.—London: **L. UPCOTT GILL, 170, Strand, W.C.**

BANKRUPT Stock Garden Hose, 13d. per foot, being the entire stock of the United Rubber Company. 60 ft., with brass fittings, 10s. 6d.; larger size, 12s. 6d.; Hose Reels, 7s. 9d.; Mowers, 17s. 9d. Samples of Hose, 1d.—Catalogue post free.—**S. GORF, 17, King Street, Covent Garden.**

WEEDS ERADICATED.—Watson's Lawn

Sand (The Original Improved) destroys Daisies, Plantains, Dandelions, &c., and invigorates the Grass. Testimonials and instructions on application. 32s. per cwt.; 28 lb. tins, 9s.; 56 lbs., 17s. each. Sample tins, 5s., 2s. 6d. (post, 3s. 4d.) and 1s. (post, 1s. 6d.).—**W. D. BARBOUR, 3, Park Row, Leeds.**

TIFFANY and Scrim, for protecting Fruit

Trees and Greenhouse Shading, from 2d. per yd. Tanned Netting, in all widths, at wholesale prices. Russian Mats of every description. Raffle for tying. Tobacco Paper and Cloth and all Horticultural Sundries. Price List free.—**J. BLACKBURN and Sons, 4 and 5, Wormwood Street, E.C.**

TANNED NETTING for preserving Fruit

Trees, Flower Beds, &c., from Frost and Blight; 35 square yards for 1s.; sent any width on approval. Carriage Paid on all orders over 5s.—**H. J. GASSON, Fish Merchant, Rye, Sussex.**

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TO BE LET, at 92, Long Acre, W.C., suitable for large firm or institution, and comprising two rooms, 121 ft. by 54 ft. and 40 ft. by 23 ft. respectively, noble front and back staircases; also the Fourth Floor, containing nearly 5000 superficial feet of area, including work-room, with magnificent roof-light, 122 ft. by 28 ft., and Kitchen and Offices.—Apply to **Mr. Wm SIMMONS, Architect, 63, Lincoln's Inn Fields, W.O.**

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RUSTIC SUMMER HOUSES, RUSTIC SEATS, RUSTIC VASES, RUSTIC BRIDGES, RUSTIC WINDOW BOXES in Stock or to order. *The Trade and Furnishing Houses supplied.*
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PARAGON ROAD, NEW KENT ROAD, S.E.
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Horticultural Builder and
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Plans & Estimates on Application

Experienced Workmen sent to any part of the Kingdom.
Testimonial from **Mr. A. WARD, The Gardens, Stoke Edith Park, Hereford.**—"I am most pleased to tell you what a great success the new Boiler is. It maintains a steady temperature in all the different houses, and does not require any driving; and I also find that it is much more economical than the Trentham Boiler was. It is quite a pleasure to the young men to stoke after all the driving we had with the old one, and then they could not get the heat up. I have got a new chimney pot, 14-in. bore, from Doultou's, and have had it put higher than the old one was, as you advised, so that altogether I can pronounce it a perfect success."

PROTECT YOUR GARDENS.—Strong

Garden Netting, 35 square yards for 1s.; is oiled and dressed, and has been preserved for the sea; it consequently prevents the rain from rotting it; it has shrunk too much for any fishing purposes, but is admirably suited for any garden use; hundreds of testimonials. Read the following:—"Broadstairs, Kent, May 4th, 1887.—To my Fellow Gardeners.—I have had garden netting from **G. ROBINSON, Fish Merchant, Rye, Sussex,** and it gives me great satisfaction.—**G. HAWKINS, Gardener to S. E. Wyatt, Esq.**" Sent any width. Carriage paid on all orders over 5s. Commoner Netting at 50 square yards for 1s.—**G. ROBINSON, Fish Merchant, Rye, Sussex.**

FIRE-PROOF CHAMBERS at 63, Lin-

coln's Inn Fields, sanitary and well lighted. Strong-rooms, lift, warmed corridors, speaking tubes, hall porter and resident housekeeper.

REIGATE SILVER SAND.—Coarse and

fine, on rail at Reigate Station, 7s. 6d. per ton, not less than 4-ton trucks. Terms, cash with order.—Apply to **H. SIMS, The Priory, Reigate.**

VIRGIN CORK.—HANDSOME PIECES,

lightest, therefore cheapest; 112lb., 17s.; 56lb., 10s. 6d.; 28lb., 5s. 6d.; 14lb., 3s.—**WATSON and SCULL, 90, Lower Thames Street, London, E.C.**

NURSERYMEN, Florists, and Gardeners.—

For Sale (through dissolution of partnership), The Blackheath Nurseries, a going concern in the centre of a wealthy residential neighbourhood, seven miles from Covent Garden. The long lease of a compact, well established nursery of two acres, with stand in Covent Garden Floral Market; six greenhouses, 125 ft. by 13 ft., and one house 105 ft. by 30 ft., all exceptionally well built and heated. A good jobbing business could also be done.—**R. J. SUTER, 6, Eastcombe Terrace, Blackheath.**

LITHOGRAPHIC COLOURED PLATES

of VEGETABLES, FRUITS, FLOWERS, &c., or ORNAMENTAL COVERS for CATALOGUES.—**MR. G. SEVEREYNS, Lithographer to the Royal Academy, 15, Rue du Boulevard, Brussels.** Established 1829. Especial attention paid to subjects on Botany and Natural History. Copies of any Coloured Drawings can be reproduced of any size that may be required, and Estimates will be furnished on full particulars being addressed to his London agent, **Mr. James Tedder, 149, Kingsland Road, London, E.**

CATALOGUES RECEIVED.

B. S. Williams' (Victoria and Paradise Nurseries, Upper Holloway, N.) New and General Plant Catalogue for 1888.

E. H. Krelage & Son's (Haarlem) General Catalogue of Bulbous Plants.

THE CHRYSANTHEMUM; Its History,

Culture, Classification, and Nomenclature. By **F. W. BURBIDGE.** Second Edition, Cloth, illustrated. Price 3s. 6d.; post free, 3s. 9d.—**THE GARDEN Office, 87, Southampton Street, Strand, London.**

THE PELARGONIUM; Culture of the

various classes. By **HENRY BAILEY.** Post free, 1s.—**THE GARDEN Office, 87, Southampton Street, Covent Garden, London, and through all booksellers.**

MARKETS.

WHOLESALE PRICES.

COVENT GARDEN.

VEGETABLES.

s. d. s. d.	s. d. s. d.
Artichokes, per doz. 1 0-2 0	Beetroot, per doz. 1 0-2 0
Beans, Kidney, per lb. 0 6-0 9	Tomatoes, per lb. 0 6-0 10
Asparagus, per bun. 1 0-4 0	Potatoes, per cwt. 4 0-5 0
Cauliflowers, each 0 3-0 4	Spinach, per bushel 1 6-2 0
Lettuces, per doz. 0 6-1 0	Turnips, per bunch 0 4-0 0
Endive, per doz. 1 0-2 0	Carrots 0 4-0 0
Cucumbers, each 0 4-0 7	Leeks 0 3-0 4
Mustard and Cress 0 4-0 9	Cabbage, per doz. 1 6-0 0
and mixed salads 0 6-1 0	Coleworts, per doz. 2 0-4 0
Mushrooms, per bush 0 6-1 0	bunches 0 3-0 0
Horse Radish, per bundle 1 2-1 6	Onions, per bunch 0 3-0 0

FRUIT.

Bananas, per doz. 1 6-0 0	Cob Nuts and Filberts, per 100 lb. 45 0-0 0
Grapes (hothouse), per lb. 3 0-5 0	Walnuts, per 100 1 6-2 6
Apples (cooking), per sieve 2 6-4 6	Spanish Nuts, Almonds, and Chestnuts, per quart 0 8-1 0
Nova Scotian and Canadian, per bar. 10 0-18 0	Large Walnuts, per 100 0 8-1 0
Lemons, per doz. 0 9-1 0	Oranges (large), per dozen 1 0-0 0
Quinces, per dozen 2 0-1 0	Oranges (small), per dozen 0 8-0 0
Strawberries, per lb. 1 0-2 0	Peaches 0 6-0 12 0
Pine-apples, St. Michael 8 0-5 0	
Pomegranates, doz. 0 0-0 6	
Cocoa-nuts, each 0 0-0 6	

FLOWERS.

Heaths and plants in full blossom, per pot 0 9-1 6	Violets, 12 bunches 1 0-1 6
Baskets of flowers and large bouquets 8 6-10 6	Sprays and button-holes, each 0 4-1 0
	Shrubs and Evergreens for halls, &c., per pot 1 0-1 6

COLUMBIA.

Asparagus, per bun. 0 9-1 6	English Onions, per cwt. 5 0-7 0
Cauliflowers, per tally. 3 0-5 0	Foreign Onions, per bag of 110lb 4 6-5 0
Cabbages, per tally 2 0-4 6	Spring Onions, per doz. bunches 1 6-2 6
Brussels Sprouts, per sieve 4 6-6 6	Lettuces, Cabbage, per doz. 0 8-0 10
Greens, per doz. bunches 1 6-2 6	Lisbon and Spanish Onions, per box 7 0-7 0
Parsnips, per score 0 9-1 0	Winter Spinach, per sieve 2 0-0 0
Spinach, per sieve 1 0-1 6	Apples, American, per barrel 20 0-26 0
Kale, curly, per bushel 2 6-3 6	Cooking Apples, per bushel 9 0-10 0
Sea-Kale, per punnet 1 3-0 0	English Apples, per bushel 9 0-10 0
Broccoli, sprouting, per bushel 3 0-3 6	Blenheim Apples, per bushel 5 6-7 0
Turnip tops, per sack 1 0-1 6	Eating Pears, per bushel 4 0-7 6
Turnips, per doz. bunches 1 6-2 0	Cherries, foreign, per bus. 2 6-4 0
Carrots, per dozen bunches 4 0-6 0	Stewing Pears, per bushel 4 0-5 6
—per ton 120 0-140 0	Strawberries, per 1 lb. punnet 0 4-0 5
Celery, per bund. 0 9-1 2	Gooseberries, per half sieve 2 6-3 0
Radishes, per doz. bunches 0 5-0 8	Beetroot, per doz. 0 8-0 9
Peas, per sieve 2 6-3 6	New Potatoes 0 8-0 9
Savoy, per doz. 2 0-0 0	Jersey Kidneys, per cwt. 7 0-8 0
Leeks, per dozen bunches 2 0-0 0	Jersey flukes, per cwt. 8 0-8 6
Lettuce, Cabbage, per doz. 0 4-0 6	St. Malo rounds, per cwt. 5 6-6 6
—per score 0 4-0 8	Lisbon rounds, per cwt. 5 6-6 0
Cos per score of 22 0 3-0 4	POTATOES—
Cucumbers, frame per doz 2 6-5 0	Early Rose, per ton 70 0-80 0
Tomatoes, English, per lb. 0 8-0 9	Beauty of Hebrons, per ton 120 0-140 0
Mustard and Cress, per doz. baskets 2 0-0 0	Victorias, per ton 85 0-40 0
Beetroot, dozen bunches 0 8-0 9	Regents, per ton 30 0-35 0
Horseradish, per bundle 0 9-1 3	Magnums, per ton 20 0-50 0
Endive, per doz. 1 6-2 0	Presidents, per ton 30 0-50 0
Mint, per doz. bun. 1 6-2 0	Champions, per ton 20 0-30 0
Parsley, per doz. bunches 1 0-1 6	Imperators 30 0-50 0
Rhubarb, per 12 bundles 1 6-2 0	

LIVERPOOL.

POTATOES, Cwt.—	Parsley, per dozen bunches 0 8-10 0
Magnums 1 6-2 6	Onions (Eng.) cwt. 1 3-2 0
Champions 1 3-2 0	Onions, Foreign, per cwt. 4 6-5 6
Sherry Blues 2 6-3 0	Lettuce, per doz. 0 4-0 6
Turnips, per doz. bunches 0 3-0 6	Cauliflowers 1 0-3 0
Ditto Swede, per cwt. 13 0-16 6	Cabbages 0 6-1 3
Carrots, per cwt. 13 0-16 6	Celery 0 6-1 3

STRATFORD.

Asparagus, per bundle 1 0-1 6	Parsnips, per score 0 6-0 9
Brussels Sprouts, per half sieve 3 0-4 0	Peas, per bag 6 0-8 0
Broccoli, per bus. 2 6-3 6	Radishes, per tally 2 0-2 6
Cabbages, per tally 5 0-0 0	Beetroot, per score 0 7-0 0
Carrots, doz. bund. 2 0-7 0	Rhubarb, per dozen bundles 2 0-2 6
Carrots, new per bunch 1 0-1 2	Onions (Lisbon), per case 7 0-8 0
Savoy, per tally 10 6-11 0	Cucumbers (Dutch), per dozen 1 0-1 6
Radishes, per tally 2 6-5 0	Onions (Egyptian), per cwt. 6 0-8 0
Greens, per doz. bun. 6 0-0 0	Onions (Spring), per dozen bunches 3 0-4 0
Cauliflowers, per dozen 3 0-4 0	Onions (Spanish), per case 9 0-11 0
POTATOES—Per ton.	Onions (Dutch), per bag 6 0-8 0
Beauty of Hebrons 100 0-120 0	Onions (German), per bag 12 0-14 0
English Magnums (light) 40 0-50 0	Onions (English), per bag 10 0-12 0
do. (dark) 10 0-20 0	Spinach, per bushel 1 6-0 0
Scotch Magnums 40 0-70 0	Horse Radish, per bundle 1 2-1 4
English Regents 60 0-80 0	Salad, per dozen baskets 0 8-1 6
Scotch Regents 50 0-70 0	Watercress, per doz. 0 6-0 0
Champions 20 0-30 0	Apples, American, per barrel 18 0-25 0
Fenlands 25 0-35 0	Apples, English, per bushel 3 0-7 0
Potatoes, new, per cwt. 7 0-8 0	Pomegranates, per case 6 0-7 0
Lisbon's, per cwt. 9 6-10 0	Cherries, per flat 3 6-4 6
Jersey Kidneys, per cwt. 1 0-8 0	Figs, per cwt. 15 0-0 0
Jersey Flukes, per cwt. 5 0-8 6	Dates, per cwt. 7 0-0 0
Malta, per cwt. 8 0-9 0	Gooseberries, per half sieve 2 6-3 6
—Kidneys, per cwt. 16 0-21 0	Grapes, per lb. 2 0-4 6
—Kidneys, Canary Islands, per cwt. 14 0-20 0	Grapes, per barrel 5 6-18 0
Turnips, per dozen bunches 3 0-3 6	Pears, per bushel 8 0-6 0
—new, per bunch 0 8-1 0	Lemons, per case 11 0-14 0
—per ton 40 0-50 0	Oranges, per case 12 0-16 0
Carrots (household), per ton 60 0-80 0	Cherries, per box 4 0-0 0
—per dozen bunches 3 0-0 0	Walnuts, per peck 2 0-3 0
Parsley, per doz. bunches 2 0-4 0	Spanish Nuts, per dozen quarts 2 6-3 0
Turnip tops, per bag 1 6-2 6	Brazil Nuts, per sk. 4 0-60 0
Herbs, per doz. bunches 3 0-4 0	Cocoa-nuts, per cwt. 88 0-39 0
Salads, per dozen 2 0-2 6	Dates, per cwt. 9 0-14 0
Cucumbers, Dutch, per doz. 1 3-1 6	Almonds, per sack 32 0-34 0
—Framed 3 0-6 0	Chestnuts, per sack 7 0-10 0
Lettuce, per score 0 6-1 0	Carrots, per dozen bundles 2 6-3 6
Leeks, per score 0 9-1 0	
Mint, per doz. bunches 2 0-3 0	
Parsnips, per ton 50 0-70 0	

NEW YORK.

FRUIT.

Apples, inferior, per bbl. 2 00-3 25	Peaches, per crate 1 00-4 00
do. Russet, per bbl. 2 50-3 50	Grapes, Catawba, Isabella 0 0-0 0
Roxbury Russet 2 25-3 25	Strawberries, Jersey per qt. 0 6-10
Common Sorts 1 50-2 00	do. Maryland, per qt. 0 3-8
Lady, per keg 0 0-0 0	South Carolina 0 18-25
Cranberries, Cape Cod, per bbl. 0 0-0 0	North Carolina 0 10-15
Jersey, prime per crate 3 00-3 25	Georgia 0 15-18
Fair to good 0 5-6	Tennessee 0 12-15
Gooseberries, per qt. 0 5-6	Hickory nuts, per bushel 0 0-0 0

DRIED FRUIT.

Apples, sun-dried, per lb. 5 7	Peaches, evap. Del. peeled 16-20
Evaporated 7 1-8 4	Plums, State 10-11
Cherries, per lb. 17-21	Raspberries, evap. 25-30
Blackberries 7 1-3	Huckleberries, new 9-10

BOROUGH AND SPITALFIELDS.

POTATOES—Magnum Bonums, per ton 30 0-70 0	Malta round, sieve 12 0-13 0
Regents 40 0-70 0	New Jersey Kidneys 12 0-19 0
Hebrons 0 0-0 0	Champions 30 0-60 0
New Lisbon round, per cwt. 9 0-11 0	German Reds, per bag 4 6-0 0
	Dutch Rocks 50 0-60 0

PARIS.

FRUITS AND VEGETABLES.

CRIEE ET MAGASINS.—Cours du 29 Juin.

Les 100 kil.	Les 100 kil.
Amandes vertes	Pommes de terre
—1er choix 70 .. à 80 ..	—longues 30 .. à 32 ..
—2e 45 .. à 50 ..	—rondes 22 .. à 24 ..
Haric. verts du Midi	—Bordeaux 22 .. à 24 ..
—fins 65 .. à 75 ..	—Barbentanne 26 .. à 28 ..
—moyens 55 .. à 60 ..	La caisse de 420 à 490
—gros 40 .. à 45 ..	Citrons
—mange-tout 48 .. à 50 ..	—Valence 88 .. à 42 ..
—écossés 55 .. à 60 ..	—Menton 20 .. à 22 ..
—Bordeaux 90 .. à 111 ..	Les 12 bottes.
—la Loire 85 .. à 93 ..	Asperges
Pois	—suiv. choix 6 .. à 15 ..
—verts 45 .. à 50 ..	

Seed Trade.

To-day's market bare of buyers, with consequently a complete absence of business. Just now the consumptive sowing wants are nil, and no speculation worth speaking of has sprung up. Quotations, therefore, are nominal all round, and no scope is afforded for remark.

Flower Show Fixtures.

- June 30.—Eltham and Reigate Rose Shows, Colchester and East Sussex Horticultural Society, Rose Show.
- July 2.—Kettering.
- 3.—Bagshot, Canterbury, Diss, Hereford.
- 4.—Royal Botanic Society's Evening Fête, Croydon, Farnham, Dursley, Wimbleton, Richmond, Hitchin, Enfield.
- 5.—Bath, Farningham, Wanstead, Weybridge, and Norwich.
- 6, 7.—Rose Show at People's Palace.
- 6.—Sutton.
- 7.—National Rose Society's Show at Crystal Palace.
- 9.—Ghent.
- 10.—Royal Horticultural, Ipswich, Gloucester, Oxford.
- 11.—Tunbridge Wells, Twickenham, Wotton-under-Edge, Lee and Blackheath, Bedford, and Ealing.
- 11, 12.—Glasgow and West of Scotland.
- 12.—Chiswick, Mildenhall, Winchester, Oxford, Birmingham, Carlton-in-Workshop.
- 13.—Gardeners' Orphan Fund, Annual Meeting and Dinner.
- 14.—New Brighton.
- 16.—Newcastle-under-Lyme.
- 17.—Leek and Ulverstone.
- 18.—Birkenhead, Moulsey, Wirral.
- 19.—Manchester Rose Show, Helensburgh (West of Scotland Rosarians' Society), Highgate, Harleston Horticultural and Cottagers' Society.
- 19, 20.—Northampton.
- 20.—Darlington Rose Show.
- 21.—Manchester.
- 24.—Royal Horticultural, National Carnation and Picotee Show, Tibshelf.
- 25.—Surrey, Woodford.
- 26.—Southwell, Trentham.
- 31.—Buckingham.
- August 1.—Acton, Luton.
- 4, 6.—Liverpool, Southampton.
- 6.—Headington, Grassmoor, People's Palace.
- 7.—Oxford Carnation and Picotee Show, Leicester.
- 13.—Ghent.
- 14.—Royal Horticultural Society, Clay Cross.
- 15.—Reading, St. Albans.
- 16.—Abingdon, Maidenhead, Aberdare, Ludlow.
- 17.—Exeter.
- 18.—National Co-operative Flower Show at Crystal Palace.
- 21.—Wotton-under-Edge Horticultural Society.
- 22.—Trowbridge.
- 22, 23.—Shrewsbury Floral Fête.
- 22, 23, 24.—Newcastle-upon-Tyne.
- 23.—Royal Horticultural Soc. of Ireland, Dunkeld, and Birnam.
- 23, 24.—Aberdeen.
- 24, 25.—Perth.
- 25.—Wilts.
- 28.—Royal Horticultural, Yarnton, and Cassington.
- 29.—Sherborne.
- 30.—Hawick, Oxfordshire.
- September 4.—Bicester.
- 5, 6.—Royal Caledonian Horticultural Society.
- 7, 8.—Fruit and Dahlia Show at Crystal Palace.
- 10.—Ghent.
- 11.—Royal Horticultural.

HILL & SMITH'S BLACK VARNISH

For preserving Ironwork, Wood, or Stone.



(REGISTERED TRADE MARK.)

AN excellent substitute for oil paint at one-third the cost.

Used in all the London Parks, at Windsor, and Kew Gardens, and on every important estate in the Kingdom. Has stood the test of forty years' trial. Requires no mixing; can be applied cold by any ordinary labourer.

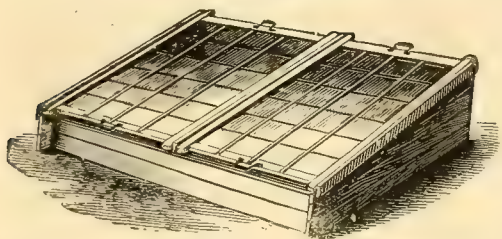
Price 1s. 6d. per gallon at the Manufactory, or carriage paid to any railway station, 1s. 8d. per gallon, in casks of 36, 20, or 10 gallons.

CAUTION.—Every cask bears the above REGISTERED TRADE MARK. Beware of cheap imitations.

HILL & SMITH,

Brierley Hill Ironworks, Dudley;

118, QUEEN VICTORIA STREET, LONDON, E.C.; 47, DAWSON STREET, DUBLIN.



R. HALLIDAY & CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by anyone.

Prices, delivered to any station in England.

2-light frame, 8 ft. by 6 ft.	Packing cases	£ s. d.
3-light frame, 12 ft. by 6 ft.		3 10 0
6-light frame, 24 ft. by 6 ft.		5 5 0
	free.	10 0 0

The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

R. HALLIDAY & Co., Hothouse Builders and Engineers, Royal Horticultural Works, Middleton, Manchester.

PURE WOOD CHARCOAL.

SPECIALLY PREPARED FOR HORTICULTURAL USE.

Extract from *The Journal of Horticulture*.

"Charcoal is invaluable as a manurial agent; each little piece is a pantry full of the good things of this life. There is no cultivated plant which is not benefited by having Charcoal applied to the soil in which it is rooted."

Apply for pamphlet and prices to the manufacturers,

HIRST, BROOKE & HIRST, LEEDS.

GRAVEL! GRAVEL! GRAVEL!

JOHN KNIGHT, Upper Bourne, Farnham, Surrey,

Having a very large quantity of beautiful **RED FARNHAM BINDING GRAVEL** for Carriage Drives and Garden Walks, will sell the same at a very reasonable price.

A large quantity of **SHINGLE** on hand.—Apply as above, or to **Mr. T. FURNISS,** Waterloo Wharf, Epsom, Surrey.

GUNS.—Breechloading Guns.—47 glass balls out of 50 hit and broken with one of my 25s. single-barrel, 12 bore, C. F. hammerless Breechloaders, using ordinary shot cartridges, all sprung from a swift Carver trap. Good Breechloaders from 15s. each, hammerless Breechloaders from 25s. each. These Guns are converted from rifles, bored by a new and improved process, giving longer range and greater penetration, and thoroughly proved and tested. All fitted to take No. 12 central fire shot cartridges; strongly recommended for rook, pigeon, and all long distance and ordinary shooting. **FREE TRIAL** at my range before purchase or approval on receipt of cash.—Further particulars, and full list, apply at **WARRILLOW'S Gun Works,** Chippenham, Wilts.

WRIGHT & HOLMES

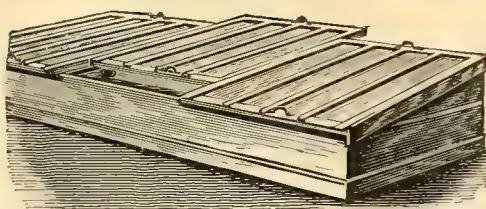


Figure 6.—Cucumber Frames.

Lights two inches thick, glazed with 21-oz. English glass in our patent bars with copper screws. The frames are of superior make, sides and ends being bolted to the iron legs, painted four coats, well finished. Carriage paid to any railway station in England or Wales, at the following low prices for cash:—

8 feet by 6 feet..	£3 4 0	20 feet by 6 feet..	£7 5 0
12 feet by 6 feet..	4 11 8	24 feet by 6 feet..	8 12 6
16 feet by 6 feet..	6 0 0	28 feet by 6 feet..	10 0 0

Packing cases charged 4s. each; if returned carriage paid, full amount allowed. Illustrated price list on application to

WRIGHT & HOLMES

Horticultural Builders and Engineers,

MOSELEY RD., BIRMINGHAM.

THE BEST REMEDY FOR INDIGESTION.



CAMOMILE PILLS.

Are confidently recommended as a simple but certain remedy for

INDIGESTION

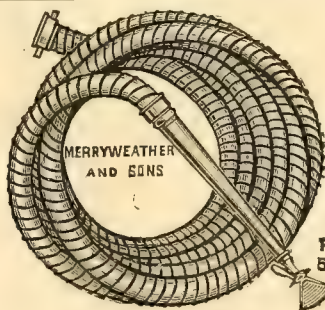
See Testimonial, selected from hundreds:—

CROYDON, 1885.

"Having been a sufferer from Indigestion for many years, I am happy to say that I have at last not only been relieved but perfectly cured by using Norton's Pills, and confidently recommend them to all suffering from the same."
"J. WILKINSON."

For other Testimonials, see Monthly Magazines.

SOLD EVERYWHERE, price 1s. 1½d., 2s. 9d. and 11s.



THE NEW GARDEN HOSE,

MERRYWEATHER'S "SPHINCTER GRIP"

(Flexible India-rubber, Armoured with Galvanised Spring Steel Wire) eclipses all other Hoses for lightness, flexibility, durability. It cannot be kinked, and is practically indestructible. Illustrated and Descriptive Price Lists only from

MERRYWEATHER & SONS, 63, Long Acre, London, W.C.

Merryweather & Sons continue to supply their High-class Red Rubber Garden Hose which has been in such extensive demand for several years past.

GLASS! CHEAP GLASS!

15-oz. per 100 ft.	8/6	STOCK SIZES:
21-oz. " "	12/-	12x10, 18x12, 18x14, 24x14
		14x12, 20x12, 18x16, 24x16
		16x12, 16x14, 20x16, 24x18
		&c., &c.

Putty, 6s. 6d. cwt.; White Lead, genuine, 21s.; our Specialty, 17s. 6d. cwt. Paints ground in Oil—Stone Ochre, 20s.; Oxford Ochre, 24s.; Green, 16s.; Black, 16s. cwt. Varnish from 5s. 6d. gal. Full Price List on application.—**THE CHEAP Wood Co., 95, Bishopsgate St. Within, London, E.C.**

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE, 4-bushel bag, 1s. 3d.; 10 for 11s.; 30 for 30s.; truck, loose, free on rail, 28s. **Orchid Peat**, 8s. per sack; **Best Brown Fibrous Peat**, 5s. per sack; 5 for 22s. 6d.; **Black Fibrous Peat**, 4s. 6d. per sack; 5 for 20s.; **Coarse Silver Sand**, 1s. 6d. per bushel, 14s. half-ton, 25s. per ton; **Yellow Fibrous Loam**, Leaf and Peat-mould, 1s. per bushel; **Bulb and Potting Compost**, 1s. 4d. per bushel, 5s. per sack; **Orchid Baskets**, **Fresh Sphagnum Moss**, **Manures**, **Garden Sticks**, **Archangel** and other Mats. **Tobacco Cloth** and **Paper**, **Virgin Cork**. Write for Price List.

W. E. WARD & CO.,

Union Court, 7, Wormwood Street, London, E.C.

(Close to Broad Street and G.E.R. Stations.)

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TO BE SUCCESSFUL SHOULD USE

WOOD & SON'S

"UNIVERSAL" LIQUID

MANURE POWDER

ESPECIALLY FOR

CHRYSANTHEMUMS.

PRIZES Obtained all through the country last season.

TINS, 1s.; 7lbs., 3s.; 14lbs., 5s.; per cwt., 21s.

BAMBOO CANES .. 30s. per 1000.
"THANATOS" INSECTICIDE .. 1s. and 2s. 6d. tins.

WOOD & SON, WOOD GREEN, LONDON, N.

THE ACME LABELS.

(REGISTERED.)
IMPERISHABLE.



ORCHID LABELS NOW IN STOCK.

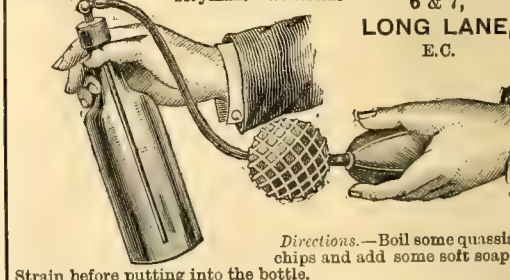
SOLE MANUFACTURER—

JOHN PINCHES,
27, OXENDEN STREET, LONDON.

SAVE YOUR PLANTS AND ROSE TREES

By using "**DESMAREST'S**" SPRAY for killing **GREEN FLIES** and other insects. Will fit any bottle. Price 4s. 6d. each, of any Seedsman or Nurseryman. Wholesale—

**6 & 7,
LONG LANE,
E.C.**



Directions.—Boil some quassia chips and add some soft soap.

Strain before putting into the bottle.

ORCHIDS!!

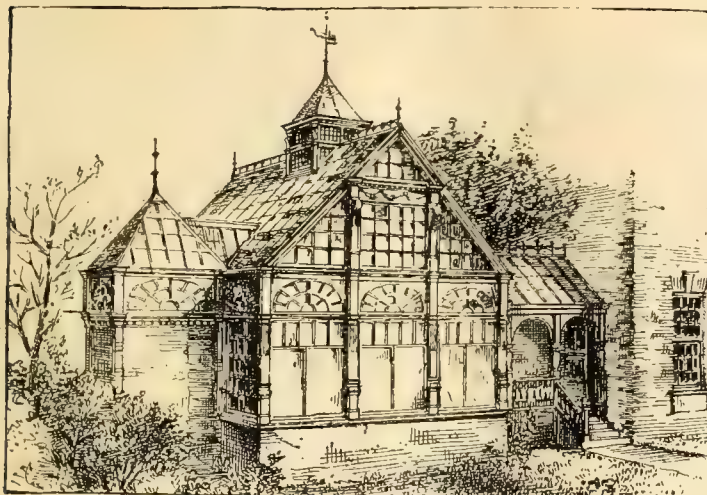
REQUIRE THE VERY BEST

PEAT!! THAT CAN BE FOUND.

The best place where to get such is by applying to the **Orchid Peat Stores, 32, THE POLYGON, N.W.** Ask for "**EXCELSIOR ORCHID PEAT**." Sold in sacks. Prices and samples on application to

JOSEPH ARNOLD,
32, THE POLYGON, LONDON, N.W.

Telegrams—"ALLOQUY, LONDON." TRADE SUPPLIED.
N.B.—PRONOUNCED THE BEST EVER SEEN.

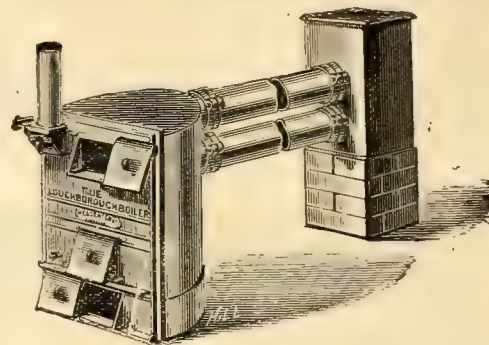


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NEW BOOK of Photo-Lithographed Sketches of Winter Gardens, Ranges of Hothouses, Vineries, Architectural Conservatories, &c., of various Designs and Sizes, recently constructed, erected, fitted, and heated completely by us in different parts of the country; with particulars of the most successful Hot-water Heating Apparatus of the century. Post free on application.

A GOLD MEDAL (the highest award) has been awarded to us in open competition for general excellence in Horticultural Buildings by the Society of Architects.

THE "LOUGHBOROUGH" PATENT GREENHOUSE BOILER.



These celebrated Boilers have been still further improved for this season, and are the most economical, cheapest, and easiest to manage of any Boiler ever brought out. More than 7000 in use. May be inspected in every county. Will burn over 12 hours without attention, the best fuel being coke and cinders.

Prices, carriage paid.—No. 1, £2 12s.; No. 2, £4; No. 3, £5 10s.; also made in three larger sizes, heating from 50 to 1000 feet of pipe. Discount allowed for cash with order. Perfect success guaranteed where our directions are followed. Illustrated Price Lists on application. **CAUTION.**—Beware of imitations, which have had little or no practical test, professing to heat a larger amount of piping for about the same cost, and avoid disappointment and loss.

GARDENERS' ORPHAN FUND. NOTICE.

The **ANNUAL GENERAL MEETING** of the Subscribers to this Fund will be held at the **Cannon Street Hotel, on Friday, July 13 next**, for the purpose of receiving the Report of the Committee and the Accounts of the Fund for 1887-8, electing Officers for the ensuing year, amending Rule II., so as to read as follows:—"Foremen in private, public, and market gardens;" also for the Election of Six Children to the benefits of the Fund.

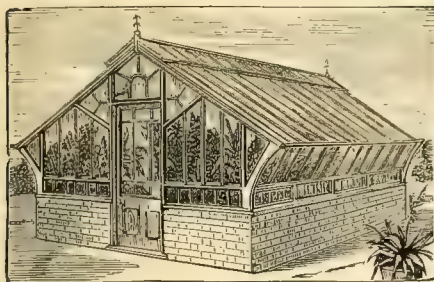
The chair will be taken at **Two o'clock** precisely, and the Ballot will close at **Four o'clock**. The **DINNER** will be held the same evening, at **Five o'clock**, as previously advertised. Tickets, 5s. each.

A. F. BARRON, *Honorary Secretary.*

Royal Horticultural Society's Gardens, Chiswick, London, W., June 25, 1888.

P.S.—The Voting Papers have all been issued. Any Subscriber not having received one is requested to communicate with the Secretary.

WRINCH & SONS, IPSWICH HORTICULTURAL BUILDERS.



WRINCH & SONS' REGISTERED GREENHOUSE.
Pattern, No. 20. Registered Design, No. 6516.

THE BEST GREENHOUSE IN THE WORLD.
Catalogues and Estimates free on application.

WRINCH & SONS, IPSWICH
And 57, HOLBORN VIADUCT, LONDON, E.C.

RUSSIA MATS & RAFFIA.

ARCHANGEL and other MATS. RAFFIA FIBRE.
SPECIAL QUOTATIONS ON APPLICATION.

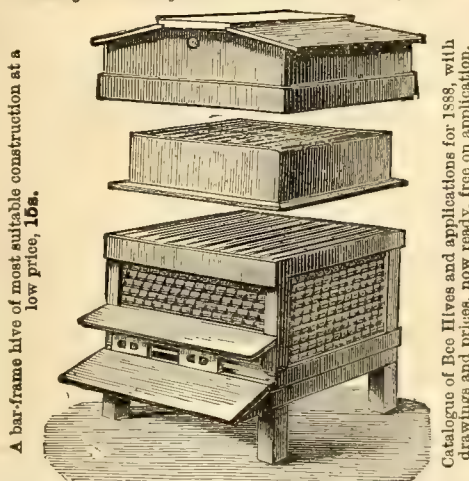
JAMES T. ANDERSON,
135, COMMERCIAL STREET, LONDON, E.C.

WARM your CONSERVATORY with the "Reliance" Gas Boiler, patented 1887 (fixed inside with perfect safety). Price from 37s. 6d. Prospectus free.—G. SHREWSBURY, 122, Newgate Street, London, E.C.

"Gather Honey from your Flowers."

CELEBRATED BEE HIVES

For taking the Honey without the destruction of the Bees.



A bar-frame hive of most suitable construction at a low price, 10s.

Catalogue of Bee Hives and applications for 1888, with drawings and prices, now ready, free on application.

SILVER and BRONZE MEDALS, as well as Certificates, have been awarded for **Improved Cottage and Bar-frame Bee Hives** at most of the Exhibitions held since, and including, that of 1851.

G. Neighbour & Sons, 127, High Holborn, & 149, Regent St.

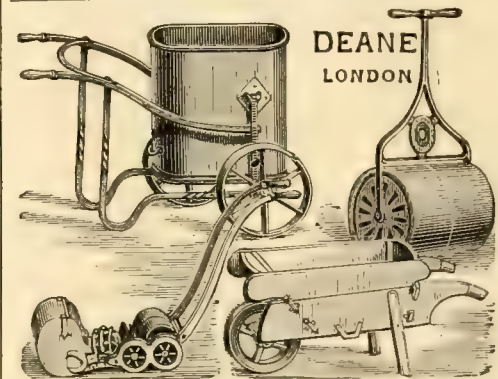
TANNED NETTING for protecting FRUIT TREES, FLOWER BEDS, &c., from frost and blight; also useful for stopping LAWN TENNIS BALLS. 1d. per yd., 3ft. wide; 2d. per yd., 6ft. wide; 110 yds., 6ft. wide, 15s.

GOWLAND & CO., Fishing Tackle Makers,
4, CROOKED LANE, LONDON BRIDGE.

MESSINGER & CO.'S SPAN & LEAN-TO GREEN- HOUSES FOR AMATEURS

Are made in lights, are very portable, and easily put up by local tradesmen. Having made a speciality of these Greenhouses, we can confidently recommend them as by far the cheapest and best houses made. Any size made. Lean-to, 12 ft. by 8 ft., £10 12s.; Span, £11 15s. Lean-to, 10 ft. by 6 ft., £6 15s. 6d.; carriage paid.

MESSINGER & CO., Loughborough, Leicestershire



DEANE
LONDON

LAWN MOWERS. All the best makes in stock: Excelsior, Invincible, Godiva, Shanks', Green's, Ransome's.
GARDEN SEATS, TABLES, WIREWORK, TOOLS, &c.

GARDEN ROLLERS.

Double Cylinder.	Single.
20 by 18in. 50s.	16 by 16in. 32s.
22 by 20in. 55s.	18 by 18in. 35s.
24 by 22in. 65s.	20 by 20in. 45s.
26 by 24in. 80s.	22 by 22in. 52s.

SWING WATER-BARROWS.
15 Gall. .. 30s. 30 Gall. .. 46s.
20 Gall. .. 36s. 40 Gall. .. 54s.

WOOD BARROW.

Well made and cheap .. 24/6
With loose top, as shown 32/6

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CONTRACTORS TO HER MAJESTY'S WAR DEPARTMENT.

THE THAMES BANK IRON COMPANY

(TELEGRAPHIC ADDRESS, "HOT-WATER, LONDON." TELEPHONE—No. 4763.)

ORIGINAL MANUFACTURERS of this CLASS of BOILER.

SUPPLIED IN SEVERAL SIZES FOR THE LAST THIRTY-FIVE YEARS TO THE LEADING HORTICULTURISTS.

Several improvements have from time to time been introduced, including Water Bars, Furnace Door hung upon the front of Boiler, &c., as shown in illustration,



tion, thus making it complete in itself.

There has been a great demand for this Boiler, and the success attending it has been general.

THE LARGEST AND MOST COMPLETE STOCK OF
HOT-WATER BOILERS OF EVERY DESCRIPTION, PIPES, CONNECTIONS,
VALVES, VENTILATING GEAR, &c.,

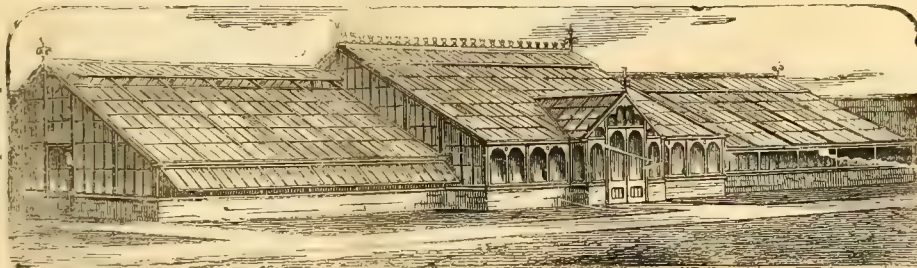
AND INVITE INSPECTION OF SAME.

Price List on application, Free.

Illustrated Catalogue, One Shilling.

UPPER GROUND STREET, BLACKFRIARS, S.E.

TEN FIRST PRIZE MEDALS
Recently
Awarded in open competition.



TEN FIRST PRIZE MEDALS
Recently
Awarded in open competition.

R. HALLIDAY & CO.

HOTHOUSE BUILDERS AND HOT-WATER ENGINEERS,
ROYAL HORTICULTURAL WORKS, MIDDLETON, MANCHESTER.

Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan are the perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work and that THE VERY BEST.

Conservatories and Winter Gardens designed architecturally correct without the assistance of anyone out of our firm from the smallest to the largest. Hot-water Heating Apparatus, with really reliable Boilers, erected and success guaranteed in all cases. Melon Frames, Sashes, Hot-bed Boxes, &c., always in stock.

Plans, Estimates, and Catalogues free. Customers waited on in any part of the kingdom.

OUR MAXIM IS AND ALWAYS HAS BEEN—

MODERATE CHARGES! FIRST-CLASS WORK!! THE BEST MATERIALS!!!

MOURNING.

Messrs. JAY'S experienced Dressmakers and Milliners travel to any part of the Kingdom free of expense to Purchasers. They take with them Dresses and Millinery, besides patterns of materials, at 1s. per yard and upwards, all marked in plain figures, and at the same price as if purchased at the warehouse in Regent Street. Reasonable Estimates are also given for Household Mourning at a great saving to large or small families. Funerals at stated charges conducted in London or Country.

JAY'S,

THE LONDON GENERAL MOURNING WAREHOUSE, REGENT STREET, W.

SAVE HALF THE COST!!!

GARSDIE'S SILVER SAND

(coarse and fine) is admitted by the leading Nurserymen to be THE BEST QUALITY obtainable in the trade. Consumers should BUY DIRECT from the Owner of these celebrated and extensive Pits, which contain a practically inexhaustible supply of splendid Sand, and thus save half the ordinary cost. NO TRAVELLERS OR AGENTS. Apply direct to the Proprietor for Samples and Prices. Free on Rail or Canal. All Orders executed with the utmost promptness, and under personal supervision. Special railway rates in force to all parts.

GEORGE GARSDIE, JUNR., LEIGHTON BUZZARD, BEDS.

SILVER SAND.

STOCK	SIZES.
14 x 12	20 x 15
16 x 12	20 x 16
18 x 12	22 x 16
20 x 12	24 x 16
16 x 14	20 x 18
18 x 14	22 x 18
20 x 14	24 x 18

Apply for Stock Lists and Prices of above; also Propagating Glasses, &c.; Colour and Varnish Price Lists; Sheets of Designs of Stained Leaded Glass, free. Quote GARDEN.

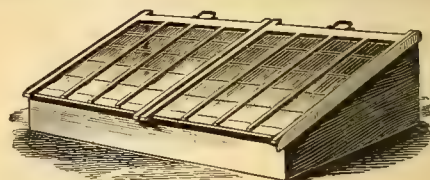
GEORGE FARMLOE & SONS,

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BOULTON & PAUL, HORTICULTURAL BUILDERS.

OUR 8 FEET BY 6 FEET

2-LIGHT MELON & CUCUMBER FRAMES



ARE £3 EACH. CARRIAGE PAID.

Made of the best Red Deal. English 21 oz. Glass. Painted three coats best colour.

3 LIGHTS, 12 feet by 6 feet £4 5s.

For other sizes, see New PRICE LISTS, post free.

NORWICH.

SCHWEITZER'S

COCOATINA,

Anti-Dyspeptic Cocoa or Chocolate Powder.

Guaranteed Pure Soluble Cocoa of the Finest Quality, with the excess of Fat extracted.

THE FACULTY pronounce it "the most nutritious, perfectly digestible beverage for Breakfast, Luncheon, or Supper, and invaluable for Invalids and Children.

Being without Sugar, Spice, or other admixture, it suits all palates, keeps better in all climates, and is four times the strength of Cocosas thickened, yet weakened with Arrowroot, Starch, &c., and in reality cheaper than such mixtures.

Made instantaneously with boiling water, a teaspoonful to a Breakfast Cup costing less than a halfpenny.

Cocoatina a la Vanille

Is the most delicate, digestible, cheapest Vanilla Chocolate, and may be taken when richer Chocolates are prohibited.

In tins, at 1s. 6d., 3s., 5s. 6d., &c., by Chemists and Grocers. Retailed in 1 lb., 1/2 lb., and 1 lb. tins at 1s., 1s. 11d., and 3s. 8d. 45, FARRINGTON STREET, LONDON, E.C.

TANNED GARDEN NETTING.

ELASTIC NETTING, TIFFANY,

WILLESDEN ROT-PROOF SCRIM AND CANVAS, ARCH-

ANGEL MATS, RAFFIA.

GARDEN TENTS, FLAGS, RICK CLOTHS, &c.

Send for samples and prices to

JOHN EDGINGTON & CO.

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The Best and Safest Insect Destroyer.

SOLD BY ALL SEEDSMEN & NURSERYMEN.

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Sole Proprietors,

JAMES CARTER, DUNNETT & BEALE,

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Each bottle bears full instructions for application.

MADE WITH BOILING WATER.

EPPS'S

GRATEFUL—COMFORTING.

COCOA

MADE WITH BOILING MILK.

Printed and published by the proprietor, W. ROBINSON, at the office, 37, Southampton Street, in the parish of St. Paul, Covent Garden, in the City of Westminster, Saturday, June 30, 1888.

